

**Comprehensive Technical Exhibit**  
*Application for Construction Permit*  
KXTF - Twin Falls, Idaho  
Falls Broadcasting Company  
October, 2010

**Application for Construction Permit**

The following engineering statement and attached exhibits have been prepared for **Falls Broadcasting Company** ("Falls"), licensee of digital television station KXTF at Twin Falls, Idaho, and are in support of their application for construction permit to modify that facility.<sup>1</sup> KXTF currently operates on channel 34 with a maximum effective radiated power of 21.7 kW at a center of radiation of 152 meters above average terrain utilizing a directional antenna.

Falls seeks, under this application, to increase the KXTF maximum effective radiated power. The proposed increase in the maximum effective radiated power will be achieved through an increase in the transmitter power output. All other related parameters associated with the facility including antenna heights and the directional pattern will remain unchanged from those values authorized under the current license.<sup>2</sup>

Licensed parameters are equivalent to the parameters specified in the Commission's final table of DTV allotments. The increase in the effective radiated power will therefore, increase the predicted service area of the facility. Since this increase in the service area can be achieved without the creation of impermissible interference to other proposed and existing facilities, the public interest would be served by a grant of this application as it would escalate the population able to receive KXTF off-air.

The proposed facilities would operate with a maximum effective radiated power of 49.4 kW, which was determined from converting the logarithmic ERP of 16.94 dBk. KXTF utilizes an RFS

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<sup>1</sup> The Facility ID for KXTF at Twin Falls, Idaho is 1255.

<sup>2</sup> See FCC File No. BLCDDT-20050920ACN.

directional antenna model LPR8DM-2540, which has a maximum power gain of 17.6 dB. The transmission line feeding this antenna is 85 feet of Andrew HJ7-50A air dielectric transmission line. This semi-flexible transmission line has an insertion loss of 0.44 dB per data from the manufacturer. The net gain of the system is therefore 17.16 dB, and with the proposed transmitter power output of -0.223 dBk (950 Watts) results in a maximum effective radiated power of 16.94 dBk or 49.4 kW.

No change in the directional antenna system utilized by the facility would result from this change. Exhibit E-1 is comprised of four pages, which contain the directional antenna data required for the facility. No change in the orientation of the antenna, which has the main lobe peak radiation at 200 degrees true, is proposed.

Exhibit E-2 compares the licensed noise limited service contour to the proposed noise limited service contour. On this map, the red contour is the licensed contour, while the proposed contour is depicted in blue. This map was computer generated using a commercially available software package.

The proposed increase in the effective radiated power would not result in impermissible interference to other facilities. Exhibits E-3 and E-4 comprise the outgoing interference study for the proposed facility. This study, performed at the standard resolution, demonstrates that no interference in excess of that permitted under the Commission's Rules would exist.

Exhibits E-5 and E-6 depict and tabulate the calculated DTV service area. As indicated, the proposed facility is predicted to provide interference-free service to 100,885 residents. The Appendix B facility predicts service to 99 thousand persons, thus the small increase in the

transmitter power output will result in an increase in the population served of nearly two percent. The predicted service area population is based on the 2000 Census data.

The proposed facility would provide adequate coverage over Twin Falls, the community of license. Exhibit E-7 illustrates the 48 dBu and 41 dBu F(50,90) service contours as well as the predicted Longley-Rice field strength. As demonstrated on the map, the 48 dBu contour would totally encompass Twin Falls. In addition, the Longley-Rice model predicts that the city would receive a signal level of 48 dBu or greater.

The requirements of Section 73.1030 of the Commission's Rules are not applicable in this particular case. The proposed facility would not operate in any of the zones described in the referenced section, and is not in close proximity to any of the installations described in that section. In addition, the distance to any protected FCC installation is well in excess of the suggest limits for strict consideration.

The tower utilized by the proposed DTV is not utilized by any other authorized facility. In addition, it would not be part of an AM radiation system and is not located in the vicinity of an AM radiation system. The proposed facility therefore complies with Section 73.625(c) of the Commission's Rules.

The structure utilized for the facilities described in this application does not require registration due to its height. No physical change to the structure is proposed. As a result, no excavation will occur nor will the existing environmental impact to the area by the structure be increased. The proposed facility will not constitute and RF exposure hazard to persons at the site.

Areas of the site lie in locations where the vertical plane radiation would have relative field values of 0.2 or less. At a relative field of 0.2, the calculated power density would be 204  $\mu\text{W}/\text{cm}^2$ . The uncontrolled environment condition of the applicable safety standard imposes a limit of 393  $\mu\text{W}/\text{cm}^2$ . In reality the directional nature of the antenna in the horizontal plane will necessarily result significantly lower power density values than the calculated value above, which will only occur at the main lobe peak azimuth. Power density values were calculated in accordance with the following standard equation.

$$S = \frac{33.4(E_{\text{Ref}})^2(ERP)}{h^2}$$

In order to protect workers having access to the site from being exposed to levels of non-ionizing radiation which may exceed the applicable safety standards, the applicant certifies that it will coordinate with other present and future users of the site. Such coordination will include, but is not necessarily limited to, a reduction in transmitter power or cessation of operation.

**Affidavit**

The preceding statement and attached exhibits have been prepared by me, or under my direction, and are true and accurate to the best of my belief and knowledge.



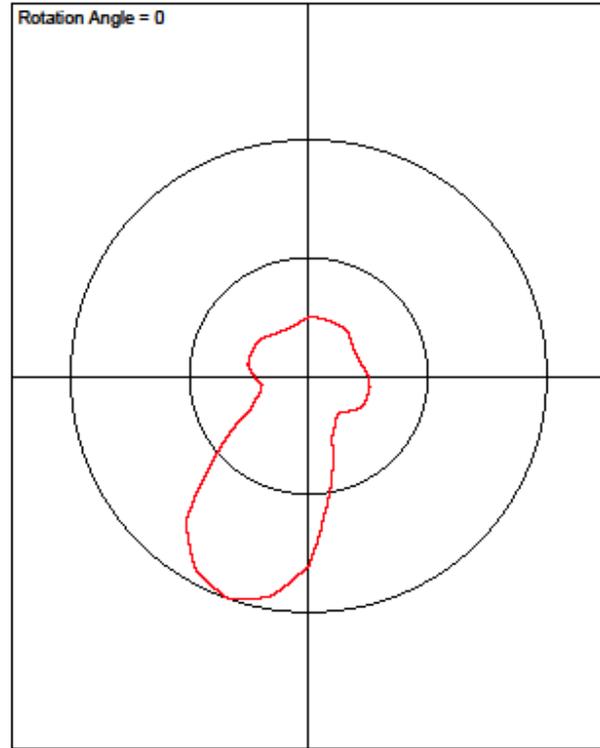
Above signature is digitized copy of actual signature  
License Expires November 30, 2011

**Jeremy D. Ruck, PE**  
October 27, 2010

**Exhibit E-1 - Directional Antenna Data**  
*RFS Model LPR8DM-2540 Oriented at 200 Degrees True*

Exhibit E-1 - KXTF Horizontal Plane Pattern  
 Pre-Rotation Antenna Pattern....

Azimuth (deg)	Relative Field
0.0	0.250
10.0	0.250
20.0	0.250
30.0	0.250
40.0	0.250
50.0	0.230
60.0	0.220
70.0	0.220
80.0	0.230
90.0	0.250
100.0	0.260
110.0	0.260
120.0	0.260
130.0	0.230
140.0	0.200
150.0	0.220
160.0	0.280
170.0	0.500
174.0	0.600
180.0	0.800
190.0	0.950
196.0	0.980
200.0	1.000
204.0	0.980
210.0	0.950
220.0	0.800
228.0	0.600
230.0	0.500
240.0	0.280
250.0	0.220
260.0	0.200
270.0	0.230
280.0	0.260
290.0	0.260
300.0	0.260
310.0	0.250
320.0	0.230
330.0	0.220
340.0	0.220
350.0	0.230



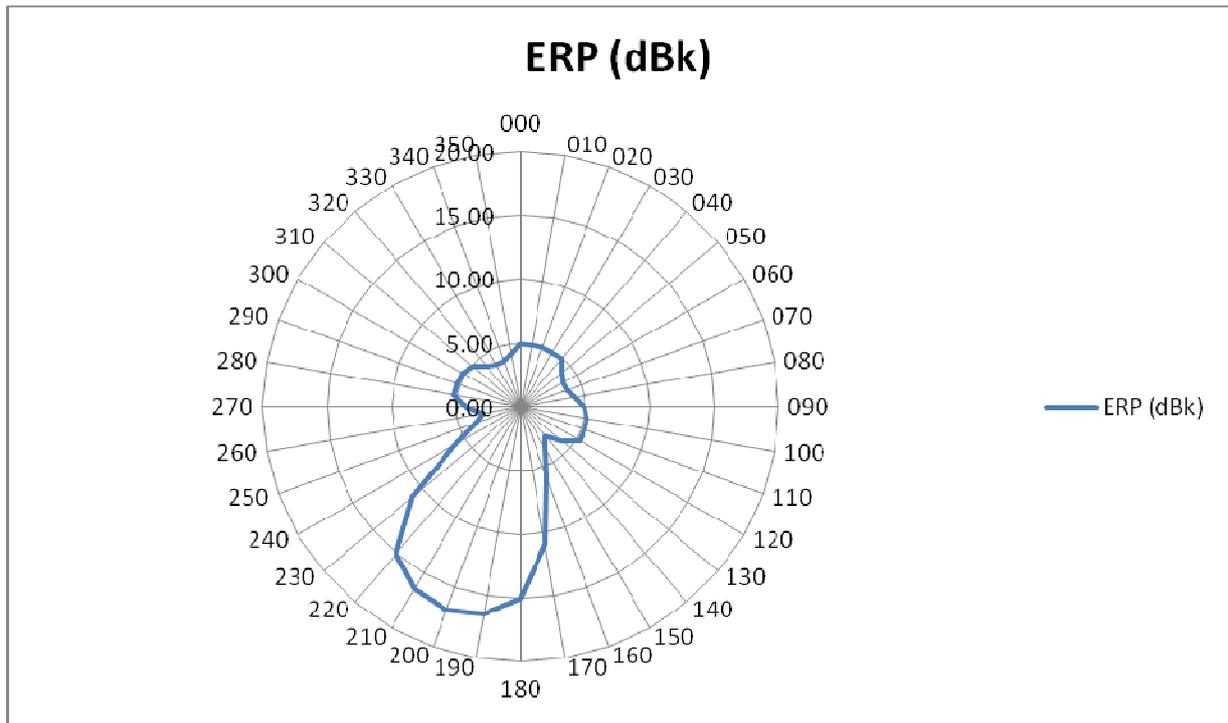
Proposed Television Directional Antenna System

Station: KXTF-DT

Maximum ERP:

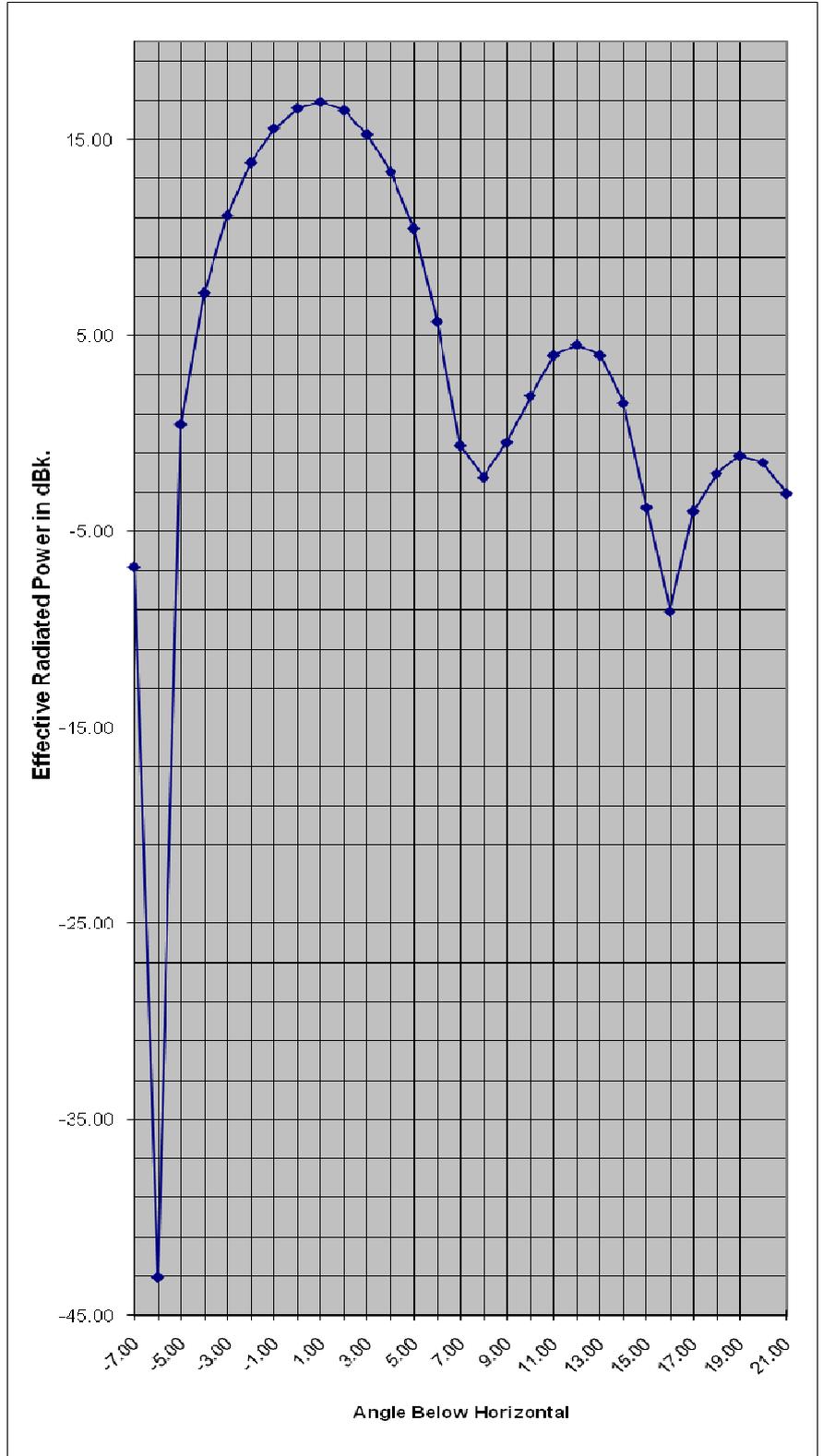
49.4 kW

Azimuth	Relative Field	Relative Power	ERP (kW)	ERP (dBk)
000	0.250	0.0625	3.09	4.90
010	0.250	0.0625	3.09	4.90
020	0.250	0.0625	3.09	4.90
030	0.250	0.0625	3.09	4.90
040	0.250	0.0625	3.09	4.90
050	0.230	0.0529	2.61	4.17
060	0.220	0.0484	2.39	3.79
070	0.220	0.0484	2.39	3.79
080	0.230	0.0529	2.61	4.17
090	0.250	0.0625	3.09	4.90
100	0.260	0.0676	3.34	5.24
110	0.260	0.0676	3.34	5.24
120	0.260	0.0676	3.34	5.24
130	0.230	0.0529	2.61	4.17
140	0.200	0.0400	1.98	2.96
150	0.220	0.0484	2.39	3.79
160	0.280	0.0784	3.87	5.88
170	0.500	0.2500	12.35	10.92
180	0.800	0.6400	31.62	15.00
190	0.950	0.9025	44.58	16.49
200	1.000	1.0000	49.40	16.94
210	0.950	0.9025	44.58	16.49
220	0.800	0.6400	31.62	15.00
230	0.500	0.2500	12.35	10.92
240	0.280	0.0784	3.87	5.88
250	0.220	0.0484	2.39	3.79
260	0.200	0.0400	1.98	2.96
270	0.230	0.0529	2.61	4.17
280	0.260	0.0676	3.34	5.24
290	0.260	0.0676	3.34	5.24
300	0.260	0.0676	3.34	5.24
310	0.250	0.0625	3.09	4.90
320	0.230	0.0529	2.61	4.17
330	0.220	0.0484	2.39	3.79
340	0.220	0.0484	2.39	3.79
350	0.230	0.0529	2.61	4.17
<b>Additional Azimuths:</b>				
174	0.600	0.3600	17.78	12.50
196	0.980	0.9604	47.44	16.76
204	0.980	0.9604	47.44	16.76
226	0.600	0.3600	17.78	12.50



VERTICAL RADIATION PATTERN - EREL values same for all azimuths.

Angle	Relative Field	ERP dBk.
-7.00	0.065	-6.80
-6.00	0.001	-43.06
-5.00	0.150	0.46
-4.00	0.325	7.17
-3.00	0.513	11.13
-2.00	0.700	13.84
-1.00	0.855	15.58
0.00	0.963	16.61
1.00	1.000	16.94
2.00	0.950	16.49
3.00	0.825	15.27
4.00	0.663	13.36
5.00	0.475	10.47
6.00	0.275	5.72
7.00	0.133	-0.62
8.00	0.110	-2.23
9.00	0.135	-0.46
10.00	0.178	1.92
11.00	0.225	3.98
12.00	0.240	4.54
13.00	0.225	3.98
14.00	0.170	1.55
15.00	0.092	-3.79
16.00	0.050	-9.08
17.00	0.090	-3.98
18.00	0.113	-2.04
19.00	0.125	-1.12
20.00	0.120	-1.48
21.00	0.100	-3.06





**KXTF-D**  
BLCDT20050920ACN  
Latitude: 42-43-42 N  
Longitude: 114-24-43 W  
ERP: 21.70 kW  
Channel: 34  
Frequency: 593.0 MHz  
AMSL Height: 1324.0 m  
Elevation: 1306.0 m  
Horiz. Pattern: Directional  
Vert. Pattern: Yes  
Elec Tilt: 1.0  
Prop Model: None

**KXTF-D.PRO**  
PROPOSED  
Latitude: 42-43-42 N  
Longitude: 114-24-43 W  
ERP: 49.40 kW  
Channel: 34  
Frequency: 593.0 MHz  
AMSL Height: 1324.0 m  
Elevation: 1306.0 m  
Horiz. Pattern: Directional  
Vert. Pattern: Yes  
Elec Tilt: 1.0  
Prop Model: None

**D.L. Markley & Associates, Inc.**

 Licensed 41 dBu F(50,90) Service Contour  
 Proposed 41 dBu F(50,90) Service Contour

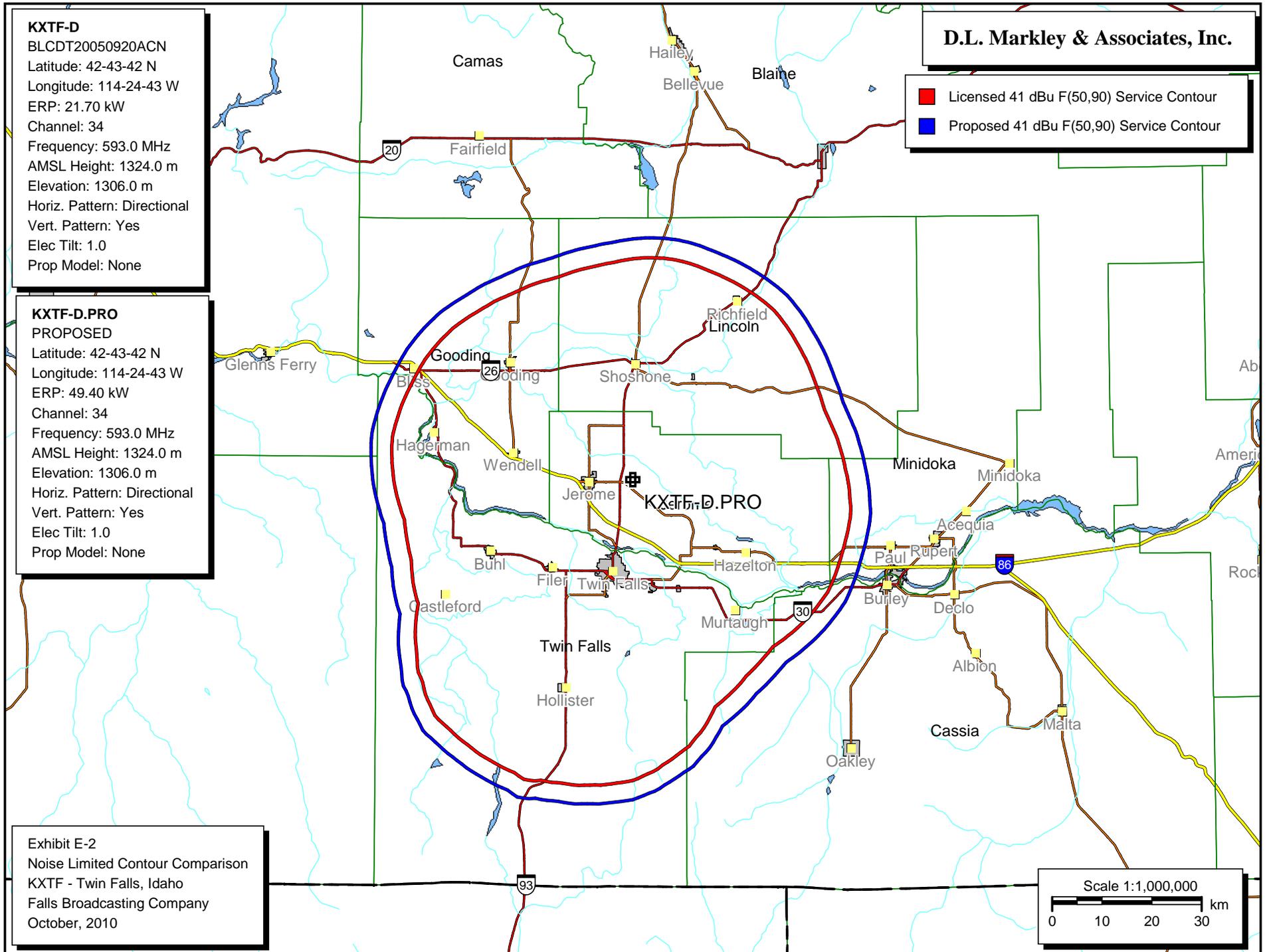
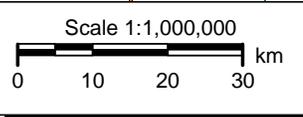


Exhibit E-2  
Noise Limited Contour Comparison  
KXTF - Twin Falls, Idaho  
Falls Broadcasting Company  
October, 2010



**KXTF-D**

BLCDT20050920ACN  
Latitude: 42-43-42 N  
Longitude: 114-24-43 W  
ERP: 49.40 kW  
Channel: 34  
Frequency: 593.0 MHz  
AMSL Height: 1324.0 m  
Elevation: 1306.0 m  
Horiz. Pattern: Directional  
Vert. Pattern: Yes  
Elec Tilt: 1.0  
Prop Model: Longley/Rice  
Climate: Cont temperate  
Conductivity: 0.0050  
Dielec Const: 15.0  
Refractivity: 301.0  
Receiver Ht AG: 10.0 m  
Receiver Gain: 0 dB  
Time Variability: 10.0%  
Sit. Variability: 50.0%  
ITM Mode: Broadcast

**D.L. Markley & Associates, Inc.**

-  KXTF-D
-  1369788-D.A
-  1370806-D.A
-  1372355-D.A
-  1377678-D.A
-  K30HK
-  K33KT-D.C
-  K34CB
-  K34CB-D.C
-  K34FR-D
-  K34HE-D
-  K34KY-D.C
-  K56BT-D.A
-  K56BT-D.A
-  KBAX-LP
-  KUTV-D
-  KUTV-D.R
-  KXPI-LP-D.A

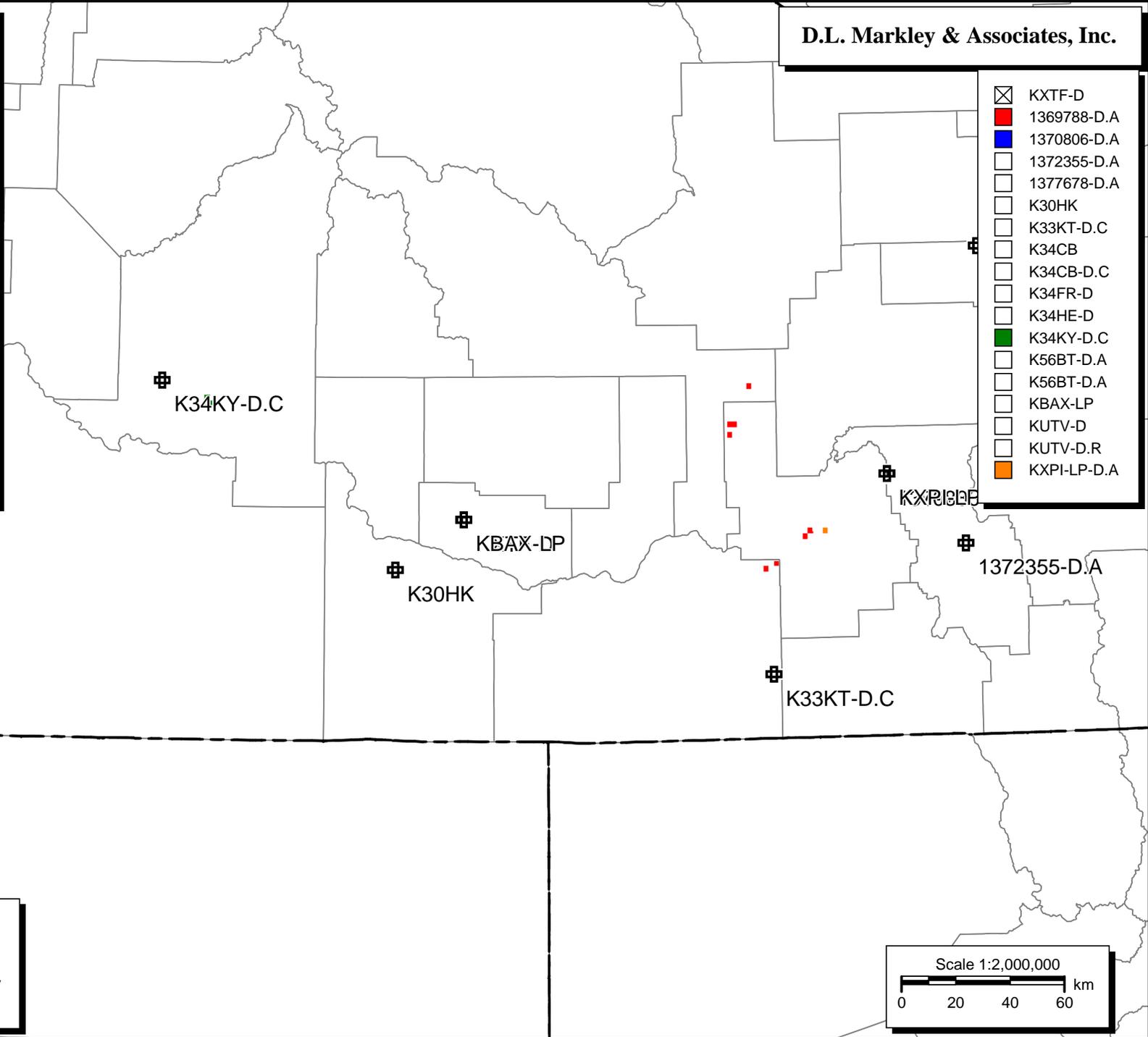


Exhibit E-2  
Outgoing Interference Study  
KXTF - Twin Falls, Idaho  
Falls Broadcasting Company  
October, 2010

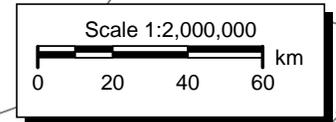


Exhibit E-4  
 Outgoing Interference Population Report

KXTF-D (34) Twin Falls, ID - PROPOSED  
 Broadcast Type: Digital Service: T  
 Lat: 42-43-42 N Lng: 114-24-43 W ERP: 49.4 kW AMSL: 1324.0 m  
 TV Outgoing Interference Study  
 Signal Resolution: 2.0 km  
 Consider NTSC Taboo: Yes  
 KWX error points are considered to  
     be interference free coverage.  
 Default # of radials computed for contours: 360  
 Contours calculated using 8 radial HAAT.  
 LR Profile Spacing Increment: 1.0 km  
 Masked interference points are being  
     counted as interference.  
 Pop Centroid DB: 2000 US Census (SF1)

Study Date: 10/27/2010  
 TV Database Date: 10/27/2010

Primary Terrain: V-Soft 3 Second US Terrain  
 Secondary Terrain: V-Soft 30 Second US Database

Population Database: 2000 US Census (SF1)

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 Stations Considered:

Call Letters	City	State	Dist	Bear
1369788-D.A (34)	Pocatello	ID	155.6	83.8
1370806-D.A (34)	Pocatello	ID	155.6	83.8
1372355-D.A (34)	Mc Cammon	ID	184.4	92.6
1377678-D.A (34)	Idaho Falls	ID	213.3	61.8
K30HK (30+)	Hollister	ID	31.4	234.2
K33KT-D.C (33)	Malta	ID	127.0	116.5
K34CB (34N)	Salmon	ID	231.8	21.3
K34CB-D.C (34)	Lemhi, Etc.	ID	231.8	21.3
K34FR-D (34)	Randolph & Woodruff	UT	298.0	113.2
K34HE-D (34)	Elko	NV	237.4	207.3
K34KY-D.C (34)	Mountain Home	ID	122.4	294.8
K56BT-D.A (34N)	Jackson	WY	303.7	70.3
K56BT-D.A (34)	Jackson	WY	303.7	70.3
KBAX-LP (27N)	Twin Falls	ID	0.3	281.8
KUTV-D (34)	Salt Lake City	UT	294.3	140.6
KUTV-D.R (34)	SALT LAKE CITY	UT	294.3	140.6
KXPI-LP-D.A (34)	Pocatello	ID	156.1	83.7

Call	Area	HUnits	Contour	Masked Ix	Unmasked Ix	%
1369788-D.A (34)	28.7	8	114,302	0	21	0.0
1370806-D.A (34)	28.7	8	114,302	0	21	0.0
1372355-D.A (34)	0.0	0	3,988	0	0	0.0
1377678-D.A (34)	0.0	0	86,452	0	0	0.0

K30HK (30+)	0.0	0	5,889	0	0	0.0
K33KT-D.C (33)	0.0	0	368	0	0	0.0
K34CB (34N)	0.0	0	140	0	0	0.0
K34CB-D.C (34)	0.0	0	360	0	0	0.0
K34FR-D (34)	0.0	0	2,586	0	0	0.0
K34HE-D (34)	0.0	0	34,960	0	0	0.0
K34KY-D.C (34)	10.7	0	25,530	0	0	0.0
K56BT-D.A (34N)	0.0	0	24,694	0	0	0.0
K56BT-D.A (34)	0.0	0	24,694	0	0	0.0
KBAX-LP (27N)	0.0	0	63,195	0	0	0.0
KUTV-D (34)	0.0	0	1,941,491	0	0	0.0
KUTV-D.R (34)	0.0	0	1,941,491	0	0	0.0
KXPI-LP-D.A (34)	3.6	0	110,405	0	0	0.0

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Housing Units    Population

Idaho

Blaine County

Total	12,186	18,991
1369788-D.A (34)	0	0
1370806-D.A (34)	0	0

Elmore County

Total	10,527	29,130
K34KY-D.C (34)	0	0

Power County

Total	2,844	7,538
1369788-D.A (34)	8	21
1370806-D.A (34)	8	21



D.L. Markley & Associates. Inc. Population Report  
Exhibit E-6 - DTV Service Area

KXTF-D (34) Twin Falls, ID - PROPOSED  
Broadcast Type: Digital Service: T  
Lat: 42-43-42 N Lng: 114-24-43 W ERP: 49.4 kW AMSL: 1324.0 m  
TV Incoming Interference Study  
Interference Considered Within: FCC Contour: 41 dBu  
Signal Resolution: 1.0 km  
LR Profile Spacing Increment: 0.1 km  
Consider NTSC Taboo: Yes  
KWX error points are considered to  
be interference free coverage.  
# of radials computed for protected contour: 360  
Threshold for reception: 41.0  
Pop Centroid DB: 2000 US Census (SF1)

Study Date: 10/27/2010  
TV Database Date: 10/27/2010

Primary Terrain: V-Soft 3 Second US Terrain  
Secondary Terrain: V-Soft 30 Second US Database

Population Database: 2000 US Census (SF1)

Percentages calculated using a baseline population of 101,850.

Stations which cause interference:

Call Letters	H Units	Population	%	Area (sq. km)
1369788-D.A (34)	344	965	0.947	141.35
1370806-D.A (34)	344	965	0.947	141.35
K34KY-D.C (34)	0	0	0.000	23.55
KUTV-D (34)	0	0	0.000	0.90
KUTV-D.R (34)	0	0	0.000	0.90
KXPI-LP-D.A (34)	259	731	0.718	94.52

Masking Summary:

Call Letters	Total Interference		Unique Interference	
	Population	%	Population	%
1369788-D.A (34)	965	0.947	0	0.000
1370806-D.A (34)	965	0.947	0	0.000
K34KY-D.C (34)	0	0.000	0	0.000
KUTV-D (34)	0	0.000	0	0.000
KUTV-D.R (34)	0	0.000	0	0.000
KXPI-LP-D.A (34)	731	0.718	0	0.000

Stations considered which do not cause interference:

1372355-D.A (34)  
1377678-D.A (34)  
K33KT-D.C (33)  
K34AW (34N)  
K34CB (34N)  
K34CB-D.C (34)  
K34FP (34N)

K34FR-D (34)  
 K34HE-D (34)  
 K34KY-D.C (34)  
 K56BT-D.A (34)  
 K56BT-D.A (34N)  
 KUTV-D (34)  
 KUTV-D.R (34)

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Call Letters	City	State	Dist	Bear
1369788-D.A (34)	Pocatello	ID	155.6	83.8
1370806-D.A (34)	Pocatello	ID	155.6	83.8
1372355-D.A (34)	Mc Cammon	ID	184.4	92.6
1377678-D.A (34)	Idaho Falls	ID	213.3	61.8
K33KT-D.C (33)	Malta	ID	127.0	116.5
K34AW (34N)	West Yellowstone	MT	342.9	47.9
K34CB (34N)	Salmon	ID	231.8	21.3
K34CB-D.C (34)	Lemhi, Etc.	ID	231.8	21.3
K34FP (34N)	Valmy & Red House	NV	317.4	232.3
K34FR-D (34)	Randolph & Woodruff	UT	298.0	113.2
K34HE-D (34)	Elko	NV	237.4	207.3
K34KY-D.C (34)	Mountain Home	ID	122.4	294.8
K56BT-D.A (34)	Jackson	WY	303.7	70.3
K56BT-D.A (34N)	Jackson	WY	303.7	70.3
KUTV-D (34)	Salt Lake City	UT	294.3	140.6
KUTV-D.R (34)	SALT LAKE CITY	UT	294.3	140.6
KXPI-LP-D.A (34)	Pocatello	ID	156.1	83.7

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Totals for KXTF-D (34)

Calculation Area Population:	101,887	(	8643.5 sq. km )
Not Affected by Terrain Loss:	101,850	(	8491.8 sq. km )
Total NTSC Interference:	0	(	0.0 sq. km )
DTV Only Interference:	965	(	164.0 sq. km )
Total DTV Interference:	965	(	164.0 sq. km )
Interfered Population:	965	(	164.0 sq. km )
Interference Free:	100,885	(	8327.8 sq. km )
Percent Interference:	0.95		
Terrain Blocked Population:	37	(	151.7 sq. km)
Contour Area Population:	101,882		

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Interference Free Breakdown:

White:	85,965	(	85.2% )
Black:	130	(	0.1% )
Hispanic:	12,140	(	12.0% )
Native American:	601	(	0.6% )
Asian:	578	(	0.6% )
Pacific Islander:	65	(	0.1% )

Mixed Race:	1,345	( 1.3% )
Other:	61	( 0.1% )
Total:	100,885	

	Housing Units	Population	% of County
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Idaho			
Cassia County			
County Pop	7,862	21,416	
KXTF-D (34)	317	847	
1369788-D.A (34)	215	601	70.96
1370806-D.A (34)	215	601	70.96
KXPI-LP-D.A (34)	215	601	70.96
Ix Free	102	246	29.04
Elmore County			
County Pop	10,527	29,130	
KXTF-D (34)	0	0	
Ix Free	0	0	
Gooding County			
County Pop	5,505	14,155	
KXTF-D (34)	5,438	13,979	
Ix Free	5,438	13,979	100.00
Jerome County			
County Pop	6,713	18,342	
KXTF-D (34)	6,712	18,338	
1369788-D.A (34)	8	25	0.14
1370806-D.A (34)	8	25	0.14
KXPI-LP-D.A (34)	8	25	0.14
Ix Free	6,704	18,313	99.86
Lincoln County			
County Pop	1,651	4,044	
KXTF-D (34)	1,555	3,826	
1369788-D.A (34)	2	7	0.18
1370806-D.A (34)	2	7	0.18
KXPI-LP-D.A (34)	2	7	0.18
Ix Free	1,553	3,819	99.82
Minidoka County			
County Pop	7,498	20,174	
KXTF-D (34)	224	651	
1369788-D.A (34)	111	315	48.39
1370806-D.A (34)	111	315	48.39
KXPI-LP-D.A (34)	26	81	12.44
Ix Free	113	336	51.61
Owyhee County			
County Pop	4,452	10,644	
KXTF-D (34)	0	0	
Ix Free	0	0	
Twin Falls County			
County Pop	25,595	64,284	
KXTF-D (34)	25,544	64,209	
1369788-D.A (34)	8	17	0.03
1370806-D.A (34)	8	17	0.03
K34KY-D.C (34)	0	0	0.00

KXPI-LP-D.A (34)	8	17	0.03
Ix Free	25,536	64,192	99.97

**KXTF-D**  
 PROPOSED  
 Latitude: 42-43-42 N  
 Longitude: 114-24-43 W  
 ERP: 49.40 kW  
 Channel: 34  
 Frequency: 593.0 MHz  
 AMSL Height: 1324.0 m  
 Elevation: 1306.0 m  
 Horiz. Pattern: Directional  
 Vert. Pattern: Yes  
 Elec Tilt: 1.0  
 Prop Model: Longley/Rice  
 Climate: Cont temperate  
 Conductivity: 0.0050  
 Dielec Const: 15.0  
 Refractivity: 301.0  
 Receiver Ht AG: 10.0 m  
 Receiver Gain: 0 dB  
 Time Variability: 10.0%  
 Sit. Variability: 50.0%  
 ITM Mode: Broadcast

**D.L. Markley & Associates, Inc.**

Community of License  
 Twin Falls, Idaho

■ > 48.0 dBu  
■ 41.0 - 48.0

Exhibit E-7  
 City of License Coverage  
 KXTF - Twin Falls, Idaho  
 Falls Broadcasting Company  
 October, 2010

Scale 1:1,000,000  
 0 10 20 30 km

