K270BZ
Amendment to LMS Application NO. 0000215206
Proposed CH 270D – 101.9 MHz – 0.220 kW DA
Phoenix, Arizona
June 12, 2023

TECHNICAL NARRATIVE

This amended Technical Narrative and attached exhibits were prepared on behalf of Chavez Radio Group, ("Chavez"), licensee of FM translator K270BZ, Channel 270D, Facility ID No. 152717, Phoenix, AZ. Chavez is required to modify K270BZ due to the scheduled removal of the tower where K270BZ is located. The existing tower, registered with FCC Antenna Structure Registration ("ASR") No. 1019338, is owned by Vertical Bridge. Vertical Bridge has constructed a new tower registered with FCC Antenna Structure Registration ("ASR") 1308803. As part of the leasing agreement with Vertical Bridge, Chavez is modifying K270BZ to operate from the new tower. The proposed K270BZ facility would continue to operate on channel 270D (101.9 MHz) and be used as a fill-in translator for co-owned primary station KNAI(AM), licensed to Phoenix, AZ. This amendment reduces the modified K270BZ facility ERP from 227 watts to 220 watts directional with a slight change to the proposed directional antenna pattern. The transmit antenna would be located at 14 meters height above ground level and 452 meters HAAT. An exhibit demonstrates that the proposed FCC F(50,50) 60 dBu contour of the proposed K270BZ facility is contained within the KNAI 2.0 mV/M daytime contour. Therefore, it is believed this application is in compliance with Section 74.1201(g) of the Commission's rules. The proposed new transmit location is less than 50 meters from the licensed site. The FCC F(50,50) 60 dBu contours of the construction permit and the proposed site overlap. Therefore, no exhibit showing compliance with FCC Section 74.1233(a) "Common Overlap" is provided.

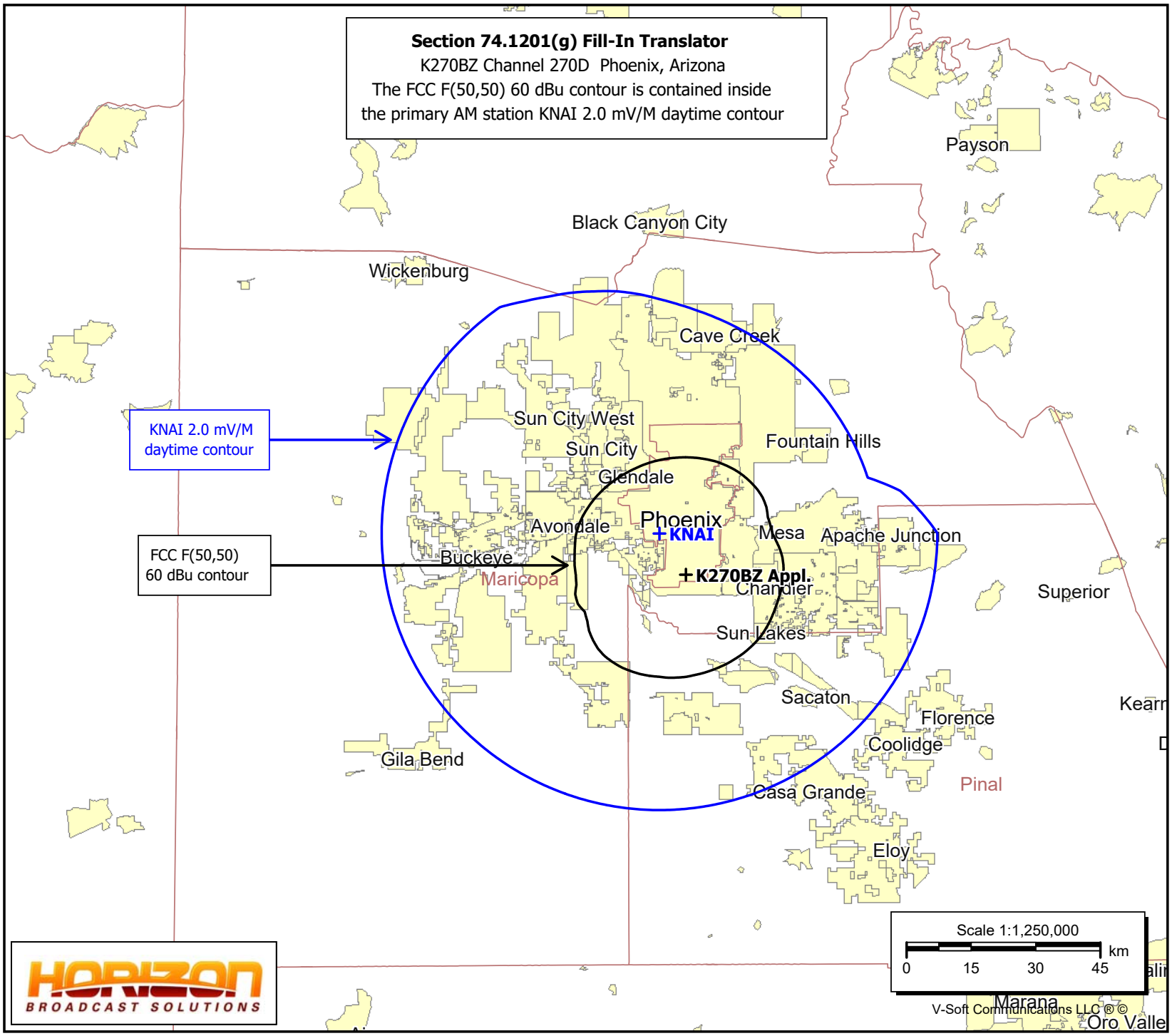
A channel study is included as an exhibit that assumes a Class A 6 kW facility operating on channel 270. This study is provided to FCC staff as a convenience to help identify potential contour overlap issues. Section 74.1204 contour protection exhibits show protection to third adjacent channel full power FM station KNIX-FM Channel 273C, Phoenix and second adjacent full power FM Station KALV-FM, Channel 268C, Phoenix, AZ, first adjacent full power FM construction permit for KAHM, Channel 271C, Spring Valley, AZ, co-channel FM translators K270CV, Channel 270D, Santan, AZ and K270CW, Channel 270D, Buckeye, AZ, co-channel full power FM station KQSS, Channel 270A, Miami, AZ and co-channel full power FM station KFMA, Channel 270C1, Oro Valley, AZ.

It should be noted that three facilities are "grandfathered" and the proposed respective K270BZ interfering contours overlap with the protected contours of these three facilities. Those facilities are the KAHM construction permit at Spring Valley, AZ and the licensed facilities for K270CV, Santan, AZ and K270CW, Buckeye, AZ. The Section 74.1204 contour protection exhibits for these three facilities demonstrate that there is no increase in the existing contour overlap with any of these facilities.

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

K270BZ Appl.
Phoenix, AZ
Latitude: 33-20-03.70 N
Longitude: 112-03-41.20 W
ERP: 0.220 kW
HAAT: 452.13 m
Channel: 270
Frequency: 101.9 MHz
AMSL Height: 810.2 m
Elevation: 796.2 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: FCC Model
Loc. Variability: 50.0%
Time Variability: 50.0%
HAAT Mthd: FCC

KNAI
Phoenix, AZ
Type: AM
Channel: 860
Latitude: 33-25-14 N
Longitude: 112-07-37 W
Power: 0.94 kW Daytime



Section 74.1204
Contour Protection to KNIX-FM & KALV-FM

This comprehensive exhibit has been prepared to demonstrate that the proposed K270BZ modification will not cause prohibited interference to KNIX-FM, Channel 273C, Phoenix, AZ and KALV-FM Channel 268C, Phoenix, AZ.

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 and third adjacent and are to be afforded protection from signals 40 dBu stronger than they present in the location of the proposed antenna location.

KNIX-FM is co-located on the same tower as K270BZ and KALV-FM is located just 0.4 km from the proposed K270BZ application site. Therefore, KALV-FM will receive the greatest interference and will be considered here. The FCC F(50,50) contour at the K270BZ application site for KALV-FM is 139.6 dBu. Therefore, the K270BZ F(50,10) interfering contours with respect to KALV-FM is 179.6 dBu. The attached FCC FM and TV Propagation Curves calculation shows the calculation distance as 1 meter. The proposed modification to K270BZ will not cause prohibited interference to KNIX-FM or KALV-FM as no interference reaches the ground or any population.

Therefore, it is believed that the proposed modification to K270BZ is in compliance with FCC Section 74.1204 with respect to both KNIX-FM and KALV-FM.

FM and TV Propagation Curves

FM

FM and TV Propagation Curves Graphs

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]

0.227
ERP (kW)

Distance (km)

452
HAAT (meters)

179.6
Field (dBu)

Find Result Clear Form

Results:

Calculated Distance = **0.001 km**

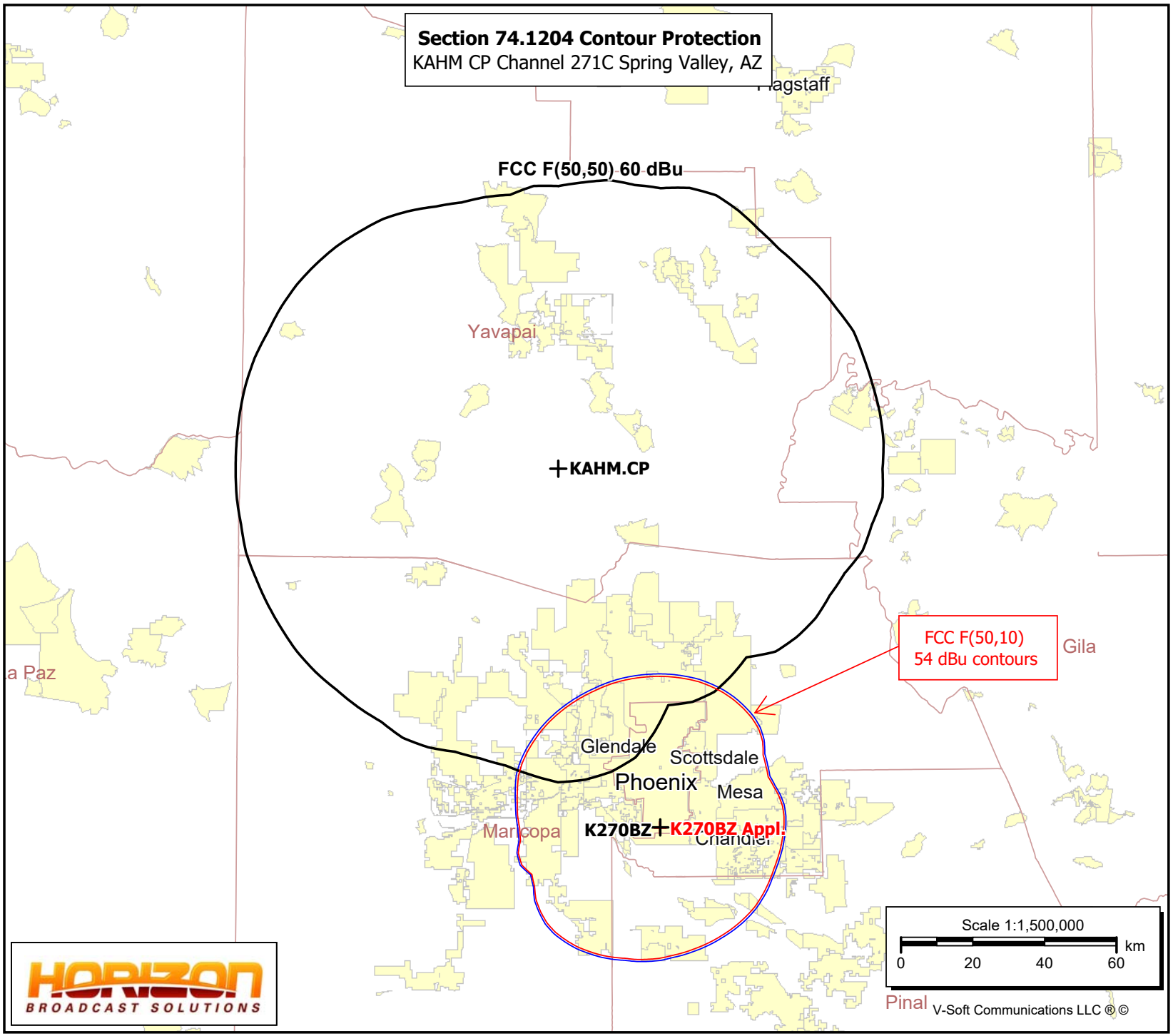
Free Space equation used to compute distance.

This function uses the FCC's CURVES program to make calculations of the F(50,50) FM and NTSC (analog) TV service curves, the F(50,10) interfering signal curves, and the F(50,90) digital TV service curves. Printable copies of these propagation curves are available at FM and TV Propagation Curves Graphs.

K270BZ Appl.
Phoenix, AZ
Latitude: 33-20-03.70 N
Longitude: 112-03-41.20 W
ERP: 0.22 kW
HAAT: 452.13 m
Channel: 270
Frequency: 101.9 MHz
AMSL Height: 810.2 m
Elevation: 796.2 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: None

K270BZ
Phoenix, AZ
BLFT20170920ABJ
Latitude: 33-20-04.83 N
Longitude: 112-03-39.47 W
ERP: 0.25 kW
HAAT: 0.0
Channel: 270
Frequency: 101.9 MHz
AMSL Height: 797.0 m
Elevation: 785.0 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: None

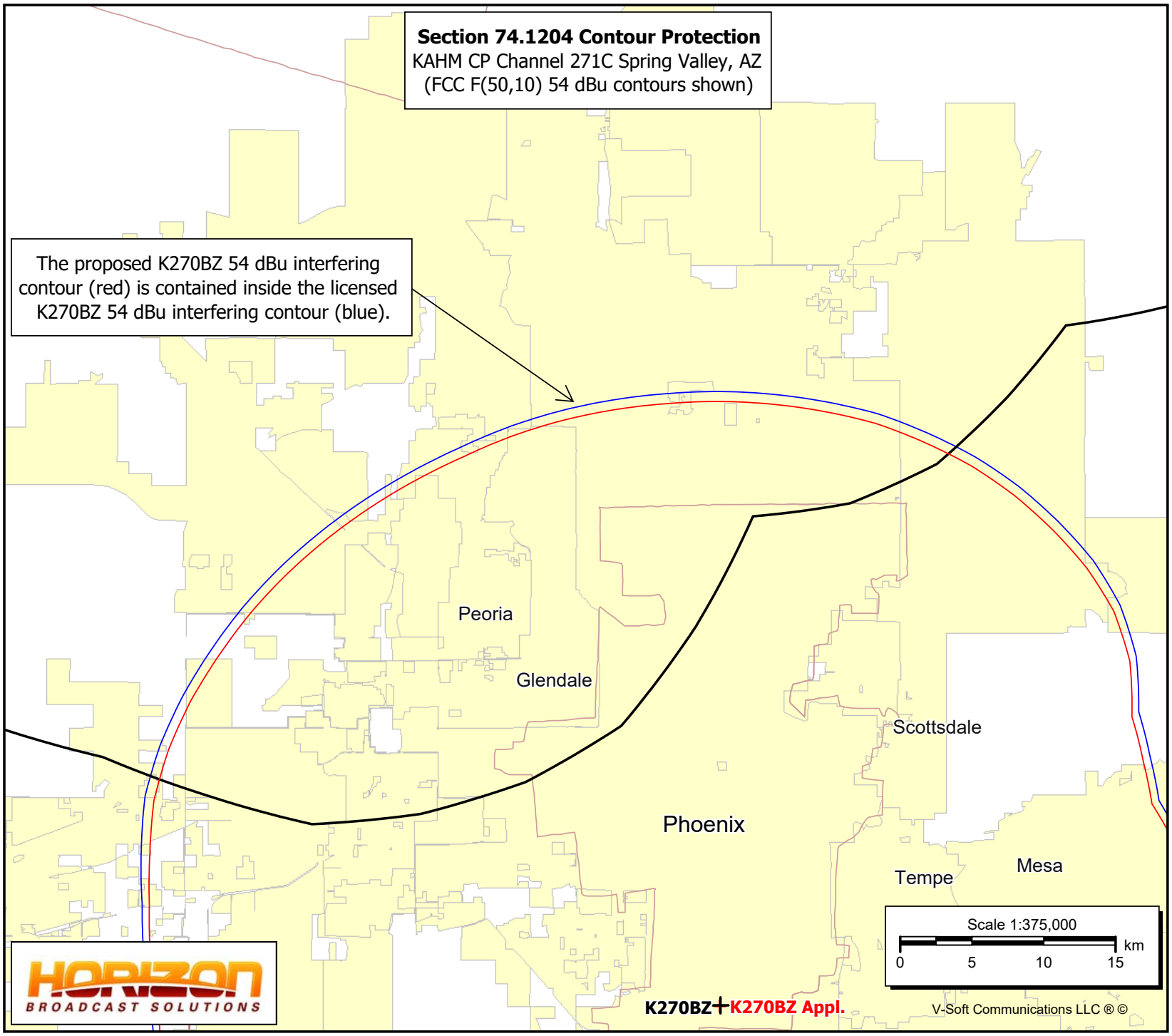
KAHM.CP
Spring Valley, AZ
0000135808
Latitude: 34-14-03.79 N
Longitude: 112-21-59.70 W
ERP: 26.00 kW
HAAT: 829.0
Channel: 271
Frequency: 102.1 MHz
AMSL Height: 2363.0 m
Elevation: 2322.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None



K270BZ Appl.
Phoenix, AZ
Latitude: 33-20-03.70 N
Longitude: 112-03-41.20 W
ERP: 0.22 kW
HAAT: 452.13 m
Channel: 270
Frequency: 101.9 MHz
AMSL Height: 810.2 m
Elevation: 796.2 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: None

K270BZ
Phoenix, AZ
BLFT20170920ABJ
Latitude: 33-20-04.83 N
Longitude: 112-03-39.47 W
ERP: 0.25 kW
HAAT: 439.11
Channel: 270
Frequency: 101.9 MHz
AMSL Height: 797.0 m
Elevation: 785.0 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: None

KAHM.CP
Spring Valley, AZ
0000135808
Latitude: 34-14-03.79 N
Longitude: 112-21-59.70 W
ERP: 26.00 kW
HAAT: 829.0
Channel: 271
Frequency: 102.1 MHz
AMSL Height: 2363.0 m
Elevation: 2322.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None



K270BZ Appl.
Phoenix, AZ
Latitude: 33-20-03.70 N
Longitude: 112-03-41.20 W
ERP: 0.22 kW
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Vert. Pattern: No
Prop Model: None

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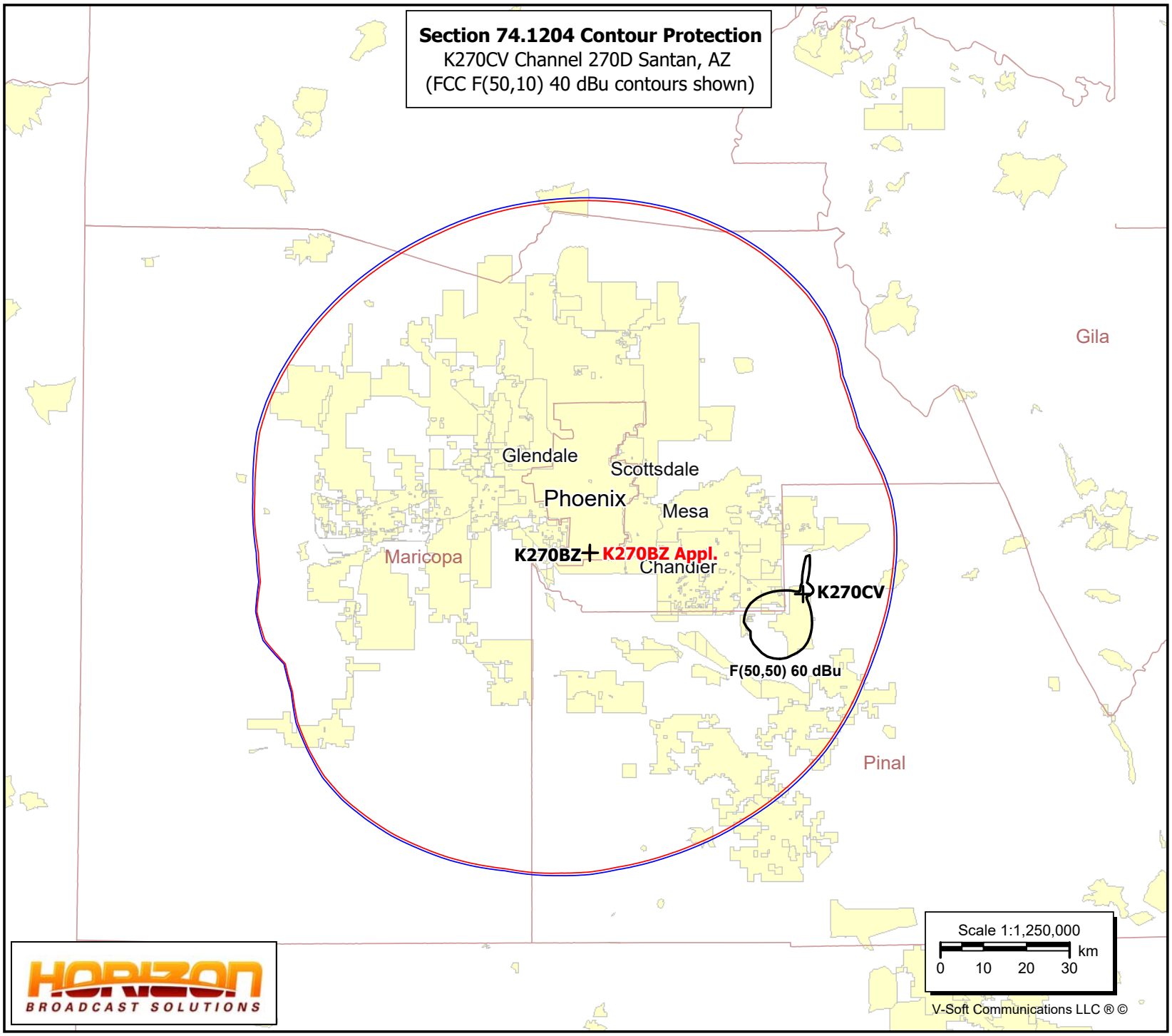
BLFT20170920ABJ
Latitude: 33-20-04.83 N
Longitude: 112-03-39.47 W
ERP: 0.25 kW
HAAT: 439.11
Channel: 270
Frequency: 101.9 MHz
AMSL Height: 797.0 m
Elevation: 785.0 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: None

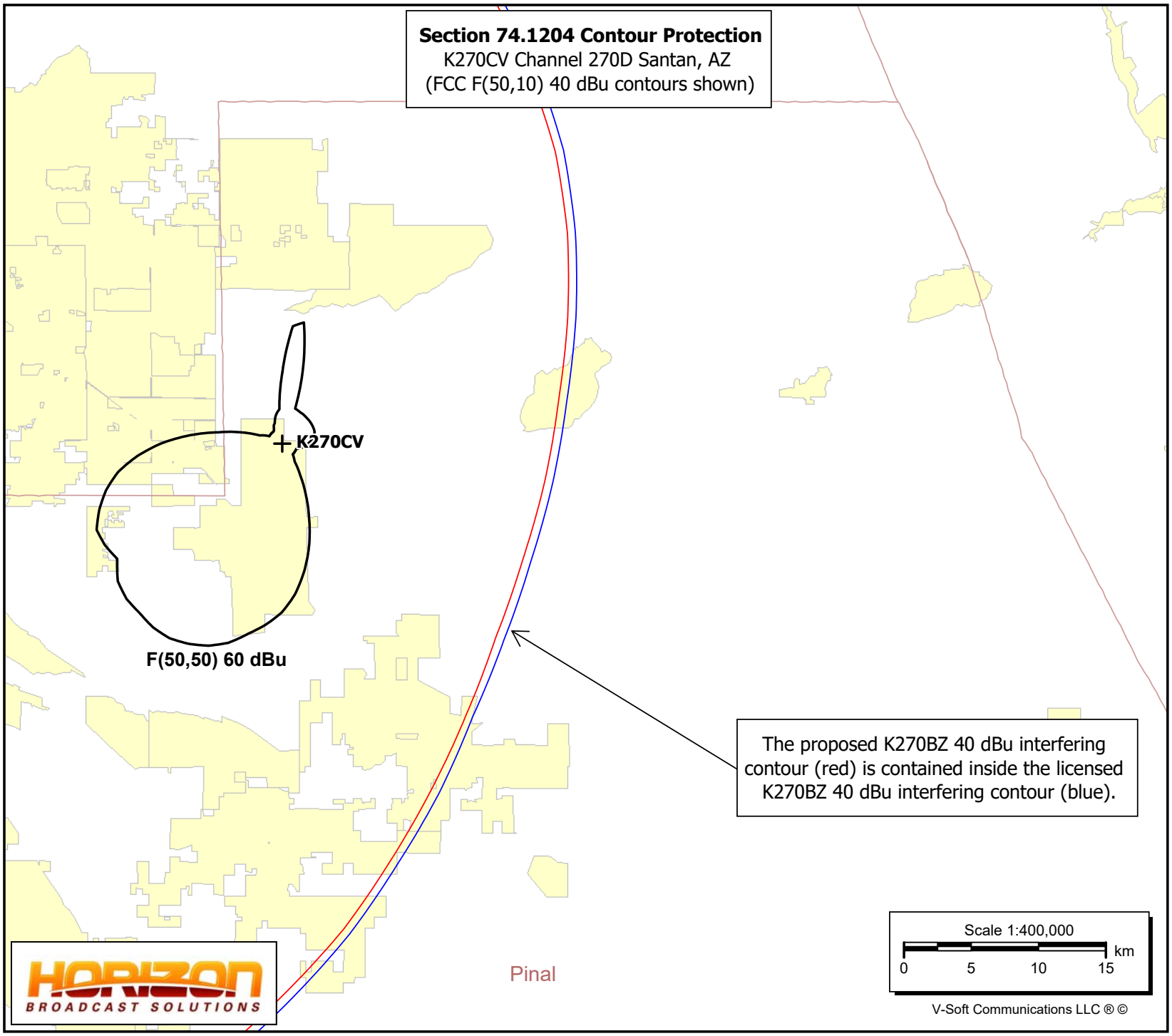
K270CV
Santan, AZ
0000086485
Latitude: 33-14-50.01 N
Longitude: 111-31-49.03 W
ERP: 0.25 kW
HAAT: 167.22
Channel: 270
Frequency: 101.9 MHz
AMSL Height: 646.0 m
Elevation: 466.0 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: None



K270BZ Appl.
Phoenix, AZ
Latitude: 33-20-03.70 N
Longitude: 112-03-41.20 W
ERP: 0.22 kW
HAAT: 452.13 m
Channel: 270
Frequency: 101.9 MHz
AMSL Height: 810.2 m
Elevation: 796.2 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: None

K270BZ
Phoenix, AZ
BLFT20170920ABJ
Latitude: 33-20-04.83 N
Longitude: 112-03-39.47 W
ERP: 0.25 kW
HAAT: 439.11
Channel: 270
Frequency: 101.9 MHz
AMSL Height: 797.0 m
Elevation: 785.0 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: None

K270CV
Santan, AZ
0000086485
Latitude: 33-14-50.01 N
Longitude: 111-31-49.03 W
ERP: 0.25 kW
HAAT: 167.22
Channel: 270
Frequency: 101.9 MHz
AMSL Height: 646.0 m
Elevation: 466.0 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: None



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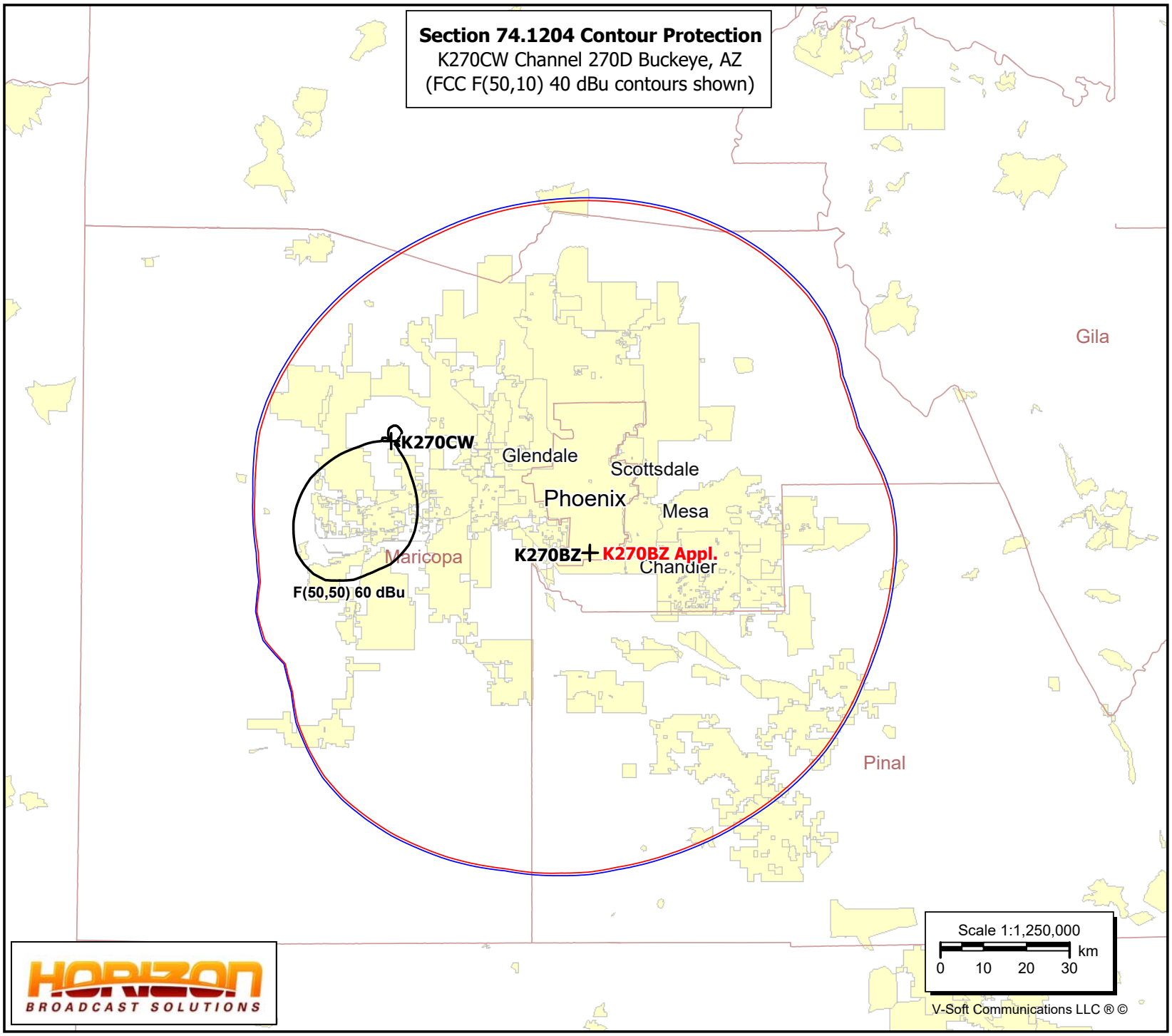
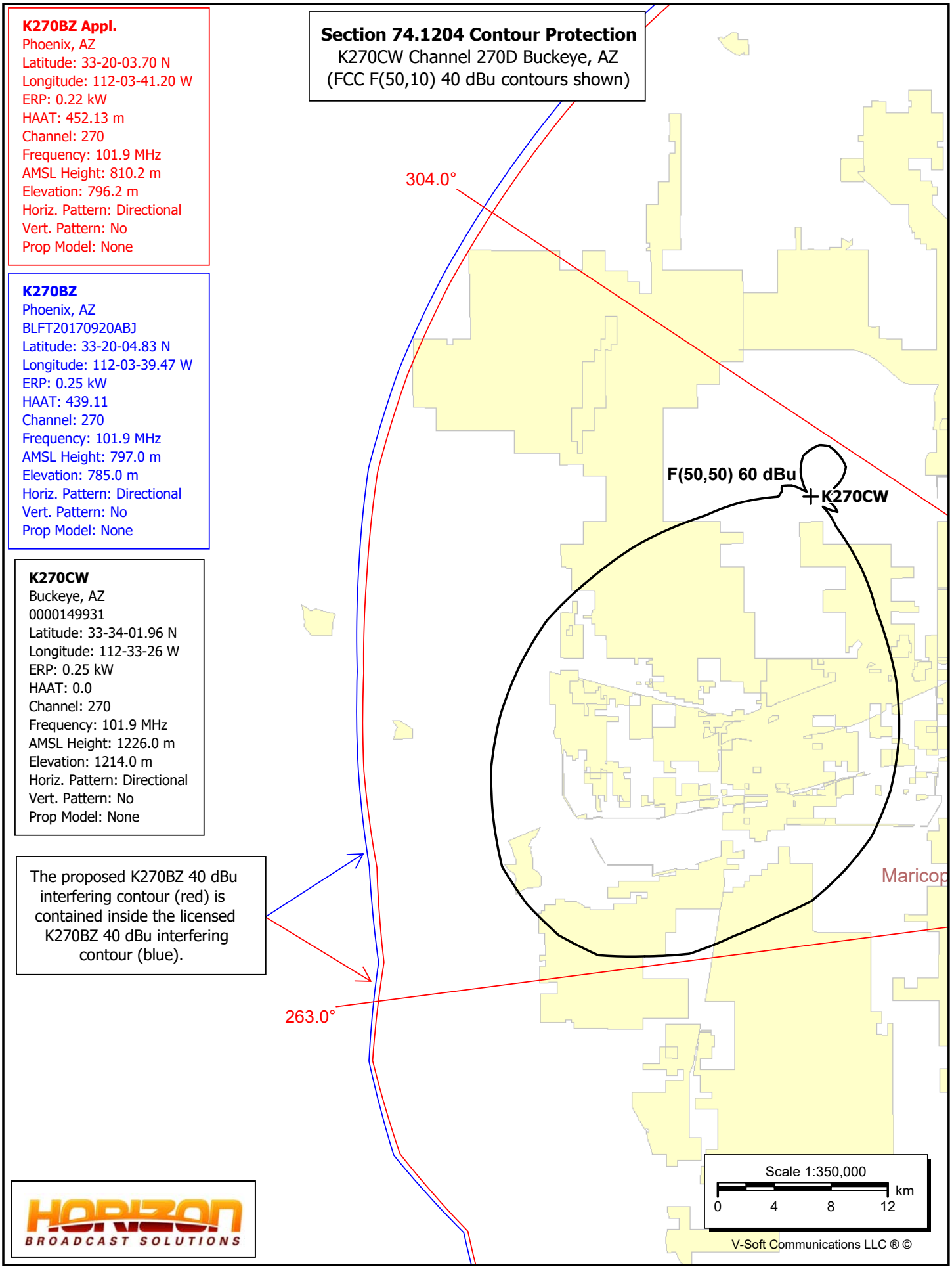
Longitude: 112-03-41.20 W
ERP: 0.22 kW
HAAT: 452.13 m
Channel: 270
Frequency: 101.9 MHz
AMSL Height: 810.2 m
Elevation: 796.2 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: None

K270BZ
Phoenix, AZ
BLFT20170920ABJ
Latitude: 33-20-04.83 N
Longitude: 112-03-39.47 W
ERP: 0.25 kW
HAAT: 439.11
Channel: 270
Frequency: 101.9 MHz
AMSL Height: 797.0 m
Elevation: 785.0 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: None

K270CW
Buckeye, AZ
0000149931
Latitude: 33-34-01.96 N
Longitude: 112-33-26 W
ERP: 0.25 kW
HAAT: 0.0
Channel: 270
Frequency: 101.9 MHz
AMSL Height: 1226.0 m
Elevation: 1214.0 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: None




K270BZ Appl.
Phoenix, AZ
Latitude: 33-20-03.70 N
Longitude: 112-03-41.20 W
ERP: 0.22 kW
HAAT: 452.13 m
Channel: 270
Frequency: 101.9 MHz
AMSL Height: 810.2 m
Elevation: 796.2 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: None
K270BZ
Phoenix, AZ
BLFT20170920ABJ
Latitude: 33-20-04.83 N
Longitude: 112-03-39.47 W
ERP: 0.25 kW
HAAT: 439.11
Channel: 270
Frequency: 101.9 MHz
AMSL Height: 797.0 m
Elevation: 785.0 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: None
K270CW
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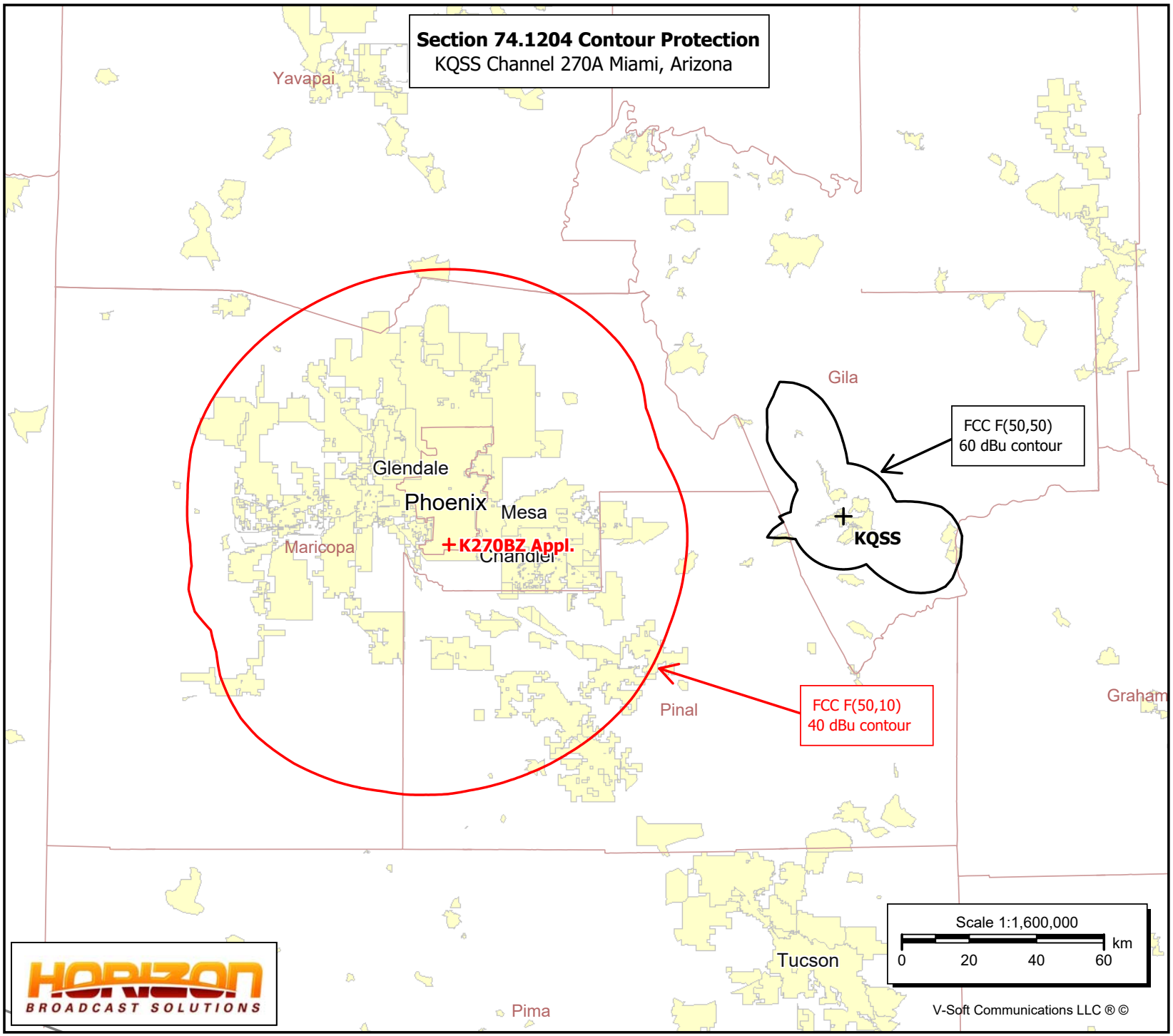
HAAT: 0.0
Channel: 270
Frequency: 101.9 MHz
AMSL Height: 1226.0 m
Elevation: 1214.0 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: None
Section 74.1204 Contour Protection
K270CW Channel 270D Buckeye, AZ
(FCC F(50,10) 40 dBu contours shown)
304.0°
F(50,50) 60 dBu
K270CW
The proposed K270BZ 40 dBu interfering contour (red) is contained inside the licensed K270BZ 40 dBu interfering contour (blue).
263.0°
Maricop
Scale 1:350,000
km
0
4
8
12
V-Soft Communications LLC ® ©
HORIZON
BROADCAST SOLUTIONS

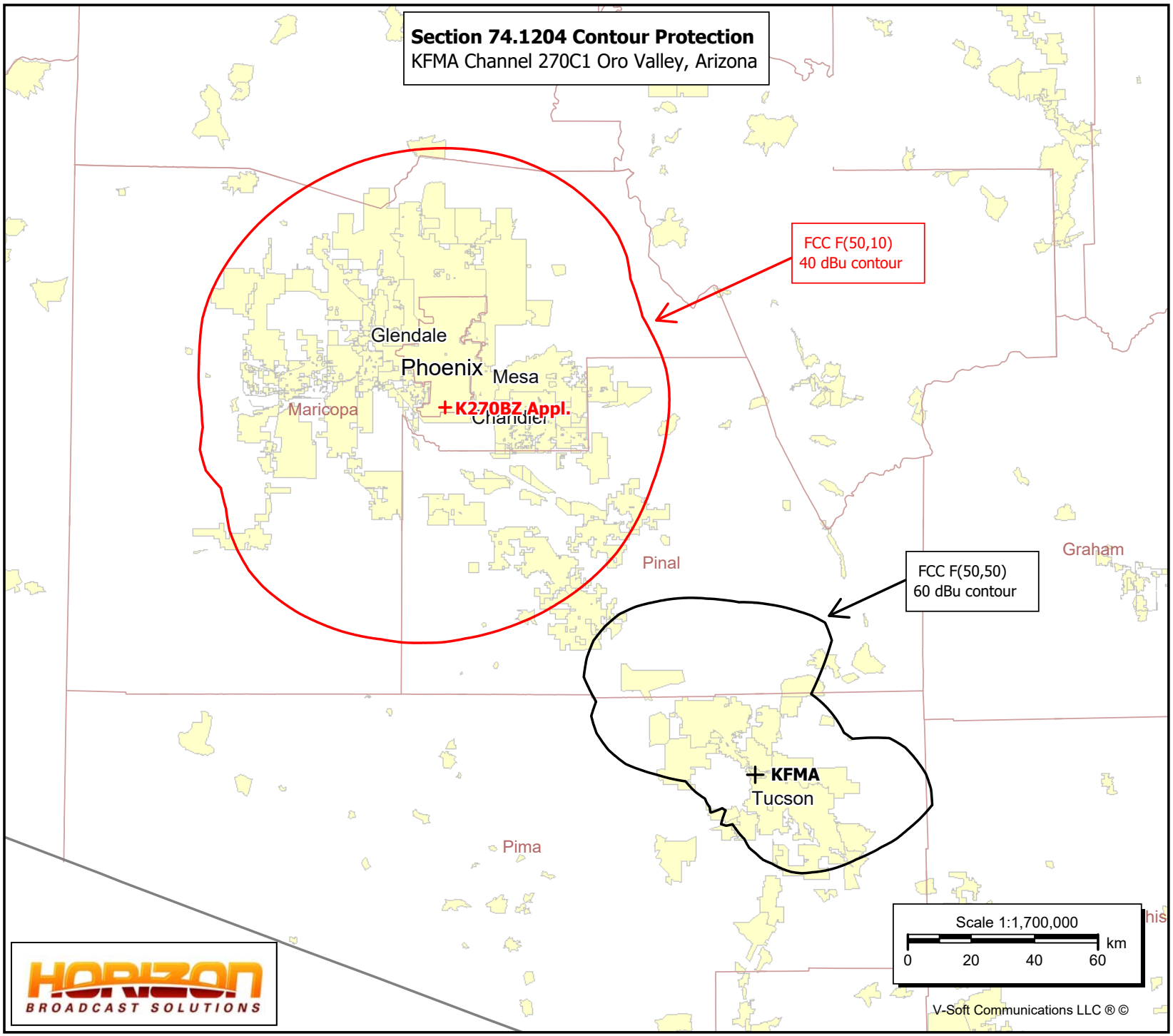
K270BZ Appl.
Phoenix, AZ
Latitude: 33-20-03.70 N
Longitude: 112-03-41.20 W
ERP: 0.22 kW
HAAT: 452.13 m
Channel: 270
Frequency: 101.9 MHz
AMSL Height: 810.2 m
Elevation: 796.2 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: None

KQSS
Miami, AZ
Latitude: 33-24-30 N
Longitude: 110-48-14 W
ERP: 6.00 kW
HAAT: -24.0 m
Channel: 270
Frequency: 101.9 MHz
AMSL Height: 1244.0 m
Elevation: 1145.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None



K270BZ Appl.
Phoenix, AZ
Latitude: 33-20-03.70 N
Longitude: 112-03-41.20 W
ERP: 0.22 kW
HAAT: 452.13 m
Channel: 270
Frequency: 101.9 MHz
AMSL Height: 810.2 m
Elevation: 796.2 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: None

KFMA
Oro Valley, AZ
BLH20050510ABX
Latitude: 32-17-23.03 N
Longitude: 111-01-05.96 W
ERP: 100.00 kW
HAAT: 81.0
Channel: 271
Frequency: 102.1 MHz
AMSL Height: 886.0 m
Elevation: 688.0 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: None



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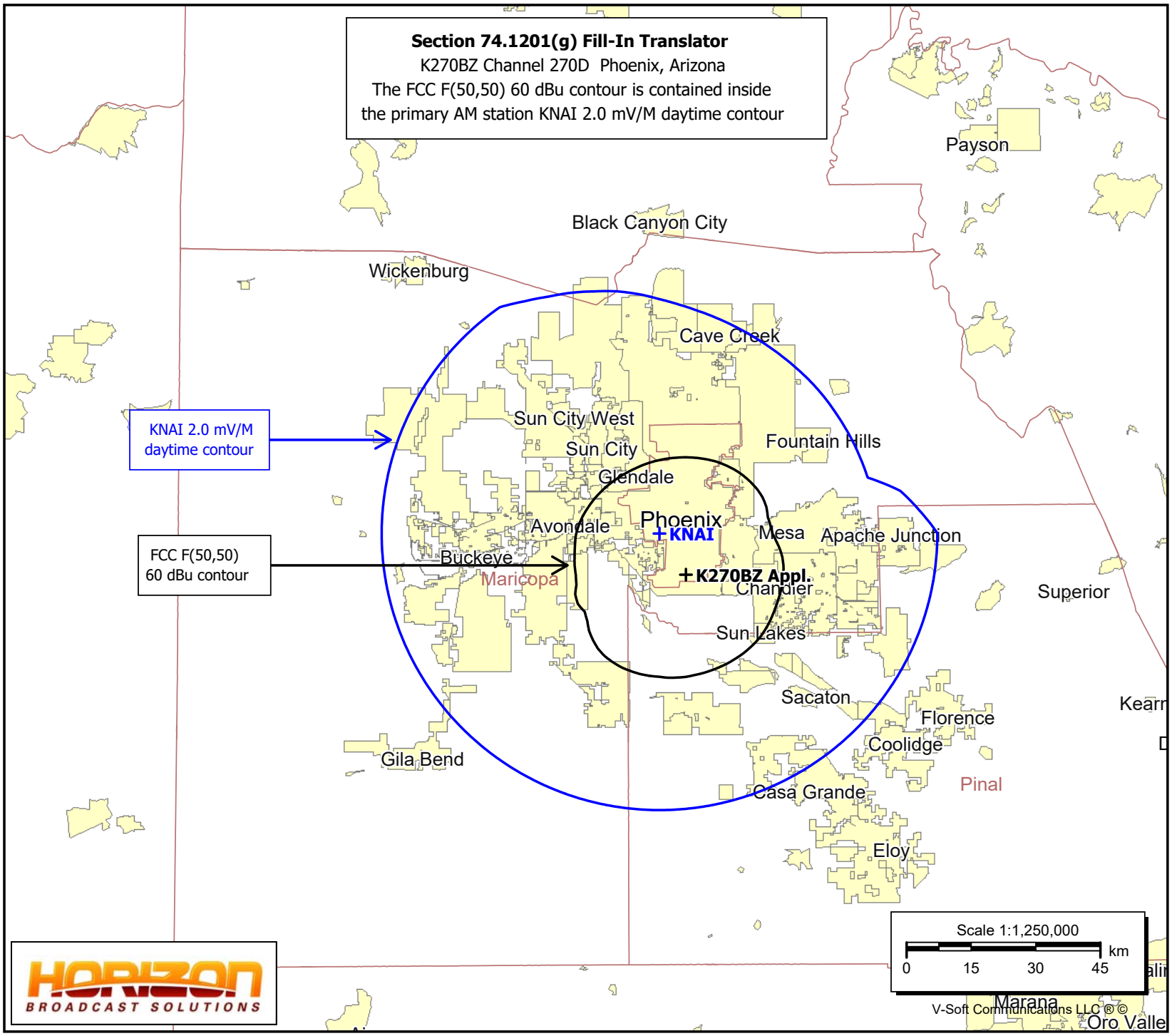
HAAT: 452.13 m
Channel: 270
Frequency: 101.9 MHz
AMSL Height: 810.2 m
Elevation: 796.2 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: FCC Model
Loc. Variability: 50.0%
Time Variability: 50.0%
HAAT Mthd: FCC

KNAI
Phoenix, AZ
Type: AM
Channel: 860
Latitude: 33-25-14 N
Longitude: 112-07-37 W
Power: 0.94 kW Daytime



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. Chavez Radio Group seeks to modify K270BZ, Facility ID No. 152717, Phoenix, AZ. K270BZ will simulcast co-owned Class B AM primary station KNAI 860 kHz, Facility ID No. 1326, Phoenix, AZ. The proposed new tower is located at 33° 20' 03.7" N ~ 112° 03' 41.2" W (NAD 83). The tower is 100.6 meters in overall height and is registered FCC Antenna Registration Structure ("ASR") No. 1308803. The antenna is a side mounted Nicom Model BKG77 2 bay ¾ wave spaced (0.75) circularly polarized directional antenna with a center of radiation of 14 meters AGL and 452 meters HAAT. The proposed K270BZ facility would operate on channel 270D with 220 watts ERP.

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 the proposed new facility proposes to operate from an existing tower and no changes to the tower are 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 included in the revised OET FM Model Program under EPA Element Type 2, Opposed"V" dipole. Using the EPA Element Type 2, the maximum calculated signal density near the tower at two meters above ground level attributable to the proposed facility is 6.104 $\mu W/cm^2$ at 4.8 meters, which is 3.052 percent of the general population/uncontrolled maximum permitted exposure limit. This is 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. It should be noted that this site is restricted and should be considered a controlled location.

Access to the site will be restricted and appropriately marked with signage, 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

FM Model

FCC Policy on Human Exposure

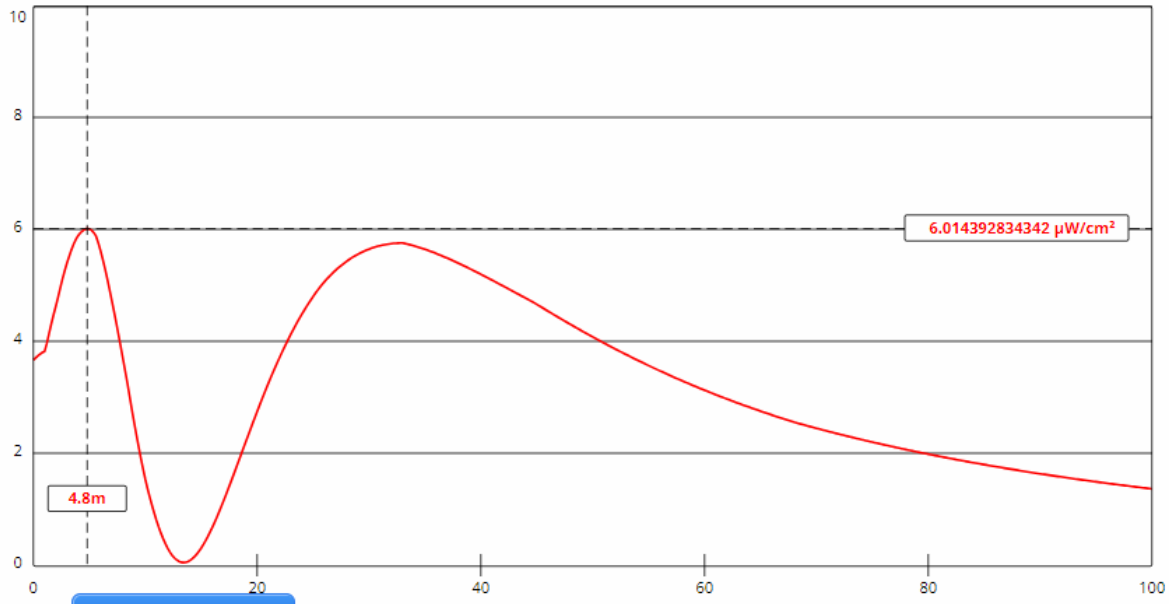
RF Safety Highlighted Releases

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....



View Tabular Results +

Channel Selection	Channel 270 (102.9 MHz)		
Antenna Type +	EPA Type 2: Opposed V Dipole		
Height (m)	14	Distance (m)	100
ERP-H (W)	220	ERP-V (W)	220
Num of Elements	2	λ	0.75
Num of Points	500	Apply	