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ENGINEERING REPORT

APPLICATION for CONSTRUCTION PERMIT to RELOCATE ANTENNA and INCREASE POWER

KDXU(AM)

890 kHz

Saint George, Utah

Facility ID 60454

25 kW Day, 108 Watts Night ND-U

Townsquare License, LLC

February 2024

Purpose of Application

This Engineering Report has been prepared in support of an application by Townsquare License, LLC ("Townsquare") to relocate KDXU(AM), Saint George, Utah, and increase daytime power. Duplicated operation with KSUB(AM) is proposed, with no new tower construction or modification required.

Allocation Considerations

Daytime

The proposed 25 kW non-directional daytime operation of KDXU will not result in prohibited contour overlap with any known facility in the February 6, 2024 edition of the FCC's AM database, as demonstrated by the allocation study maps contained in this report. No maps for 3rd-adjacent channel stations are included, as there are no such facilities close enough to require study. All maps are based on M3 ground conductivity data.

Nighttime

The proposed 108 Watt nighttime operation of KDXU will not enter the 25% RSS of any US station or the 50% RSS of any Mexican station, as demonstrated by the site to site RSS calculations included in this report. This report includes calculations for all stations to which KDXU will exceed the 10% RSS threshold.

Facilities Proposed

Townsquare proposes continued operation of KDXU on 890 kHz with a power of 25 kW daytime and 108 Watts nighttime, using the existing KSUB daytime non-directional antenna tower, identified by ASR# 1041458. This tower is 98.0 degrees tall at 890 kHz with an efficiency of 310.943 mV/m/km at 1 kW.

The area within the daytime 1V/m blanketing contour of the proposed KDXU operation has a population of 343 persons, which is 0.59% of the 57,983 persons within the 25 mV/m contour.

Antenna tower access is restricted by a fence with a locked gate that is at least 4 meters from the tower base, as required by OET-65. The antenna tower is posted with warning signs, and all station personnel and contractors will be required to follow appropriate safety procedures before any work is commenced on the antenna tower, including reduction in power or discontinuance of operation before any maintenance work is undertaken.

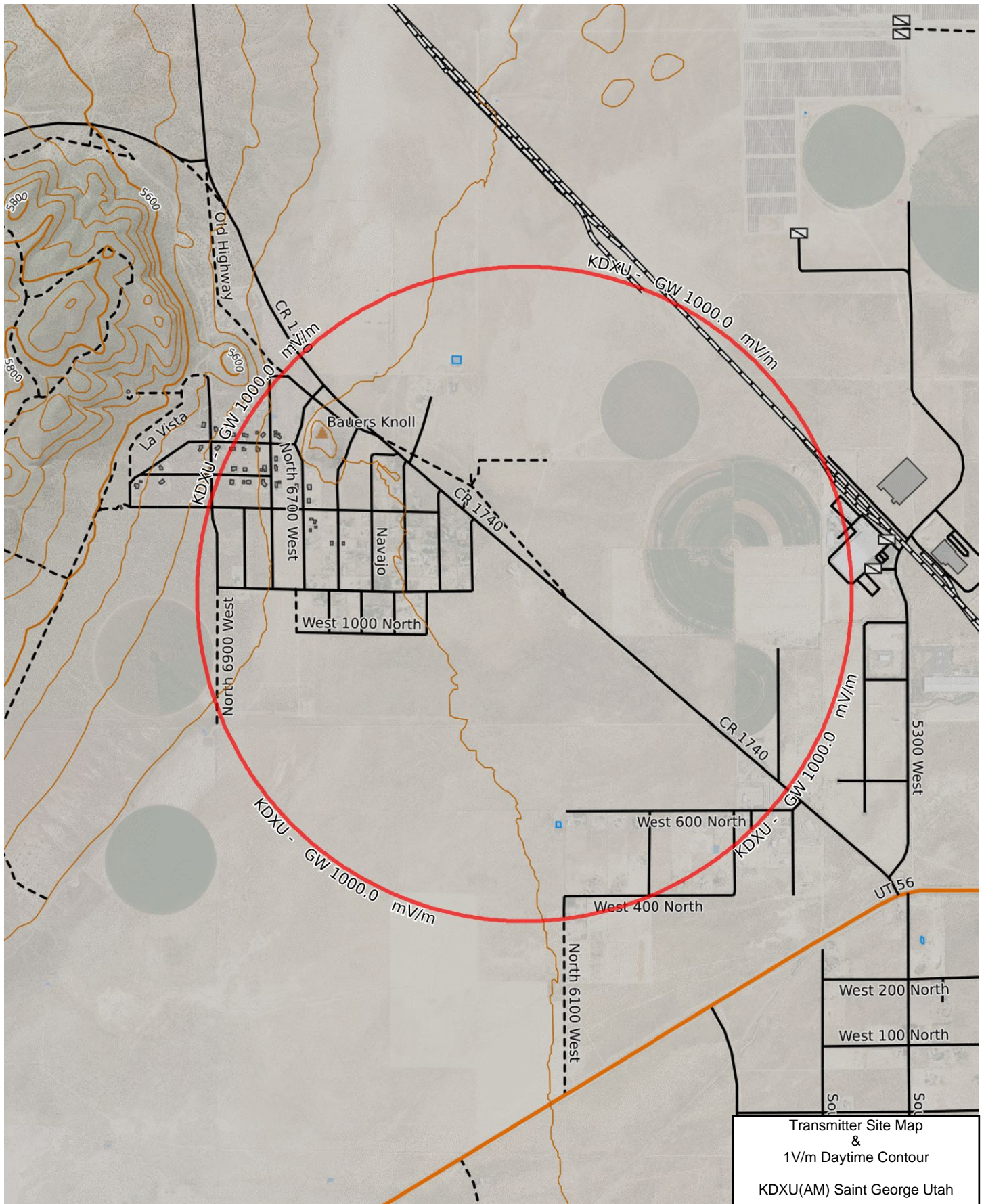
The ground system consists of 120 equally spaced, buried, copper radials about the base of each tower, each 91.4 meters in length except where intersecting radials are shortened and bonded to a transverse copper strap midway between the adjacent towers¹.

The exhibits contained in this engineering report are based on the NAD27 coordinates listed on the KSUB license, while the coordinates listed on the LMS Form 301 are the NAD83 coordinates from the ASR for the proposed tower.

¹BP-20230207AAF (KSUB)

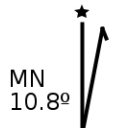
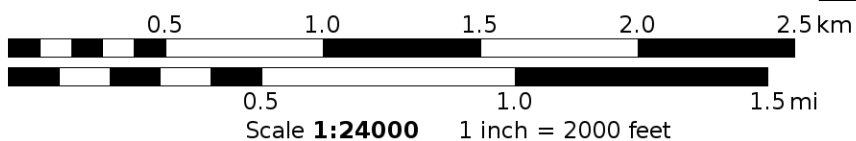


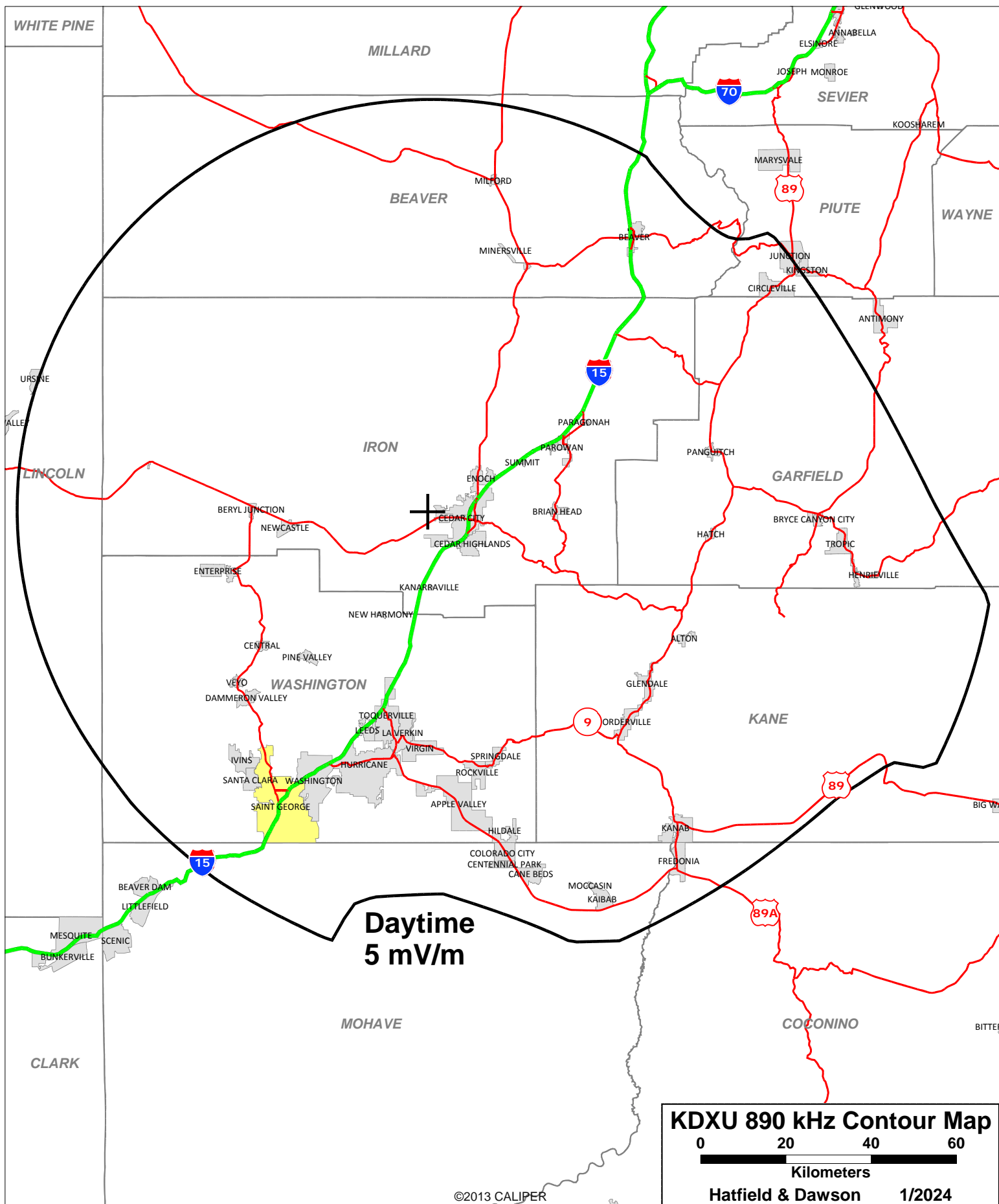
KDXU - KSUB Transmitter Site



Transmitter Site Map
&
1V/m Daytime Contour
KDXU(AM) Saint George Utah

Mercator Projection
WGS84
UTM Zone 12S



KDXU

Freq: 890 kHz

Class: B

Latitude: 37-41-51 N

Longitude: 113-10-52 W

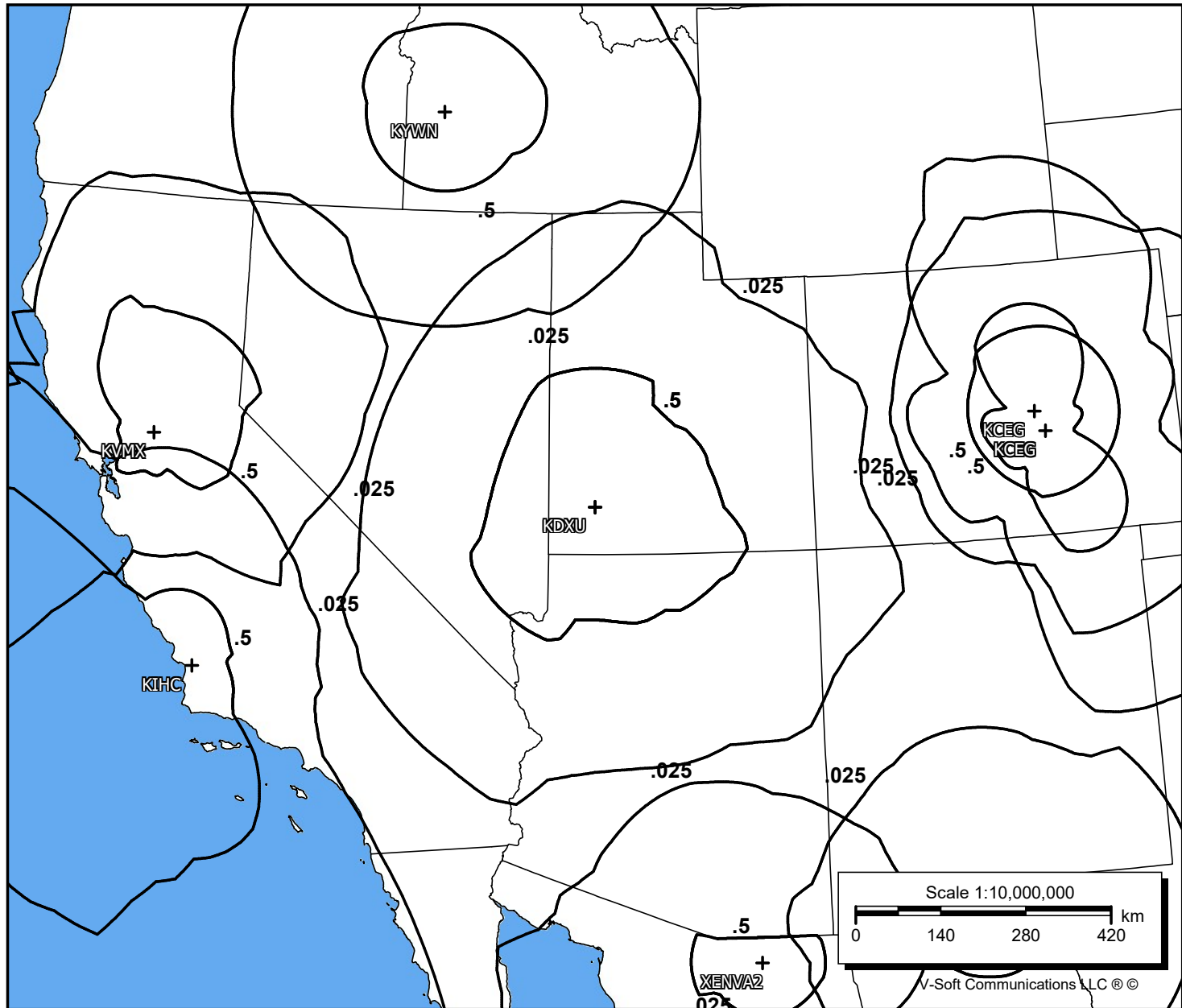
Power: 25 kW

RMS: 310.943 mV/m @1km

Towers: 1

Aucs: 0

Daytime Allocation Study
Co-Channel



KDXU

Freq: 890 kHz

Class: B

Latitude: 37-41-51 N

Longitude: 113-10-52 W

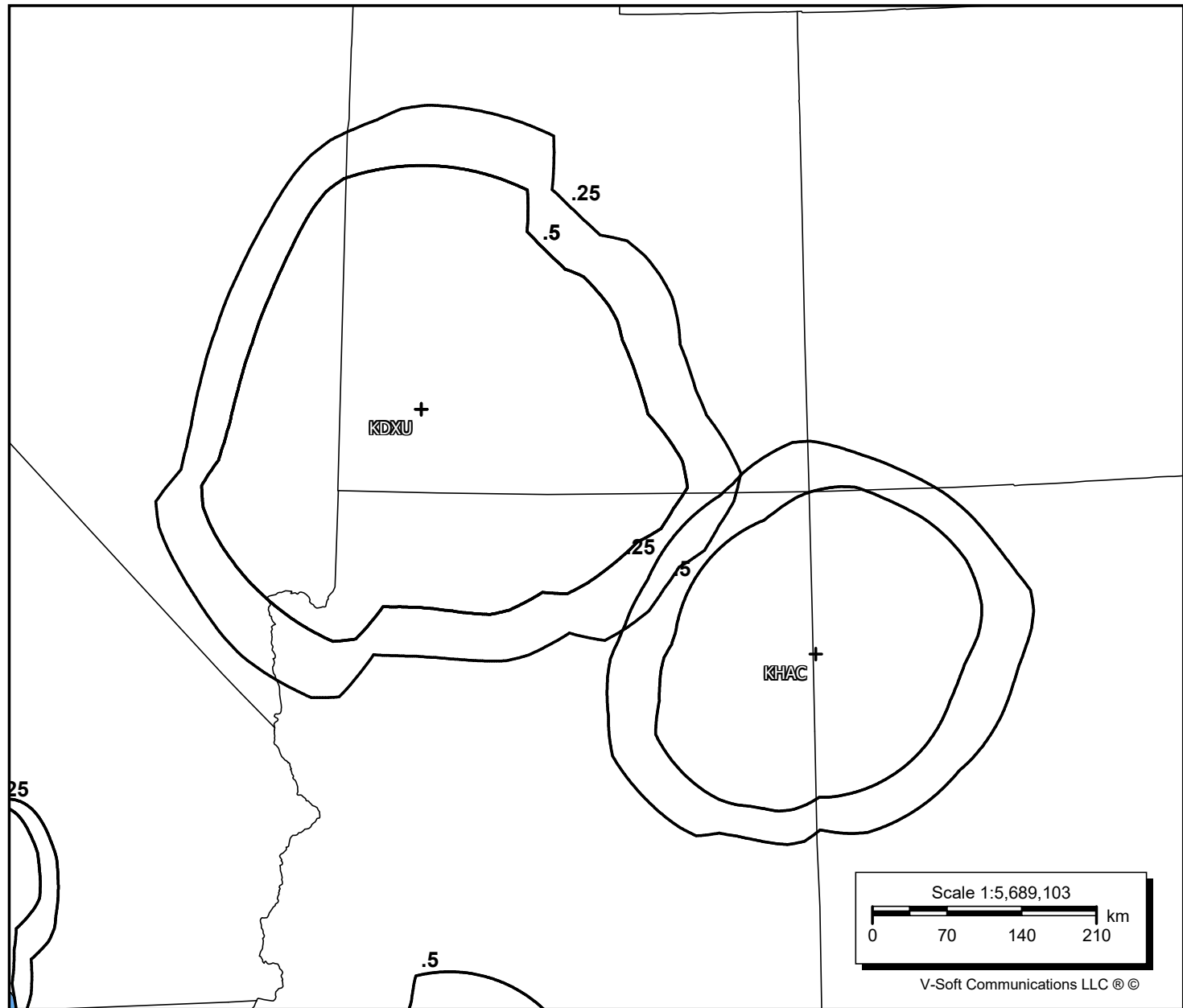
Power: 25 kW

RMS: 310.943 mV/m @1km

Towers: 1

Aucs: 0

Daytime Allocation Study
1st-adjacent channel



KDXU

Freq: 890 kHz

Class: B

Latitude: 37-41-51 N

Longitude: 113-10-52 W

Power: 25 kW

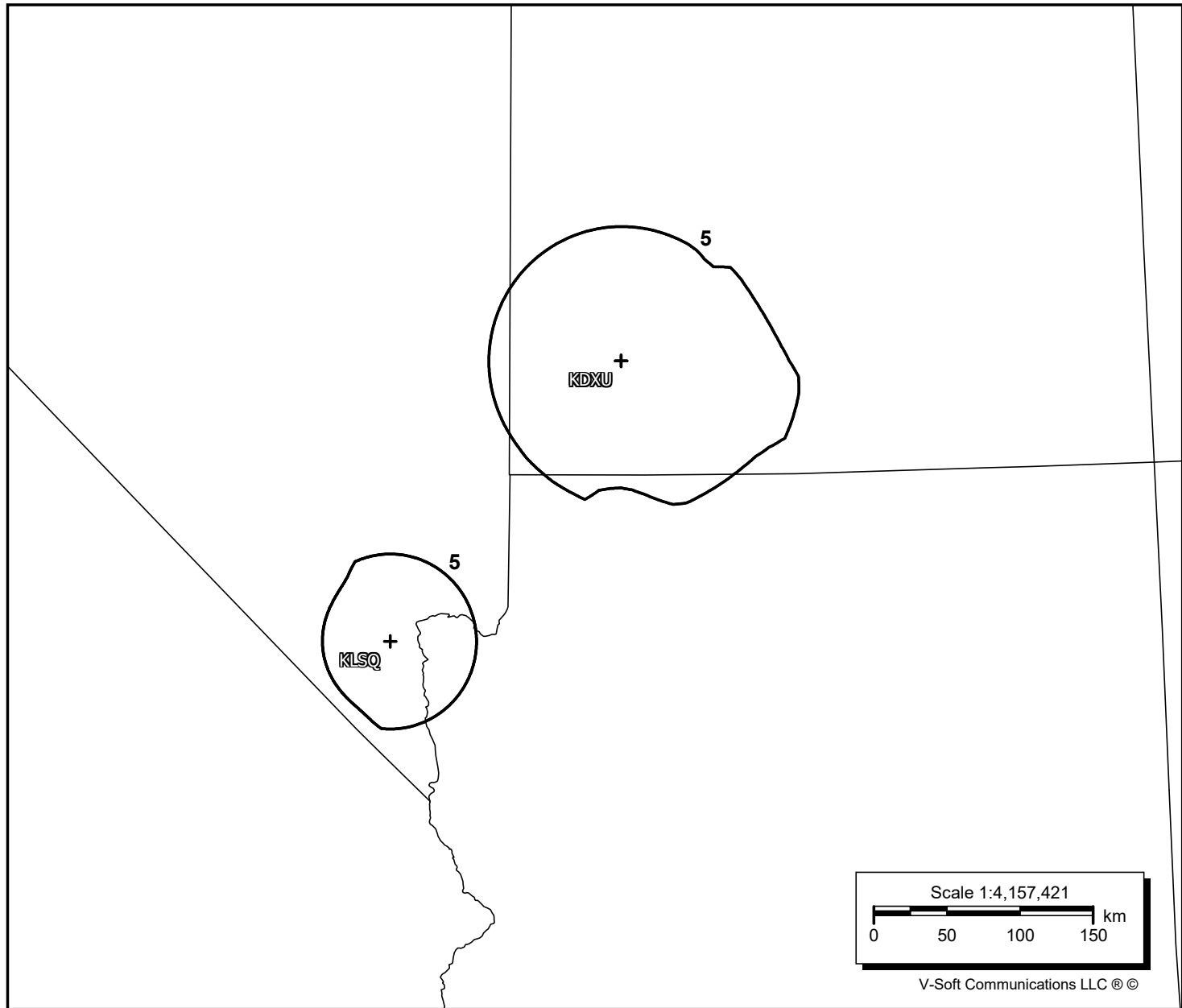
RMS: 310.943 mV/m @1km

Towers: 1

Aucs: 0

Daytime Allocation Study

2nd-adjacent channel



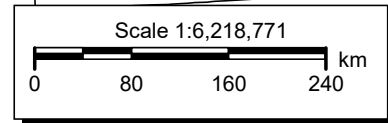
KDXU

Freq: 890 kHz
Class: B
Latitude: 37-41-51 N
Longitude: 113-10-52 W
Power: 0.108 kW
RMS: 310.943 mV/m @1km
Towers: 1
AUs: 0

Skywave Protection of
Class A Station WLS

KDXU Proposed
25 μ V/m 10%
Skywave

WLS
500 μ V/m 50%
Skywave



V-Soft Communications LLC ©

Site to Site RSS Calculations

 Protected Station: XENVA2/O, 890 kHz - CANANEA, SO, MX
 Coordinates: 30-57-23 N, 110-17-28 W
 Standard: Mexican [10%]

Current:

Call	Freq (kHz)	Limit (mV/m)	(%)
*KDXU	0890	12.359	100.0
-----	50%	-----	
WLS	0890	3.815	30.8
-----	25%	-----	
KVOZ	0890	3.053	23.6
XEOBS/A	0890	1.778	13.3

Proposed:

Call	Freq (kHz)	Limit (mV/m)	(%)
WLS	0890	3.815	100.0
KVOZ	0890	3.053	80.0
-----	50%	-----	
XEOBS/A	0890	1.778	36.3
*KDXU-PRO	0890	1.712	32.9
-----	25%	-----	
KTXV	0890	1.216	22.2
XENZ/A	0890	1.196	21.3
KVMX	0890	1.048	18.2
KIHC	0890	0.976	16.7
XEPNA/A	0890	0.892	15.0

 Protected Station: XEOBS/A, 890 kHz - CD. OBREGON, SO, MX
 Coordinates: 27-30-04 N, 109-58-37 W
 Standard: Mexican [10%]

Current:

Call	Freq (kHz)	Limit (mV/m)	(%)
*KDXU	0890	8.772	100.0
KVOZ	0890	4.914	56.0
-----	50%	-----	
WLS	0890	2.998	29.8
-----	25%	-----	
XENZ/A	0890	1.690	16.1
XEPNA/A	0890	1.510	14.2

Proposed:

Call	Freq (kHz)	Limit (mV/m)	(%)
KVOZ	0890	4.914	100.0
WLS	0890	2.998	61.0
-----	50%	-----	
XENZ/A	0890	1.690	29.3
XEPNA/A	0890	1.510	25.1
-----	25%	-----	
*KDXU-PRO	0890	0.969	15.6
KTXV	0890	0.784	12.5
KIHC	0890	0.763	12.0
KVMX	0890	0.683	10.7

Protected Station: XEOBS/O, 890 kHz - CD. OBREGON, SO, MX
 Coordinates: 27-30-04 N, 109-58-37 W
 Standard: Mexican [10%]

Current:

Call	Freq (kHz)	Limit (mV/m)	(%)
*KDXU	0890	8.772	100.0
KVOZ	0890	4.914	56.0
-----	50%	-----	
WLS	0890	2.998	29.8
-----	25%	-----	
XENZ/A	0890	1.690	16.1
XEPNA/A	0890	1.510	14.2

Proposed:

Call	Freq (kHz)	Limit (mV/m)	(%)
KVOZ	0890	4.914	100.0
WLS	0890	2.998	61.0
-----	50%	-----	
XENZ/A	0890	1.690	29.3
XEPNA/A	0890	1.510	25.1
-----	25%	-----	
*KDXU-PRO	0890	0.969	15.6
KTXV	0890	0.784	12.5
KIHC	0890	0.763	12.0
KVMX	0890	0.683	10.7

Protected Station: KVMX, 890 kHz - OLIVEHURST, CA, US
 Coordinates: 38-30-29 N, 121-34-46 W
 Standard: FCC Rules (1992 Skywave Propagation Model) [10%]

Current:

Call	Freq (kHz)	Limit (mV/m)	(%)
*KDXU	0890	22.539	100.0
-----	50%	-----	
KIHC	0890	6.604	29.2
-----	25%	-----	
WLS	0890	2.679	11.4

Proposed:

Call	Freq (kHz)	Limit (mV/m)	(%)
KIHC	0890	6.604	100.0
-----	50%	-----	
WLS	0890	2.679	40.5
-----	25%	-----	
890TRAIL/	0890	1.512	21.2
CJDC/	0890	1.451	19.9
*KDXU-PRO	0890	1.409	18.9
KBIF	0900	1.280	16.9
KRVN	0880	1.034	13.4
KKMC	0880	1.000	12.9
XEW1/A	0900	0.874	11.2

Protected Station: KIHG, 890 kHz - ARROYO GRANDE, CA, US
 Coordinates: 35-08-44 N, 120-31-15 W
 Standard: FCC Rules (1992 Skywave Propagation Model) [10%]

Current:

Call	Freq (kHz)	Limit (mV/m)	(%)
*KDXU	0890	25.849	100.0
-----	50%	-----	
-----	25%	-----	
KVMX	0890	6.366	24.6
KKMC	0880	3.400	12.7
WLS	0890	2.916	10.8

Proposed:

Call	Freq (kHz)	Limit (mV/m)	(%)
KVMX	0890	6.366	100.0
KKMC	0880	3.400	53.4
-----	50%	-----	
WLS	0890	2.916	40.4
-----	25%	-----	
*KDXU-PRO	0890	1.502	19.2
XEW1/A	0900	1.135	14.3
KRVN	0880	1.076	13.4
CJDC/	0890	1.033	12.7
890TRAIL/	0890	0.906	11.1

Statement of Engineer

This Engineering Report, relative to a change in facilities for KDXU(AM) has been prepared by the undersigned. All representations contained herein are true to the best of my knowledge. I am an experienced radio engineer whose qualifications are a matter of record with the Federal Communications Commission. I am an engineer in the firm of Hatfield and Dawson Consulting Engineers and am Registered as a Professional Engineer in the States of Washington and Oregon.

Signed this 7th Day of February 2024



Thomas S. Gorton, P.E.