

**Modify FM Translator K290BU
CH290D (105.9 MHz) – 0.250 kW ERP DA Booneville, Etc. AR
to
Proposed CH 222D (92.3 MHz) – 0.250 kW ERP DA - Booneville, Etc. AR**

August 22, 2023

Technical Narrative

This Technical Narrative and attached exhibits were prepared on behalf The Baker Family Trust, (“Baker”), licensee of FM translator station K290BU, Channel 290D, Facility ID No. 22426 Booneville, Etc, Arkansas.

Baker herein proposes to modify the license of FM translator K290BU by changing to non-adjacent Channel 222D and changing the directional antenna pattern. A comprehensive exhibit demonstrates that the proposed non-adjacent channel change complies with FCC Section 74.1233(a)(1). The proposed K290BU will operate on Channel 222D with 250 watts ERP directional at 18 meters height above ground and 587 meters height above average terrain. The modified K290BU will be used as a fill-in translator for KLFH, Channel 214C0, Facility ID No. 89309, licensed to Fort Smith, AR. Baker has obtained written consent to retransmit KLFH from Educational Media Foundation, the licensee of KLFH. An exhibit is included with this application which shows compliance with FCC Section 74.2101(g) by demonstrating that the proposed K290BU FCC F(50,50) 60 dBu contour is contained inside the licensed KLFH FCC F(50,50) 60 dBu contour.

Another exhibit provided is a channel study using Section 73.207 separation distances for Class A FM stations. This channel study is provided as a courtesy to Commission staff to help identify potential contour overlap with other FM facilities.

Section 74.1204 contour protection exhibits are included for co-channel full power FM stations KREU, Channel 222A, Roland, OK, and KIPR, Channel 222C1, Pine Bluff, AR, and second adjacent full power FM station KDYN-FM, Coal Hill, AR.

No change in the K290BU transmit location is being proposed. Therefore, an exhibit demonstrating compliance with Section 74.1233(a) "Common Overlap" is not provided.

A study has been undertaken to show the proposed K290BU facility is in compliance with the Commission's radio frequency emission limits and that information is included in exhibits.

Non-Adjacent Channel Change Request

The Baker Family Trust, (“Baker”), licensee of FM translator station K290BU, Channel 290D, Facility ID No. 22426, Booneville, Etc, Arkansas is seeking non-adjacent Channel 222D (92.3 MHz) for K290BU. In FCC 1940 MB Docket No. 18-119 released May 9, 2019, the Commission adopted changes to Section 74.1233(a)(1) which allows an FM translator to change to any available same-band FM channel as a minor change, upon a showing of actual or predicted interference to or from any other broadcast station. The standard established in this policy is the FM translator FCC F(50,50) 60 dBu contour overlaps the 45 dBu contour of a co-channel or first adjacent channel FM station or another co-channel or first adjacent channel FM station’s FCC F(50,50) 60 dBu contour overlaps with the FM translator’s 45 dBu contour.

The map included with this exhibit demonstrates that the 45 dBu contour of co-channel full power FM station KLAZ, Channel 290C1, Hot Springs, AR overlaps the FCC F(50,50) 60 dbu contour of the K290BU licensed facility.

Therefore, it is believed that the proposed K290BU non-adjacent channel change meets the requirements established in FCC 1940 MB Docket No. 18-119.

K290BU

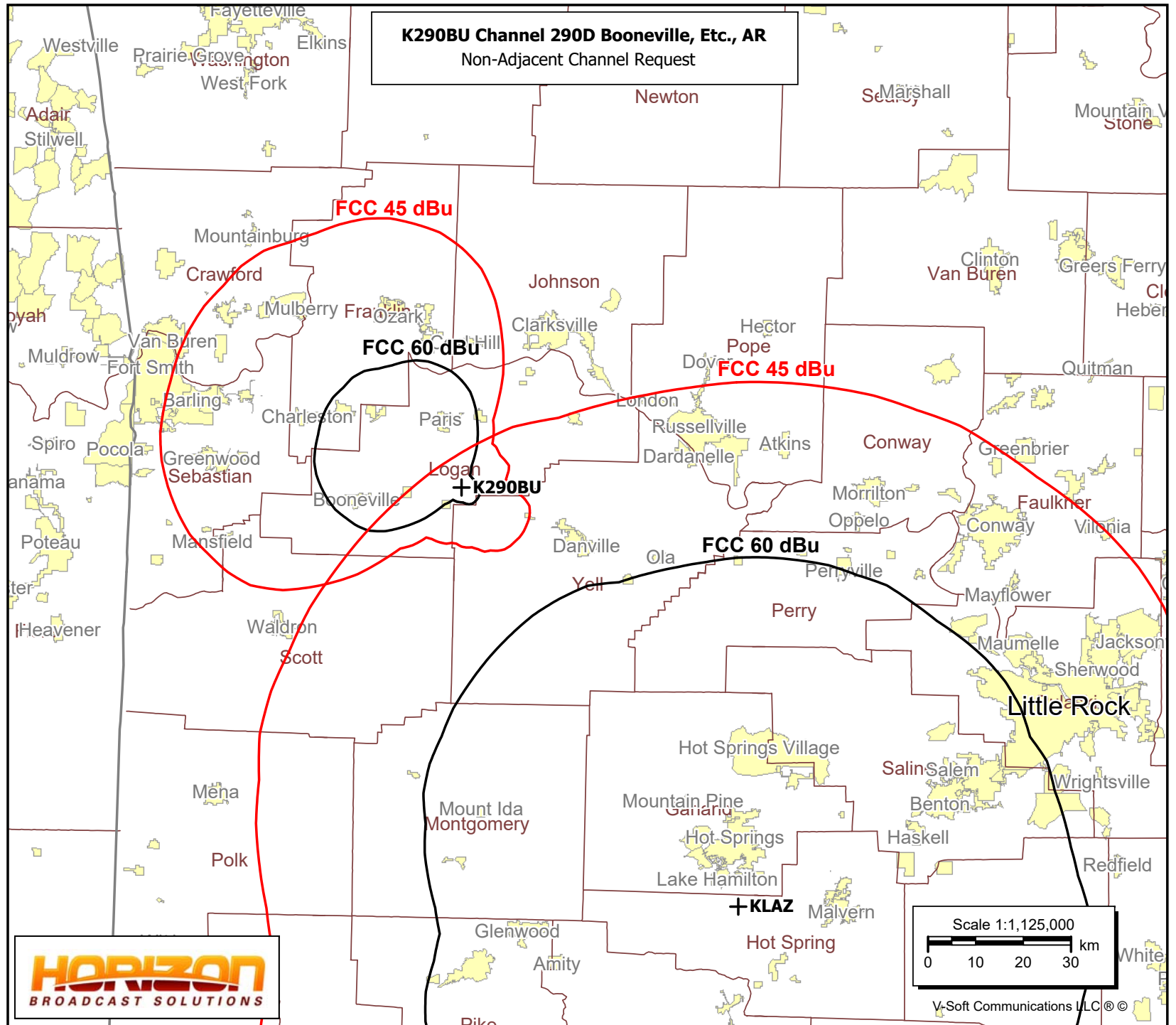
Booneville, Etc., AR
BLFT20151218AU
Latitude: 35-09-48.30 N
Longitude: 093-40-50.60 W
ERP: 0.25 kW
HAAT: 587.0
Channel: 290
Frequency: 105.9 MHz
AMSL Height: 835.0 m
Elevation: 817.0 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: FCC Model
Loc. Variability: 50.0%
Time Variability: 50.0%
HAAT Mthd: FCC

KLAZ

Hot Springs, AR
BLH19890619KC
Latitude: 34-22-20.30 N
Longitude: 093-02-51.60 W
ERP: 95.00 kW
HAAT: 303.0
Channel: 290
Frequency: 105.9 MHz
AMSL Height: 465.0 m
Elevation: 293.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: FCC Model
Loc. Variability: 50.0%
Time Variability: 50.0%
HAAT Mthd: FCC

K290BU Channel 290D Booneville, Etc., AR

Non-Adjacent Channel Request



K290BU

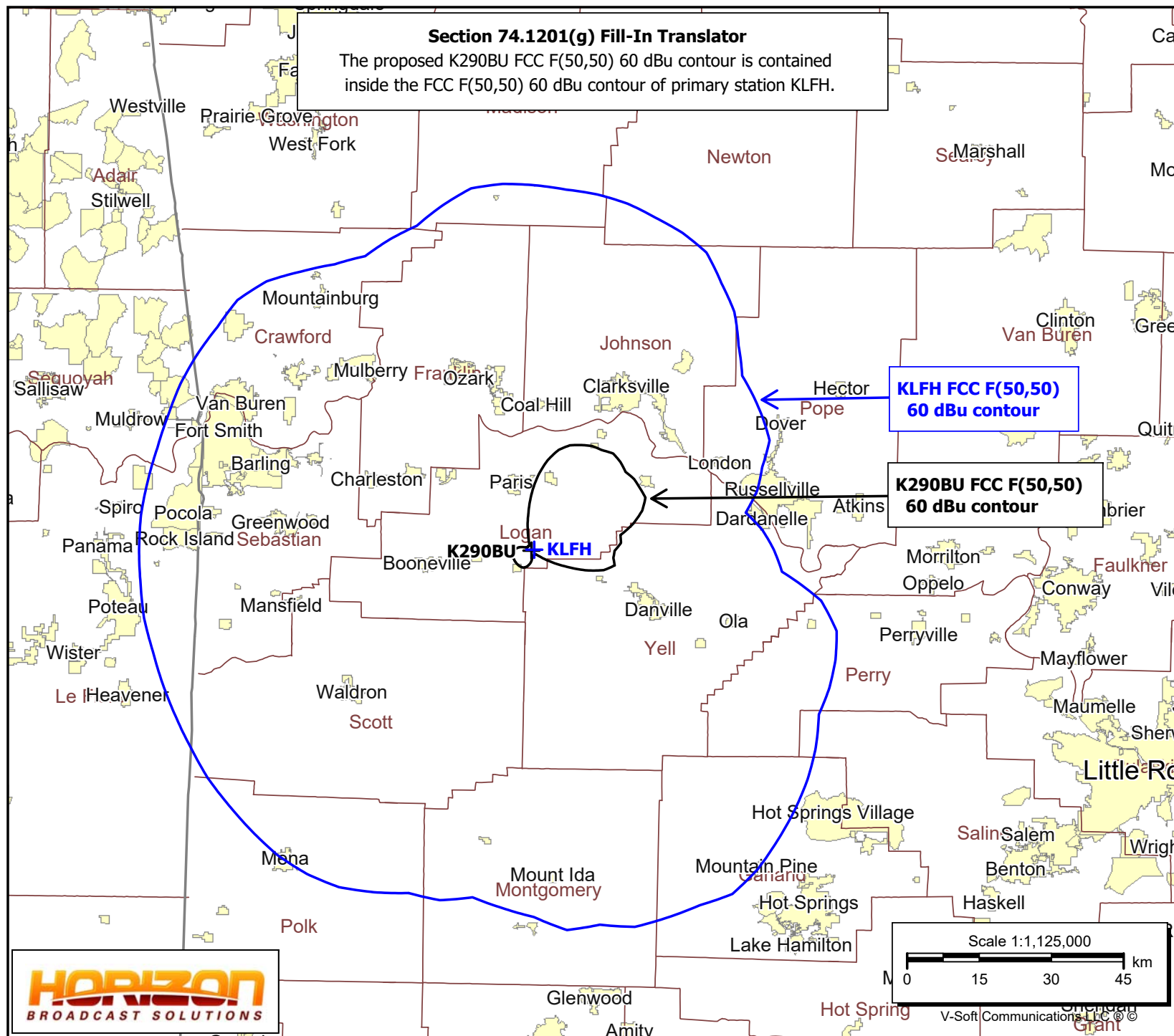
Booneville, Etc., AR
BLFT20151218AUY
Latitude: 35-09-50 N
Longitude: 093-40-59.60 W
ERP: 0.25 kW
HAAT: 573.63
Channel: 222
Frequency: 92.3 MHz
AMSL Height: 831.04 m
Elevation: 813.04 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: FCC Model
Loc. Variability: 50.0%
Time Variability: 50.0%
HAAT Mthd: FCC

KLFH

Fort Smith, AR
BLED20170221ABX
Latitude: 35-09-56.30 N
Longitude: 093-40-36.70 W
ERP: 26.00 kW
HAAT: 636.0
Channel: 214
Frequency: 90.7 MHz
AMSL Height: 890.0 m
Elevation: 813.8 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: FCC Model
Loc. Variability: 50.0%
Time Variability: 50.0%
HAAT Mthd: FCC

Section 74.1201(g) Fill-In Translator

The proposed K290BU FCC F(50,50) 60 dBu contour is contained inside the FCC F(50,50) 60 dBu contour of primary station KLFH.



K290BU Channel 222 Study

REFERENCE		CLASS = A Int = AA		DISPLAY DATES	
35 09 50.0 N.		Current Spacings to 3rd Adj.		DATA 08-22-23	
93 40 59.6 W.		Channel 222 - 92.3 MHz		SEARCH 08-22-23	

Call	Channel	Location	Azi	Dist	FCC	Margin
Lat.	Lng.	Ant	Power	HAAT		
KREU	LIC-Z 222A	Roland	OK 302.0	75.8	114.5	-38.7
35 31 22.3	94 23 32.7	Z	0.740 kW	284 M		
		Star 92 Co.	BLH19951023KB			
Note: See Section 74.1204 Contour Protection: KREU						
KIPR	LIC 222C1	Pine Bluff	AR 122.1	164.2	199.5	-35.3
34 22 12.3	92 10 07.5	CN	100.000 kW	286 M		
		Radio License Holding Cbc,	BLH19860501KF			
Note: See Section 74.1204 Contour Protection: KIPR						
KDYN-FM	LIC 224C3	Coal Hill	AR 332.2	40.4	41.5	-1.1
35 29 09.4	93 53 30.2	CN	12.500 kW	144 M		
		Ozark Communications, Inc.	BLH20130417ABG			
Note: See Section 74.1204 Contour Protection: KDYN-FM						
767530	CP -D 220A	Clarksville	AR 32.8	39.3	30.5	8.8
35 27 40.0	93 26 52.0	DCN	1.400 kW	-7 M		
		Johnson County Community R	0000166778			
KDQN-FM	LIC 221C2	De Queen	AR 208.3	118.1	105.5	12.6
34 13 35.4	94 17 35.7	CN	50.000 kW	150 M		
		Bunyard Broadcasting, Inc.	BMLH19991006ABB			
KPRV-FM	LIC 223A	Heavener	OK 250.3	86.6	71.5	15.1
34 53 54.3	94 34 30.8	CN	1.550 kW	195 M		
		Leroy Billy	BLH19970822KD			
KXRJ	LIC 220A	Russellville	AR 73.3	51.7	30.5	21.2
35 17 47.3	93 08 18.6	HN	0.100 kW	-28 M		
		Arkansas Tech University	BLED19890405KB			
KQSM-FM	LIC-N 221C3	Fayetteville	AR 345.6	110.4	88.5	21.9
36 07 38.2	93 59 23.7	NCN	7.600 kW	162 M		
		Cumulus Licensing LLC	BLH19960202KA			
KQLO-LP	CP 276L1	Clarksville	AR 32.8	39.3	5.5	33.8
35 27 39.7	93 26 51.8	CN	0.100 kW	-5 M		
		Johnson County Community R	0000194906			
KHPQ	LIC-N 221C3	Clinton	AR 64.0	123.3	88.5	34.8
35 38 37.2	92 27 33.5	NCN	10.000 kW	156 M		
		King-Sullivan Radio	BLH19940712KZ			
KARG	LIC 219C2	Poteau	OK 263.8	91.4	54.5	36.9
35 04 17.3	94 40 47.8	CN	2.500 kW	569 M		
		American Family Associatio	BLED19980130KD			
KVRE	LIC 225C3	Hot Springs Village	AR 135.9	80.5	41.5	39.0
34 38 32.3	93 04 17.6	CN	25.000 kW	99 M		
		Caddo Broadcasting Company	BLH20140828ACW			

Call	Channel	Location		Azi	Dist	FCC	Margin
Lat.	Lng.	Ant	Power		HAAT		
K223DK/K2	APP-D 223D	Morrilton	AR	91.1	74.3	33.5	40.8
35 08 54.0	92 52 05.0	DCN	0.250 kW	0 M			
Bobby D. Caldwell Revocabl			0000212619				
K223DK/K2	CP -D 223D	Morrilton	AR	91.1	74.3	33.5	40.8
35 08 54.0	92 52 05.0	DCN	0.250 kW	0 M			
Bobby D. Caldwell Revocabl			0000197665				
KNNU	LIC 222C2	Antlers	OK	242.0	214.7	165.5	49.2
34 14 30.4	95 44 37.9	CN	27.000 kW		36 M		
Payne 1 Communications LLC			BLH20091223AEP				
KWQX	LIC 220A	Perryville	AR	110.5	81.4	30.5	50.9
34 54 16.3	92 50 54.6	CN	0.140 kW		75 M		
Perry County Educational M			BLED20111021AAA				
KHPQ	ALO 221C3	Clinton	AR	66.1	140.0	88.5	51.5
35 39 52.3	92 16 06.6		0.000 kW		100 M		
King-Sullivan Radio							

K290BU

Booneville, Etc., AR
Latitude: 35-09-50 N
Longitude: 093-40-59.60 W
ERP: 0.25 kW
HAAT: 573.63
Channel: 222
Frequency: 92.3 MHz
AMSL Height: 831.04 m
Elevation: 813.04 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: FCC Model
Loc. Variability: 50.0%
Time Variability: 50.0%
HAAT Mthd: FCC

KREU

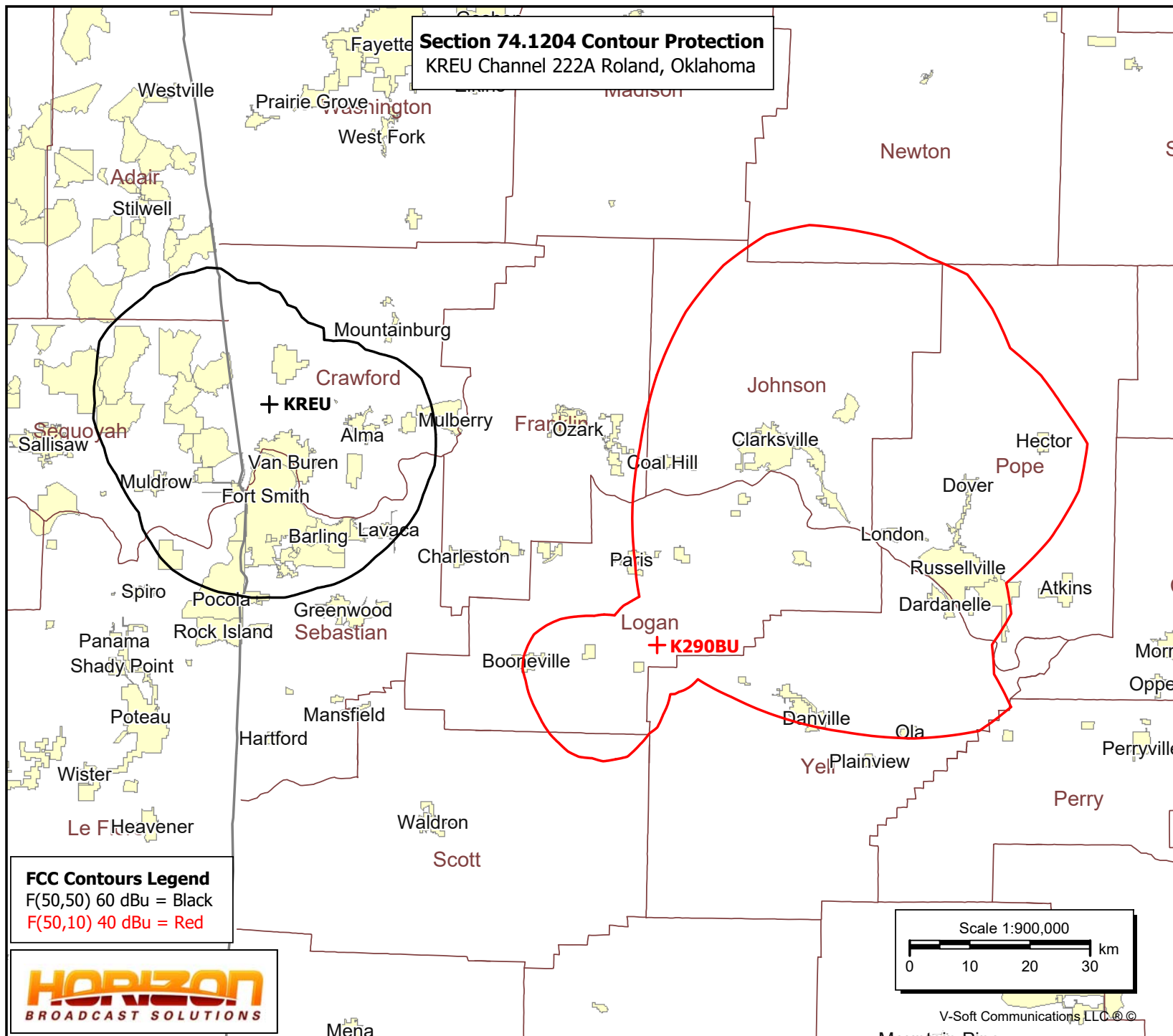
Roland, OK
BLH19951023KB
Latitude: 35-31-22.30 N
Longitude: 094-23-32.70 W
ERP: 0.74 kW
HAAT: 284.0
Channel: 222
Frequency: 92.3 MHz
AMSL Height: 498.0 m
Elevation: 338.0 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: None

FCC Contours Legend

F(50,50) 60 dBu = Black

F(50,10) 40 dBu = Red

HORIZON
BROADCAST SOLUTIONS

Section 74.1204 Contour Protection
KREU Channel 222A Roland, Oklahoma

K290BU

Booneville, Etc., AR
Latitude: 35-09-50 N
Longitude: 093-40-59.60 W
ERP: 0.25 kW
HAAT: 573.63
Channel: 222
Frequency: 92.3 MHz
AMSL Height: 831.04 m
Elevation: 813.04 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: FCC Model
Loc. Variability: 50.0%
Time Variability: 50.0%
HAAT Mthd: FCC

KIPR

Pine Bluff, AR
BLH19860501KF
Latitude: 34-22-12.30 N
Longitude: 092-10-07.50 W
ERP: 100.00 kW
HAAT: 286.0
Channel: 222
Frequency: 92.3 MHz
AMSL Height: 371.0 m
Elevation: 122.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: FCC Model
Loc. Variability: 50.0%
Time Variability: 50.0%
HAAT Mthd: FCC

FCC Contours Legend

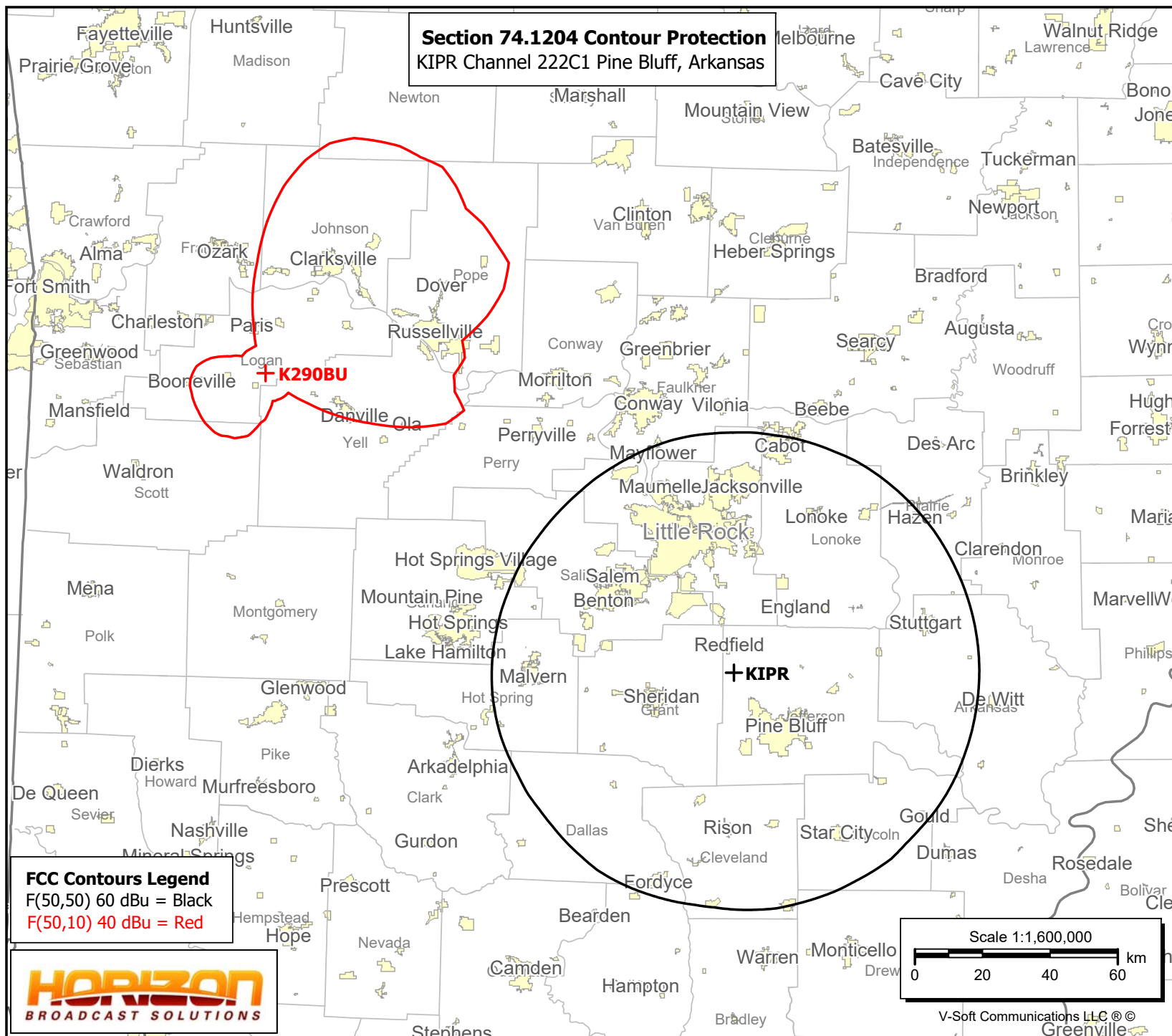
F(50,50) 60 dBu = Black

F(50,10) 40 dBu = Red

HORIZON
BROADCAST SOLUTIONS

Section 74.1204 Contour Protection

KIPR Channel 222C1 Pine Bluff, Arkansas



Section 74.1204

Contour Protection to KDYN-FM

This comprehensive exhibit has been prepared to demonstrate that the proposed K290BU modification will not cause prohibited interference to KDYN-FM, Channel 224C3, Coal Hill, Arkansas. 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 facility to be protected is second adjacent and is to be afforded protection from signals 40 dB stronger than they present in the location of the proposed antenna location. The KDYN-FM FCC F(50,50) contour at the K290BU application site is 61.0 dBu. Therefore, the K290BU F(50,10) interfering contour with respect to KDYN-FM is the 101.0 dBu contour. The proposed K290BU transmit antenna will be located in a remote mountaintop electronic site with no occupied buildings, behind a locked Forest Service gate located about two miles away. Only electronic technicians and Forest Service personnel are allowed through the locked gate. The attached Google Earth Screenshot shows the K290BU F(50,10) 101.0 dBu interfering contour in red. The only buildings inside the contour are associated with the numerous communications sites. The nearest occupied buildings are nearly two miles to the east at Magazine Mountain State Park. Those buildings are marked on the Google Earth screenshot. The locked Forest Service Gate is also identified on the screenshot.

It is believed that the proposed modification to K290BU will not cause prohibited interference to KDYN-FM because the interfering contour is located in a remote area and there is no population or occupied buildings inside the interfering contour. Therefore, it is believed the

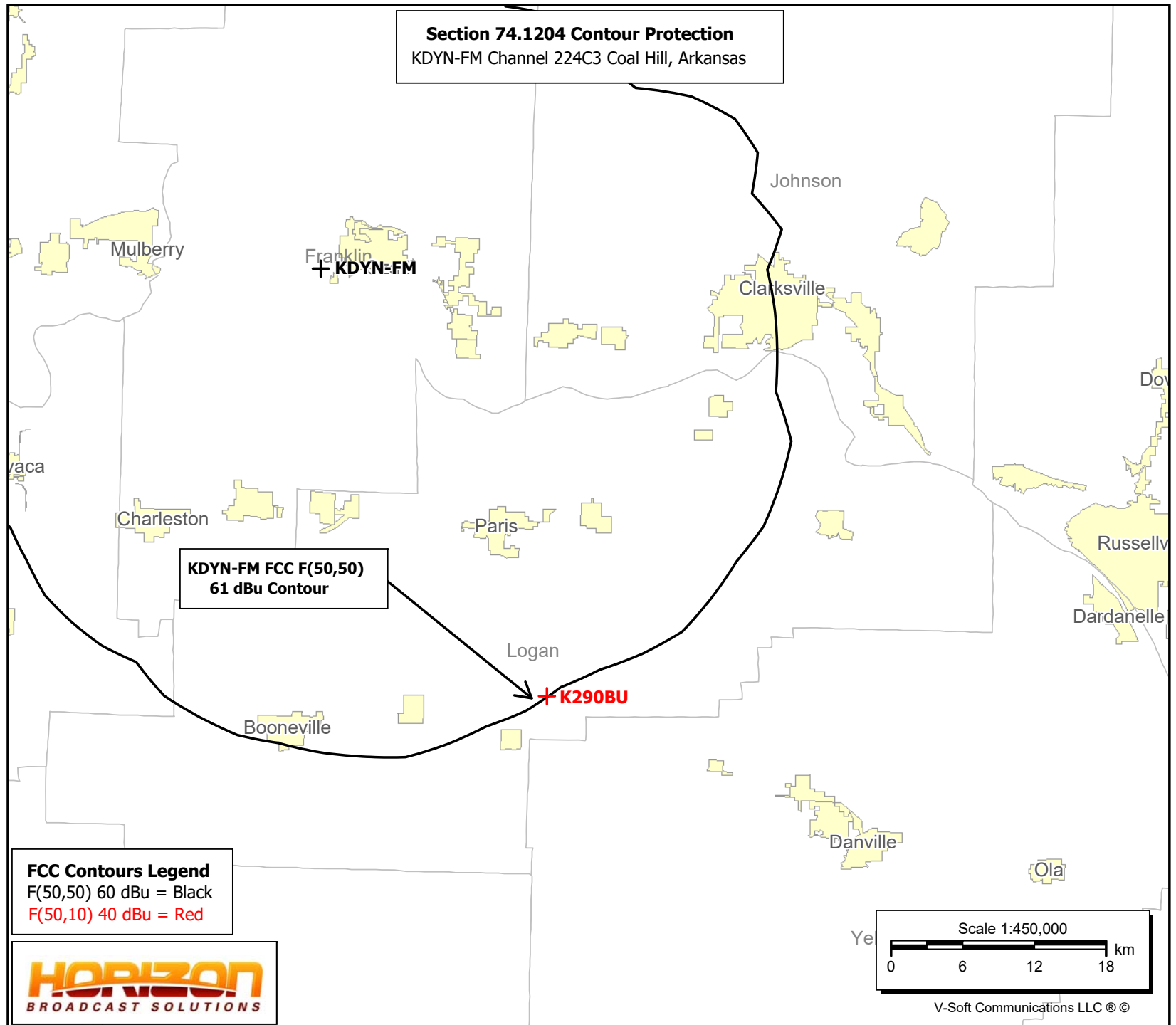
proposed K290BU modification is in compliance with Section 74.1204 contour protection with respect to KDYN-FM.

K290BU

Booneville, Etc., AR
Latitude: 35-09-50 N
Longitude: 093-40-59.60 W
ERP: 0.25 kW
HAAT: 573.63
Channel: 222
Frequency: 92.3 MHz
AMSL Height: 831.04 m
Elevation: 813.04 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: FCC Model
Loc. Variability: 50.0%
Time Variability: 50.0%
HAAT Mthd: FCC

KDYN-FM

Coal Hill, AR
BLH20130417ABG
Latitude: 35-29-09.40 N
Longitude: 093-53-30.20 W
ERP: 12.50 kW
HAAT: 144.0
Channel: 224
Frequency: 92.7 MHz
AMSL Height: 327.3 m
Elevation: 285.3 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: FCC Model
Loc. Variability: 50.0%
Time Variability: 50.0%
HAAT Mthd: FCC

Section 74.1204 Contour Protection
KDYN-FM Channel 224C3 Coal Hill, Arkansas


FCC Section 74.1204 Contour Protection KDYN-FM Channel 224C3 Coal Hill, AR



FCC F(50,10) 101
dBu contour

K290BU

Locked Forest Service Gate

Magazine Mountain  Magazine Mountain

Nearest
occupied
building

4789 ft

Google Earth

1985

Imagery Date: 11/14/2019 35°09'39.12" N 93°37'31.35" W elev 2204 ft eye alt 21309 ft

**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. The Baker Family Trust, licensee of FM translator K290BU seeks to modify the license of K290BU (Facility ID# 22426), licensed to Booneville, Etc. Arkansas by changing the frequency to Channel 222D (92.3 MHz) and changing the directional antenna pattern. The transmitting site will not change. It is an existing tower 20 meter (65.6 ft.) in overall height. Because this tower is less than 200 feet in overall height it is not registered with the FCC's Antenna Structure Registration (ASR). The tower coordinates have been corrected from the current license. The tower is located at 35° 09' 50" N ~ 93° 40' 59.6" W (NAD 27). The proposed antenna is a side mounted Kathrein-Scala Model CL-FM vertically polarized 7 bay log periodic directional antenna. K290BU will operate with 250 watts ERP directional at 18 meters height above ground level and 573.63 meters HAAT. 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 K290BU proposes to operate from an existing tower and no changes are being made to the tower, 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 FM Model Program does not provide an exact match for the Kathrein-Scala CL-FM. In an abundance of caution the FM Model Program shows a worst case scenario by using the EPA Element Type 1 Ring-and-Stub" or any type not-otherwise described. Using EPA Element Type 1, the maximum calculated signal density near the tower at two meters above ground level attributable to the proposed facility is $31.907 \mu\text{W}/\text{cm}^2$ at 3.6 meters, which is 15.954 percent of the general population/uncontrolled maximum permitted exposure limit. The vertical pattern of the Kathrein-Scala CL-FM as depicted by the depression angle study indicates downward radiation is extremely minimal. The proposed K290BU transmit antenna will be located in a remote mountaintop electronic site with no occupied buildings, behind a locked Forest Service gate located about two miles away. Only electronic technicians and Forest Service personnel are allowed through the locked gate.

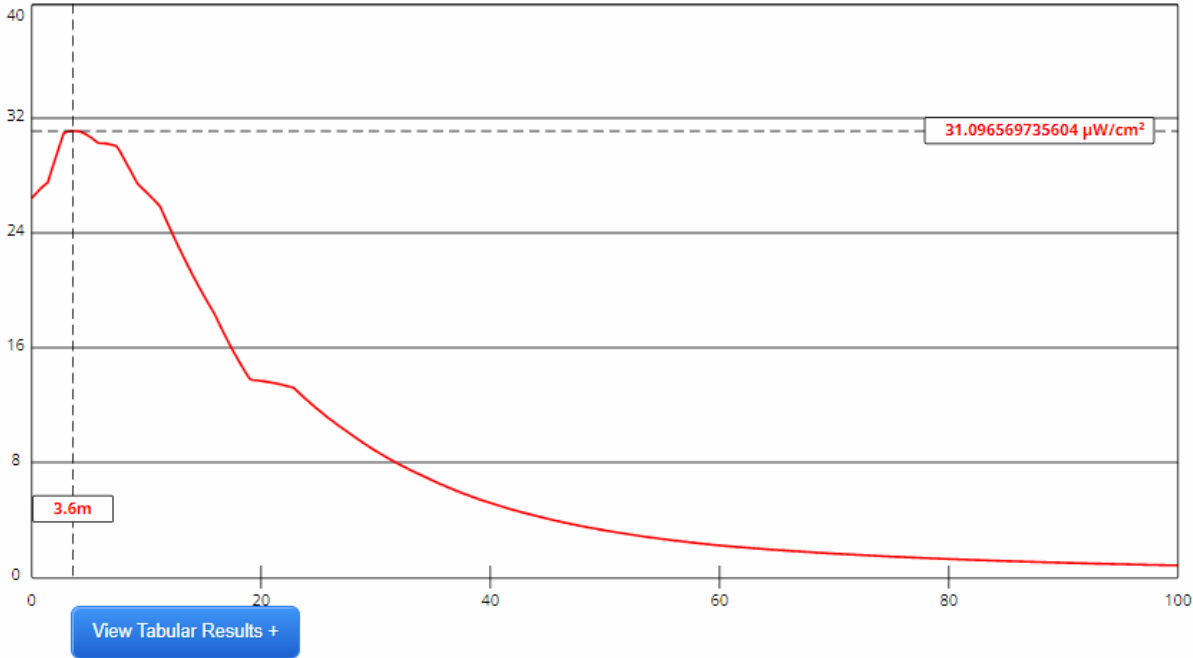
The applicant will see that signs are posted in the vicinity of the tower, warning of potential radio frequency hazards at the site. The applicant will cooperate with other users of the tower to reduce power of the facility, or discontinue operation, as necessary to limit human exposure to levels less 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 Highlighted Releases
- RF Safety FAQ
- FM Model**
- Body Tissue Dielectric Parameters

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 222 (92.3 MHz) ▼		
Antenna Type +	EPA Type 1: Ring-and-Stub or "Other" ▼		
Height (m)	18	Distance (m)	100
ERP-H (W)	0	ERP-V (W)	250
Num of Elements	1	λ	1
Num of Points	500	Apply	