

ENGINEERING EXHIBIT

Incentive Auction Channel Reassignment

Application for Digital Television Station Construction Permit

prepared for

Sarkes Tarzian, Inc.
KTVN(DT) Reno, NV
Facility ID 59139
Ch. 11 15.9 kW 891 m

Sarkes Tarzian, Inc. (“*STI*”) is the licensee of digital television station KTVN(DT), Channel 13, Facility ID 59139, Reno, NV. *STI* herein proposes construction of the KTVN post-auction facility on Channel 11. Reassignment of KTVN from Channel 13 to Channel 11 was specified in the *Incentive Auction Closing and Channel Reassignment Public Notice* (“*CCRPN*”, DA 17-317, released April 13, 2017).

The proposed Channel 11 operation will employ the existing broadband shared antenna system utilized by the licensed KTVN facility. The antenna is a horizontally polarized nondirectional Dielectric model TF-4HT-M. *STI* proposes to operate KTVN with an effective radiated power (“ERP”) of 15.9 kW at 891 meters antenna height above average terrain (“HAAT”).

Based on a licensed surveyor’s report, this application also provides revised site geographic coordinates (by one second latitude), site ground elevation (increases 7.9 meters), and antenna radiation center height to correspond to the as-built facility. No change in actual antenna location or height is proposed.

The tower structure is not presently registered with the FCC, as it is an existing structure of less than 61 meters overall height above ground and there are no known landing areas within 8 km according to the FCC’s “TOWAIR” slope test program. No change to the structure’s

overall height is proposed. FAA notification and commensurate FCC registration are not necessary.

A map is supplied as Figure 1 which depicts the standard predicted coverage contours. This map includes the location of Reno, KTVN's principal community. As demonstrated thereon, the proposed facility complies with §73.625(a)(1) as the entire principal community will be encompassed by the 43 dB μ contour.

The proposed noise limited service contour ("NLSC") extends slightly beyond that of the *CCRPN* parameters of 16.1 kW ERP and 876 meters HAAT. Although nondirectional operation is proposed as specified for KTVN in the *CCRPN*, the change in antenna height and an offsetting adjustment in ERP still result in variations in NLSC locations due to non-uniform terrain. Thus, the proposed Channel 11 NLSC cannot precisely match the *CCRPN* NLSC and some contour extension is necessary to avoid loss of contour coverage area.

Therefore, KTVN qualifies under §73.3700(b)(ii)(A) for a contour extension due to the contour variations brought about by the revised antenna location and height resulting from the new channel assignment. The proposal complies with §73.3700(b)(ii) as described in the following.

Interference study per FCC OET Bulletin 69¹ shows that the proposal complies with the 0.5 percent limit of new interference caused to pertinent nearby post-auction full service and Class A television stations and reassignments as required by §73.616. The interference study output report is provided as Table 1. This satisfies §73.3700(b)(ii)(C) for the proposed NLSC extension.

¹FCC Office of Engineering and Technology Bulletin number 69, *Longley-Rice Methodology for Evaluating TV Coverage and Interference*, February 6, 2004 ("OET-69"). This analysis employed the FCC's current "TVStudy" software with the default application processing template settings, 2 km cell size, and 1 km terrain increment. Comparisons of various results of this computer program (run on a Mac processor) to the FCC's implementation of TVStudy show excellent correlation.

The amount of NLSC extension does not exceed one percent in any direction. Figure 2 supplies a coverage contour comparison of the proposed KTVN facility to the reassignment facility’s contour and a one percent extension distance of the reassignment facility’s contour. Table 1’s results also demonstrate that the proposed contour is within the baseline contour plus one percent. Therefore the proposed contour extension complies with §73.3700(b)(ii)(B).

The proposed KTVN facility’s terrain-limited population provides a 100.3 percent match of the *CCRPN* baseline facility, as detailed in the following table. The OET Bulletin 69 report summary in Table 1 also concludes that the proposed service area population is more than 95 percent of the baseline population.

Terrain Limited Population - Match of Reassignment		
Population Summary (2010 Census) OET Bulletin 69: TVStudy	Reassignment Parameters	Proposed
Within Noise Limited Contour	955,300	958,936
Not affected by terrain losses	800,344	802,849
Match of Reassignment	---	100.31%

The proposed 15.9 kW ERP exceeds the maximum allowed for the proposed antenna HAAT of 891 meters permitted by §73.622(f)(7). Section 73.622(f)(5) permits the maximum ERP to be exceeded in order to provide the same geographic coverage area as the largest station within the same market. The total area within the proposed KTVN NLSC is 47,010 square kilometers, which does not exceed the contour area of KREN-TV (49,197 sq. km, Ch. 26, Reno, NV, BLCDDT-20090227AAM). Thus, the 15.9 kW ERP specified herein is in compliance with §73.622(f)(5) of the FCC’s Rules.

The nearest FCC monitoring station is 240 km distant at Livermore, CA. This exceeds by a large margin the threshold minimum distance specified in §73.1030(c)(3) that would suggest consideration of the monitoring station. The site is not located within the areas requiring coordination with “quiet” zones specified in §73.1030(a) and (b). There are no authorized AM stations within 3 kilometers of the site. The site location is beyond the border areas requiring international coordination.

Human Exposure to Radiofrequency Electromagnetic Field (Environmental)

The transmitting location is on Slide Mountain overlooking Reno. There are numerous other transmitting facilities at this site area situated on various antenna supporting structures. *STI* participates in a radiofrequency (“RF”) electromagnetic field exposure safety program, along with other broadcasters and FCC licensees that utilize the Slide Mountain site area. Following construction of the proposed facility, *STI* will conduct RF exposure measurements (and/or detailed calculations) to evaluate the level of RF exposure resulting from the proposed KTVN facility. As necessary, based on these results and considering all emitters, appropriate exposure abatement procedures will be established and followed, in order to comply with the FCC’s exposure limits. Such abatement procedures may involve the restriction of access to certain areas and/or facility modifications to reduce RF levels.

Considering the post-construction measurement and an appropriate abatement program, the general public and workers will not be exposed to RF levels attributable to the proposal in excess of the FCC’s guidelines. RF exposure warning signs will continue to be posted. With respect to worker safety, authorized personnel will be trained and/or supervised as necessary for access to any “controlled” areas. *STI* will coordinate exposure procedures with all pertinent stations and will reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from RF electromagnetic field exposure in excess of FCC guidelines.

This exhibit is limited to the evaluation of exposure to RF electromagnetic field. No tower work is required to carry out this proposal.

List of Attachments

Figure 1	Proposed Coverage Contours
Figure 2	Proposed Contour Expansion
Figure 3	Maximum ERP per §73.622(f)
Table 1	OET Bulletin 69 Interference Study
Form 2100	Saved Version of Engineering Sections from FCC Form at Time of Upload

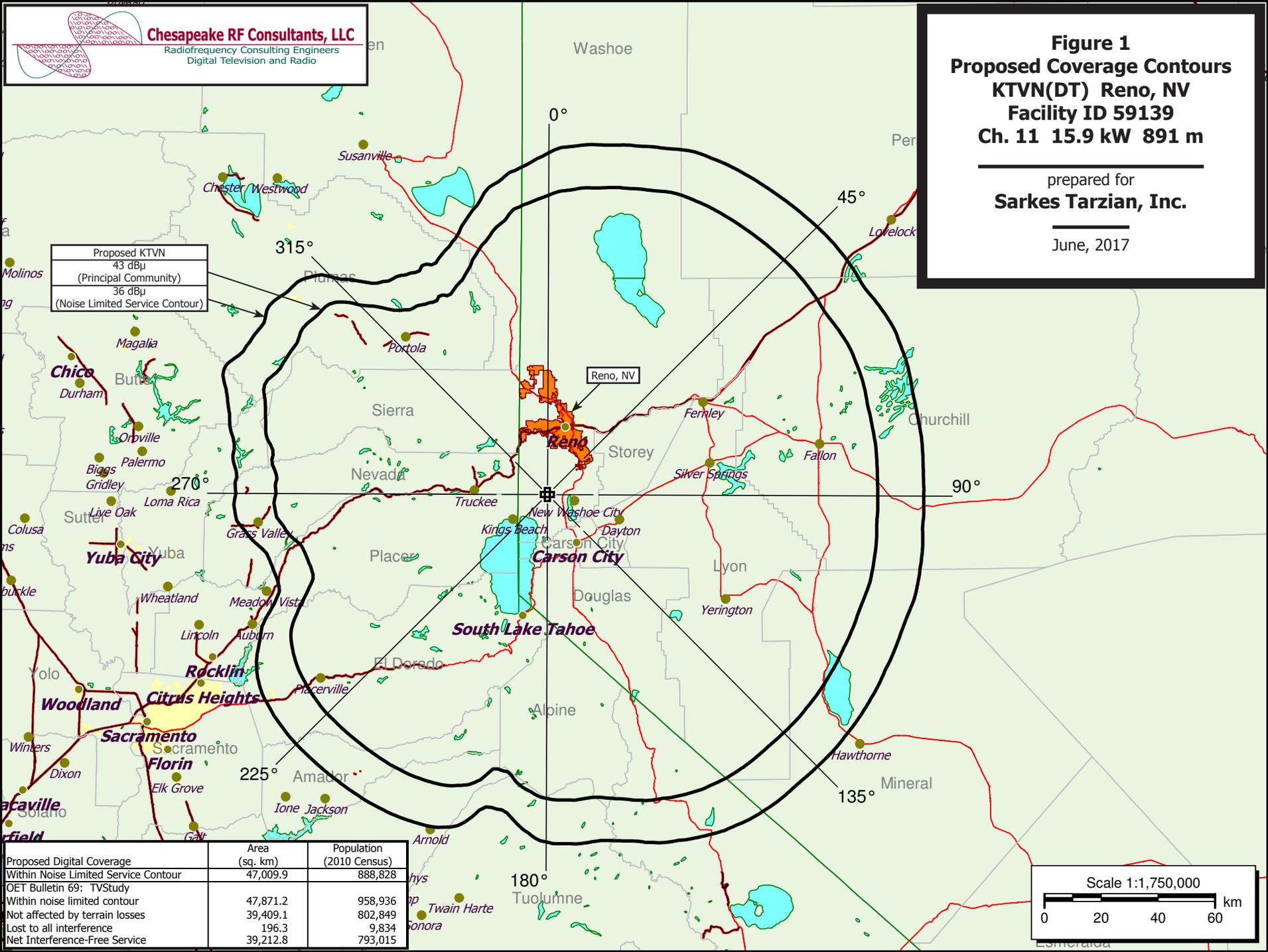
Chesapeake RF Consultants, LLC

Joseph M. Davis, P.E.	June 10, 2017	
207 Old Dominion Road	Yorktown, VA 23692	703-650-9600

Figure 1
Proposed Coverage Contours
KTVN(DT) Reno, NV
Facility ID 59139
Ch. 11 15.9 kW 891 m

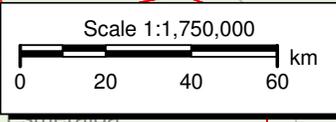
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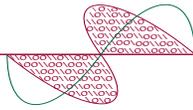
June, 2017



Proposed KTVN
43 dBu
(Principal Community)
36 dBu
(Noise Limited Service Contour)

Proposed Digital Coverage	Area (sq. km)	Population (2010 Census)
Within Noise Limited Service Contour	47,009.9	888,828
OET Bulletin 69: TVStudy		
Within noise limited contour	47,871.2	958,936
Not affected by terrain losses	39,409.1	802,849
Lost to all interference	196.3	9,834
Net Interference-Free Service	39,212.8	793,015





Chesapeake RF Consultants, LLC
Radiofrequency Consulting Engineers
Digital Television and Radio

Figure 3
Maximum ERP per §73.622(f)
KTVN(DT) Reno, NV
Facility ID 59139
Ch. 11 15.9 kW 891 m

prepared for
Sarkes Tarzian, Inc.

June, 2017

Proposed KTVN
36 dBμ Contour
Area: 47,010 sq. km

KREN-TV Ch. 26 Reno, NV
BLCDT-20090227AAM
39.95 dBμ Contour
Area: 49,197 sq. km

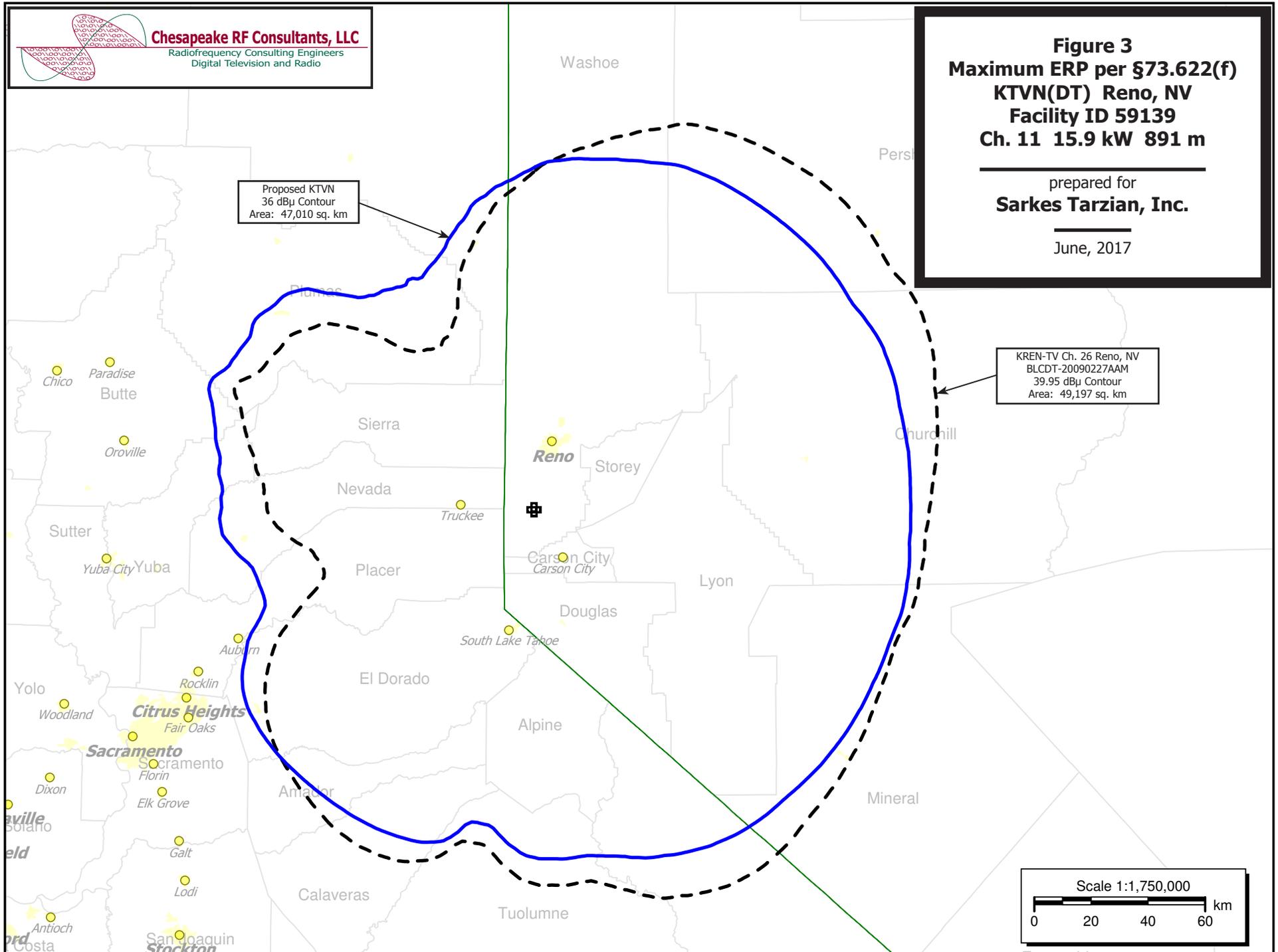


Table 1 KTVN(DT) OET Bulletin 69 Interference Study
(page 1 of 3)



tvstudy v2.2.2

Database: localhost, Study: KTVN 15.9KW PROP, Model: Longley-Rice
Start: 2017.06.10 16:10:01

Study created: 2017.06.10 16:09:55

Study build station data: LMS TV 2017-06-09 LMSTV

Proposal: KTVN D11 DT APP RENO, NV
File number: KTVN 15.9KW
Facility ID: 59139
Station data: User record
Record ID: 438
Country: U.S.

Stations potentially affected:

Call	Chan	Svc	Status	City, State	File Number	Distance
KXTV	D10	DT	LIC	SACRAMENTO, CA	BLCDT20120201AAM	184.2 km
KEET	D11	DT	LIC	EUREKA, CA	BLANK0000005864	381.7
KNSO	D11	DT	LIC	MERCED, CA	BLCDT20100202ABE	252.5
KCBA	D11	DT	BL	SALINAS, CA	DTVBL14867	317.8
KRNV-DT	D12	DT	BL	RENO, NV	DTVBL60307	0.1

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D11
Latitude: 39 18 56.20 N (NAD83)
Longitude: 119 53 6.00 W
Height AMSL: 2976.4 m
HAAT: 891.4 m
Peak ERP: 15.9 kW
Antenna: Omnidirectional

36.0 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	15.9 kW	679.7 m	119.6 km
45.0	15.9	1310.3	133.5
90.0	15.9	1245.9	132.3
135.0	15.9	1366.5	134.6
180.0	15.9	737.5	121.4
225.0	15.9	864.5	123.9
270.0	15.9	474.9	109.2
315.0	15.9	451.5	107.5

ERP exceeds maximum

ERP: 15.9 kW ERP maximum: 15.7 kW

Proposal service area is within baseline plus 1.0%
Proposal service area population is more than 95.0% of baseline

Distance to Canadian border: 1032.4 km

Distance to Mexican border: 778.6 km

Conditions at FCC monitoring station: Livermore CA
Bearing: 223.2 degrees Distance: 240.2 km
ERP: 15.9 kW Field strength: -4.5 dBu, 0.0 mV/m

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
Bearing: 81.1 degrees Distance: 1252.7 km

Study cell size: 2.00 km
Profile point spacing: 1.00 km

Maximum new IX to full-service and Class A: 0.50%

Table 1 KTVN(DT) OET Bulletin 69 Interference Study
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Maximum new IX to LPTV: 2.00%

Interference to BLCDT20120201AAM LIC, scenario 1
Proposal causes no interference.

Interference to BLANK0000005864 LIC, scenario 1
Proposal causes no interference.

Interference to BLCDT20100202ABE LIC, scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	KNSO	D11	DT	LIC	MERCED, CA	BLCDT20100202ABE	
Undesireds:	KTVN	D11	DT	BL	RENO, NV	DTVBL59139	252.5 km
	KTVN	D11	DT	APP	RENO, NV	KTVN 15.9KW	252.5
	KERO-TV	D10	DT	LIC	BAKERSFIELD, CA	BLCDT20100929AEF	194.9
	KXTV	D10	DT	LIC	SACRAMENTO, CA	BLCDT20120201AAM	223.7
	KTTV	D11	DT	LIC	LOS ANGELES, CA	BLCDT20100709AFD	339.7
	KCBA	D11	DT	BL	SALINAS, CA	DTVBL14867	187.4
	Service area		Terrain-limited		IX-free, before	IX-free, after	Percent New IX
	47181.6	2,092,512	42557.1	2,031,080	41659.6	2,023,100	41663.5 2,023,100 -0.01 0.00
Undesired			Total IX		Unique IX, before	Unique IX, after	
KTVN D11 DT BL		79.3	697		27.8	0	
KTVN D11 DT APP		75.3	697			23.9	0
KXTV D10 DT LIC		11.9	15	0.0	0	0.0	0
KTTV D11 DT LIC		52.0	402	52.0	402	52.0	402
KCBA D11 DT BL		817.8	7,578	758.4	6,881	758.4	6,881

Interference to DTVBL14867 BL, scenario 1

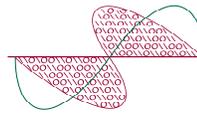
Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	KCBA	D11	DT	BL	SALINAS, CA	DTVBL14867	
Undesireds:	KTVN	D11	DT	BL	RENO, NV	DTVBL59139	317.8 km
	KTVN	D11	DT	APP	RENO, NV	KTVN 15.9KW	317.8
	KXTV	D10	DT	LIC	SACRAMENTO, CA	BLCDT20120201AAM	164.9
	KNSO	D11	DT	LIC	MERCED, CA	BLCDT20100202ABE	187.4
	KGO-TV	D12	DT	BL	SAN FRANCISCO, CA	DTVBL34470	139.3
	Service area		Terrain-limited		IX-free, before	IX-free, after	Percent New IX
	32362.1	3,094,778	24584.1	2,343,741	22842.7	1,338,836	22842.7 1,338,836 0.00 0.00
Undesired			Total IX		Unique IX, before	Unique IX, after	
KTVN D11 DT BL		103.8	20,497		12.0	0	
KTVN D11 DT APP		91.9	8,956			12.0	0
KXTV D10 DT LIC		4.0	0	0.0	0	0.0	0
KNSO D11 DT LIC		1079.4	102,244	839.9	2,386	847.9	2,450
KGO-TV D12 DT BL		813.6	1,001,977	650.0	902,661	650.0	902,661

Interference to DTVBL60307 BL, scenario 1
Proposal causes no interference.

Interference to proposal, scenario 1
1.22% interference

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	KTVN	D11	DT	APP	RENO, NV	KTVN 15.9KW	
Undesireds:	KXTV	D10	DT	LIC	SACRAMENTO, CA	BLCDT20120201AAM	184.2 km
	KEET	D11	DT	LIC	EUREKA, CA	BLANK0000005864	381.7
	KNSO	D11	DT	LIC	MERCED, CA	BLCDT20100202ABE	252.5
	KCBA	D11	DT	BL	SALINAS, CA	DTVBL14867	317.8
	KRNV-DT	D12	DT	BL	RENO, NV	DTVBL60307	0.1

Table 1 KTVN(DT) OET Bulletin 69 Interference Study
 (page 3 of 3)



Service area		Terrain-limited		IX-free		Percent IX	
47871.2	958,936	39409.1	802,849	39212.8	793,015	0.50	1.22
Undesired		Total IX		Unique IX		Prcnt Unique IX	
KXTV D10 DT LIC		52.2	5,432	20.1	794	0.05	0.10
KNSO D11 DT LIC		60.2	5,054	16.0	162	0.04	0.02
KCBA D11 DT BL		144.2	7,992	92.0	234	0.23	0.03
KRNV-DT D12 DT BL		4.0	0	4.0	0	0.01	0.00

Channel and Facility Information

Section	Question	Response
Proposed Community of License	Facility ID	59139
	State	Nevada
	City	RENO
	DTV Channel	11
Facility Type	Facility Type	Commercial
	Station Type	Main
Zone	Zone	2

Antenna Location Data

Section	Question	Response
Antenna Structure Registration	Do you have an FCC Antenna Structure Registration (ASR) Number?	No
	ASR Number	
Coordinates (NAD83)	Latitude	39° 18' 56.2" N+
	Longitude	119° 53' 06.0" W-
	Structure Type	LTOWER-Lattice Tower
	Overall Structure Height	60.7 meters
	Support Structure Height	50.0 meters
	Ground Elevation (AMSL)	2920.9 meters
Antenna Data	Height of Radiation Center Above Ground Level	55.5 meters
	Height of Radiation Center Above Average Terrain	891.4 meters
	Height of Radiation Center Above Mean Sea Level	2976.4 meters
	Effective Radiated Power	15.9 kW

**Antenna
Technical Data**

Section	Question	Response
Antenna Type	Antenna Type	Non-Directional
	Do you have an Antenna ID?	
	Antenna ID	
Antenna Manufacturer and Model	Manufacturer:	DIE
	Model	TF-4HT-M
	Rotation	0 degrees
	Electrical Beam Tilt	1.9
	Mechanical Beam Tilt	Not Applicable
	toward azimuth	
	Polarization	Horizontal
DTV and DTS: Elevation Pattern	Does the proposed antenna propose elevation radiation patterns that vary with azimuth for reasons other than the use of mechanical beam tilt?	No
	Uploaded file for elevation antenna (or radiation) pattern data	

**Construction
Permit
Certifications**

Section	Question	Response
<p>Post-Incentive Auction Expedited Processing</p>	<p>It will operate on the DTV channel for this station as established in the post-incentive auction channel reassignment public notice.</p>	<p>Yes</p>
	<p>It will operate post-incentive auction facilities that do not expand the noise-limited service contour in any direction beyond that established by the post-incentive auction channel reassignment public notice.</p>	<p>No</p>
	<p>It will operate post-incentive auction facilities that match or reduce by no more than five percent with respect to predicted population from those defined in the post-incentive auction channel reassignment public notice.</p>	<p>Yes</p>
	<p>The antenna structure to be used by this facility has been registered by the Commission and will not require re-registration to support the proposed antenna, OR the FAA has previously determined that the proposed structure will not adversely affect safety in air navigation and this structure qualifies for later registration under the Commission's phased registration plan, OR the proposed installation on this structure does not require notification to the FAA pursuant to 47 C.F.R. Section 17.7.</p>	<p>Yes</p>
<p>Environmental Effect</p>	<p>Would a Commission grant of Authorization for this location be an action which may have a significant environmental effect? (See Section 1.1306 of 47 C.F.R.)</p>	<p>No</p>
<p>Broadcast Facility</p>	<p>The proposed facility complies with the applicable engineering standards and assignment requirements of 47 C.F.R. Sections 73.616, 73.622(i), 73.623(e), 73.625, 73.1030, and 73.1125.</p>	<p>Yes</p>