

**DELAWDER COMMUNICATIONS, INC.**

5568 General Washington Drive, Suite A-218

Alexandria, Virginia 22312

(703) 658-5390

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**ENGINEERING REPORT**

Selective TV, Inc.

Alexandria, MN (Channel 14 Displacement Amendment)

**EXHIBIT 6**

**LPTV MODIFICATION APPLICATION – INTERFERENCE STUDIES**

**I. Introduction**

1. This Engineering Exhibit has been prepared on behalf of Selective TV, Inc. (STVI) in support of a modification to Low Power TV (LPTV) station K36AA, Alexandria, Minnesota, which currently operates on channel 36. By this application, STVI is seeking “DTV displacement relief” by proposing to migrate its LPTV operation from channel 36 to channel 14z, and by specifying minor technical changes necessary to facilitate use of channel 14z. Pursuant to 47 C.F.R. Section 73.3572(a)(2)(ii), this application proposes a change in output channel, together with other technical changes that are necessary to avoid interference and, therefore, is not a major change modification. Interference studies based on the modified facilities are provided below.

2. KSAX, Alexandria, Minnesota has been authorized use of channel 36 for Digital TV (DTV) from its transmitter site located 33 kilometers southeast of the authorized K36AA transmitter site at Alexandria. Pursuant to 47 C.F.R. Section 73.3572(a)(2)(iii), because the K36AA transmitter site is located less than 265 kilometers from the KSAX transmitter site, K36AA qualifies for displacement relief.

3. All terrain studies use USGS/DMA three arc-second data.

4. Attached as Table 1 is a Dataworld TV Spacing Study for Channel 14. The Dataworld Study was conducted from a reference site at the current transmitter location (N 45° 55' 59"; W 95° 26' 50"; NAD 27), which is unchanged by this application. Protection to the following stations may cause various design constraints to the proposed Channel 14(z) transmit facility:

- a. K14KH, Minneapolis, MN, CP & Lic Channel 14z;
- b. KJRR-DT, Jamestown, ND, Authorized DTV Channel 14D;
- c. KVRR, Fargo, ND, Licensed TV Channel 15-.

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5. A discussion and/or a detailed interference study is included for each station, listed above. All other stations listed on Table 1 are either too far away to require a detailed study (and are obviously protected), or do not require protection pursuant to the FCC Rules. Tables 2A and 2B, attached, include the proposed service and interference contour distances for the Alexandria facility (as modified) that are used for the various interference studies included with this application.

6. The use of frequency offset is required in order to protect one or more co-channel NTSC TV or NTSC LPTV stations. The applicant will maintain the requested offset per 47 C.F.R. Section 74.761 by use of a precision oscillator supplied by the transmitter manufacturer.

**II. Interference Studies**

Regarding K14KH, Minneapolis, MN, Analog Channel 14z

7. K14KH is a class A analog TV station. In accordance with 74.705(d)(1), this co-channel station is protected to a C/I ratio that is no less than 45 dB. As demonstrated by Figure 1, attached, the 19 dBu (F50,10) interference contour for the proposed facility will not overlap with the 64 dBu (F50,50) service contour of K14KH; therefore, K14KH is adequately protected. (Note: The authorized facility of K14KH, BPTTA-20021024AAK, is used in the study shown by Figure 1. The service for the licensed facility of K14KH does not extend as far as the authorized facility, and is obviously also protected.)

Regarding KJRR, Jamestown, ND, DTV Channel 14D

8. In accordance with 47 C.F.R. Section 74.706(d)(1), a cochannel DTV UHF station is protected to a C/I ratio that is no less than 21 dB. As demonstrated by Figure 2, attached, the 20 dBu (F50,10) interference contour for the proposed facility will not overlap with the 41 dBu (F50,90) noise-limited service contour of KJRR-DT; therefore, KJRR-DT is adequately protected.

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Regarding KVRR, Fargo, ND, Analog Channel 15-

9. In accordance with 47 C.F.R. Section 74.705(d)(4), a first adjacent-channel UHF analog station is protected to a C/I ratio that is no less than -15 dB. As demonstrated by Figure 3, attached, the 79 dBu (F50,50) interference contour for the proposed facility will not overlap with the 64 dBu (F50,50) service contour of KVRR; therefore, KVRR is adequately protected.

**Delawder Communications, Inc.  
Alexandria, VA**

TABLE 1, Page 1  
Monday, June 09, 2003

Dataworld Analog TV Spacing Study

**Title: Alexandria, MN**

Channel: 14 Zone II (470-476 MHz) Analog  
Database: DW 6/5/2003 5:29:29 PM

Latitude: N 45° 55' 59.0"  
Longitude: W 95° 26' 50.0"

Call	Auth	Licensee name	Chan	HAAT(m)	ERP	Latitude	Br-to	Dist	Req
City of License		St	FCC File Number	Zone	HAMSL(m)	Longitude	-from	(km)	(km)
K14LF	Lic	UHF-TV, Inc.	14 -		0.97	N 45° 09' 58.0"	159.6	90.88	
Willmar		MN	BLTT-20030311ARO		510.0	W 95° 02' 37.0"	339.9		LPTV
License granted 04/23/03 per 45474 - 04/29/03; <b>Easily protected due to frequency offset; no study provided</b>									
KLKS-LP	Lic	Lakes Broadcasting Group, Inc.	14 +		13.1	N 46° 36' 13.0"	50.5	118.6	
Breezy Point		MN	BLTTL-19950313IB		490.0	W 94° 15' 04.0"	231.4		LPTV
To channel 46; <b>Easily protected due to frequency offset; no study provided</b>									
K14KH	CP	Three Angels Broadcasting Networ	14 o		49.8	N 44° 58' 36.0"	121.3	200.7	
Minneapolis		MN	BPTTA-20021024AAK		495.0	W 93° 16' 16.0"	302.8		LPTV
LPTV class A station;CP granted 03/26/03 per 45453 - 03/31/03;; DA: ANT ACB32AR @ 335.0° <b>Protected; See discussion in engineering exhibit and attached interference study</b>									
K14KH	Lic	Three Angels Broadcasting Networ	14 o		15.6	N 44° 58' 28.0"	121.4	200.8	
Minneapolis		MN	BLTTA-20010111AAQ		422.3	W 93° 16' 17.0"	302.9		LPTV
LPTV class A station;License granted 3/23/2001 per 44951-3/28/2001;; DA: AND ALP8L1-HSH @ 300.0° <b>Protected; See discussion in engineering exhibit</b>									
K14KE	Lic	Cooperative TV Assn. of Southern	14 +		0.98	N 44° 06' 28.0"	161.5	213.6	
Saint James		MN	BLTTL-20020614AAX		497.0	W 94° 35' 55.0"	342.1		LPTV
License granted 7/31/2002 per 45291-8/5/2002; <b>Easily protected due to frequency offset; no study provided</b>									
KJRR	CP	Red River Broadcast Company, LLC	14	89.0	1000	N 46° 55' 27.0"	294.6	278.3	244.6
Jamestown		ND	BPCDT-19991028AAT	II	550.0	W 98° 46' 19.0"	112.2	33.69	CLEAR
Digital channel; DTV channel;; Primary station: KVRR Fargo, ND <b>Protected; See discussion in engineering exhibit and attached interference study</b>									
KJRR	CP	Red River Broadcast Company, LLC	14	135.0	30	N 46° 55' 30.0"	294.6	278.3	244.6
Jamestown		ND	BPCDT-20000501ACQ	II	592.0	W 98° 46' 19.0"	112.2	33.73	CLEAR
Digital channel; DTV channel;; Primary station: KVRR Fargo, ND <b>Protected; See discussion in engineering exhibit</b>									
KVRR	Lic	Red River Broadcast Company, LLC	15 -	379.0	4170	N 46° 40' 29.0"	324.3	102.0	87.70
Fargo		ND	BLCT-20010914ABC	II	767.0	W 96° 13' 40.0"	143.7	14.34	CLOSE
License granted 2/7/2002 per 45171-2/13/2002;; DA: RCA TFU-25JDA @ 0.0° <b>Protected; See discussion in engineering exhibit and attached interference study</b>									

>> End of channel 14 Zone II study <<

TABLE 2A - ALEXANDRIA, MN F50,50 CONTOURS

DATE: June 9, 2003

DISTANCES TO CONTOURS (Kilometers):

Antenna COR elevation (AMSL): 551 mtrs

Frequency: 473.0000 MHz

Coordinates: N 45 55 59.00 W 95 26 50.00

F(50,50) Curves Number of Contours: 2 2

AZ (degs)	HAAT (m)	ERPd (kW)	CONTOUR LEVELS (dBu):	
			79.0	74.0
0.0	120	1.5596	7.5	10.0
15.0	126	1.5596	7.7	10.2
30.0	125	1.5596	7.7	10.2
45.0	123	1.5596	7.6	10.1
60.0	127	1.5596	7.7	10.3
75.0	127	1.5596	7.7	10.2
90.0	128	1.5596	7.7	10.3
105.0	127	1.5596	7.7	10.2
120.0	125	1.5596	7.7	10.2
135.0	123	1.5596	7.6	10.1
150.0	121	1.5596	7.5	10.0
165.0	121	1.5596	7.6	10.0
180.0	121	1.5596	7.6	10.0
195.0	124	1.5596	7.6	10.1
210.0	123	1.5596	7.6	10.1
225.0	123	1.5596	7.6	10.1
240.0	118	1.5596	7.5	9.9
255.0	125	1.5596	7.7	10.2
270.0	121	1.5596	7.6	10.0
285.0	121	1.5596	7.6	10.0
300.0	127	1.5596	7.7	10.2
315.0	126	1.5596	7.7	10.2
330.0	122	1.5596	7.6	10.1
345.0	121	1.5596	7.6	10.0

TABLE 2B - ALEXANDRIA, MN F50,10 CONTOURS

DATE: June 9, 2003

DISTANCES TO CONTOURS (Kilometers):

Antenna COR elevation (AMSL): 551 mtrs

Frequency: 473.0000 MHz

Coordinates: N 45 55 59.00 W 95 26 50.00

F(50,10) Curves Number of Contours: 5 2

AZ (degs)	HAAT (m)	ERPd (kW)	CONTOUR LEVELS (dBu):				
			46.0	36.0	29.0	20.0	19.0
0.0	120	1.5596	46.1	67.7	99.0	147.0	152.5
15.0	126	1.5596	46.8	68.4	99.9	147.8	153.4
30.0	125	1.5596	46.6	68.3	99.7	147.6	153.2
45.0	123	1.5596	46.4	68.1	99.5	147.4	152.9
60.0	127	1.5596	47.0	68.6	100.1	148.0	153.6
75.0	127	1.5596	46.9	68.5	100.0	147.9	153.5
90.0	128	1.5596	47.0	68.6	100.1	148.0	153.6
105.0	127	1.5596	46.9	68.5	100.0	147.9	153.5
120.0	125	1.5596	46.6	68.3	99.7	147.6	153.2
135.0	123	1.5596	46.4	68.0	99.4	147.3	152.9
150.0	121	1.5596	46.1	67.8	99.1	147.0	152.5
165.0	121	1.5596	46.2	67.8	99.2	147.1	152.6
180.0	121	1.5596	46.2	67.9	99.2	147.1	152.7
195.0	124	1.5596	46.5	68.2	99.6	147.5	153.0
210.0	123	1.5596	46.4	68.0	99.4	147.3	152.9
225.0	123	1.5596	46.4	68.0	99.4	147.3	152.9
240.0	118	1.5596	45.8	67.5	98.7	146.6	152.2
255.0	125	1.5596	46.7	68.3	99.8	147.6	153.2
270.0	121	1.5596	46.2	67.9	99.2	147.1	152.7
285.0	121	1.5596	46.2	67.8	99.1	147.1	152.6
300.0	127	1.5596	46.9	68.5	100.0	147.9	153.5
315.0	126	1.5596	46.8	68.4	99.9	147.8	153.3
330.0	122	1.5596	46.3	67.9	99.3	147.2	152.7
345.0	121	1.5596	46.1	67.8	99.1	147.0	152.6





