

TECHNICAL EXHIBIT  
IN SUPPORT OF PETITION FOR RECONSIDERATION IN MB DOCKET NO. 87-268  
ADVANCED TELEVISION SYSTEMS AND THEIR IMPACT UPON THE  
EXISTING TELEVISION BROADCAST SERVICE  
TELEVISION STATION WIRT  
HIBBING, MINNESOTA

Technical Exhibit

This technical exhibit was prepared in support of the *Petition for Reconsideration* for television (TV) station WIRT. WIRT operates on channel 36 digital television (DTV), and channel 13 analog (NTSC) television at Hibbing, Minnesota. WIRT has been ordered back to its analog channel 13 for post-transition DTV operation. WIRT intends to operate with its existing analog directional antenna (DA) for post-transition DTV operation. As WIRT's channel 13 post transition DTV allotment has a different directional antenna (DA), there is an antenna pattern mismatch.

Therefore, for station WIRT to serve the area encompassed by its certified coverage contour, using its analog directional antenna with a radiation center of 638 meters above mean sea level (AMSL), it must operate with an effective radiated power (ERP) of 4.2 kilowatts and antenna height above average terrain (HAAT) of 204 meters. Such operation will not cause more than 0.1% interference, compared to its present post transition DTV allotment, to any other allotment. Attached as Figure 1 is a coverage map showing the herein proposed post-transition facility noise-limited contour as compared to the contour for the current post transition DTV allotment.

Proposed WIRT Channel 13 Post Transition  
DTV Table of Allotment Parameters

It is requested that the Commission modify the proposed Appendix B DTV Table of Allotment specifications to the following:

Facility ID	State & City		NTSC	DTV								
			Chan	Chan	ERP (kW)	HAAT (m)	Antenna ID	Latitude (DDMMSS)	Longitude (DDMMSS)	Area (sq km)	Population (thousand)	Percent IX Received
71336	MN	Hibbing	13	13	4.2	204	20644	472253	925715	15278	113	0.2

Certification

WIRT certified on its FCC Form 381, Pre-Election Certification Form<sup>1</sup>, that it will operate its post-transition DTV station pursuant to its DTV construction permit (BPCDT-19991027ABC). From Commission's published Table I of 1998 Station Assignment and Service Information, the channel 36 WIRT DTV facility served 117,151 persons over an area of 16,184 km<sup>2</sup>. These values compare with the herein proposed post-transition facility which serves 113,667 persons over an area of 15,278 km<sup>2</sup>.

It is furthermore noted that the proposed channel 13 post-transition allotment does not create interference in excess of 0.1 to other post-transition stations based upon the 2000 Census. Figure 2 is a tabulation of the allocation study performed for the channel 13 post-transition facility.

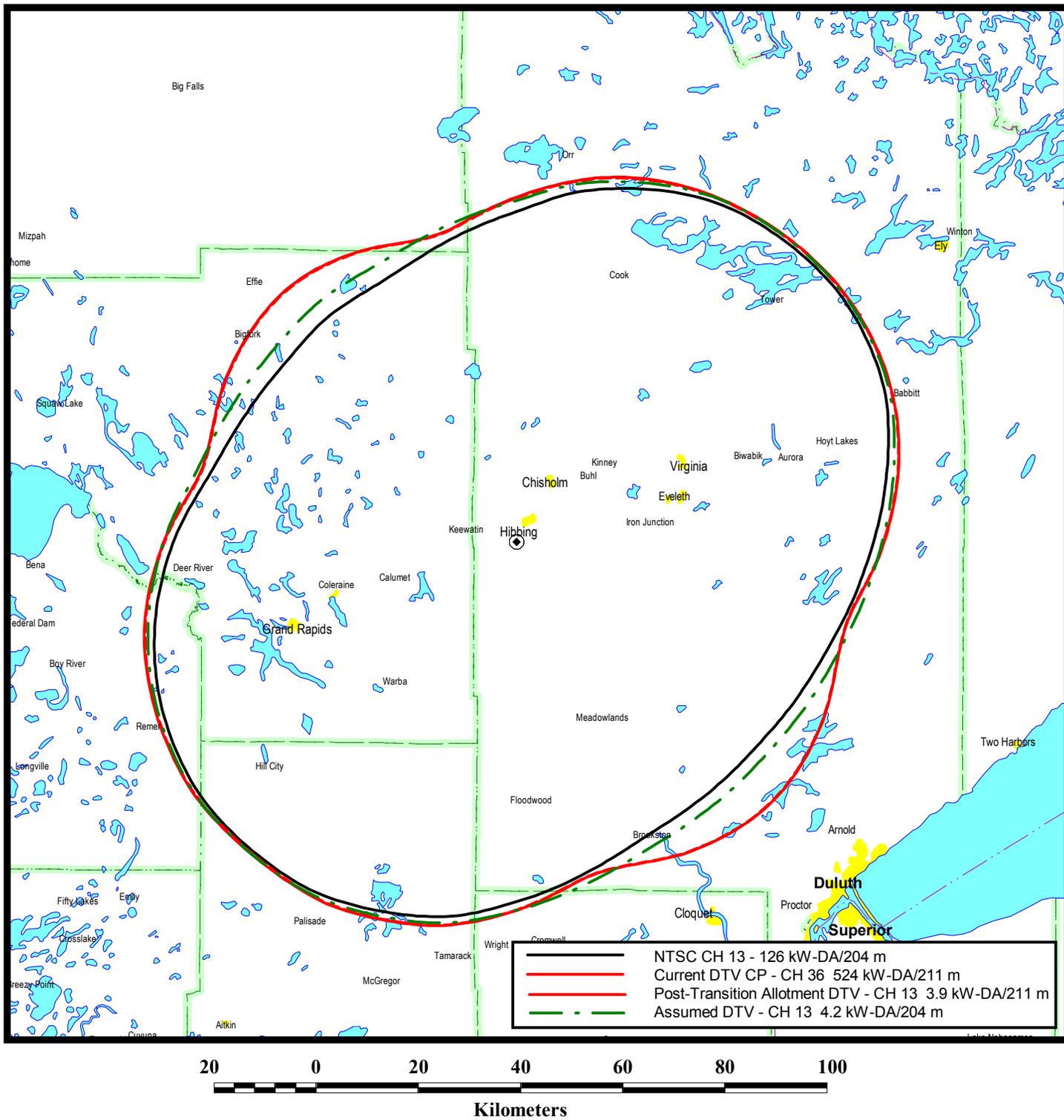
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October 25, 2007

<sup>1</sup> See FCC File Number: BCERCT-20041105AYH.

Figure 1



# PREDICTED COVERAGE CONTOURS

STATION WIRT  
HIBBING, MINNESOTA

du Treil, Lundin & Rackley, Inc. Sarasota, Florida

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OET-69 Analysis

Census data selected 2000

Post Transition Data Base Selected  
/export/home/cdbs/tvdb.sff\_G  
TV INTERFERENCE and SPACING ANALYSIS PROGRAM

Date: 10-24-2007 Time: 16:01:46

Record Selected for Analysis

WIRT USERRECORD-01 HIBBING MN US  
Channel 13 ERP 4.2 kW HAAT 204. m RCAMSL 00638 m  
Latitude 047-22-53 Longitude 0092-57-15  
Status APP Zone 2 Border  
Dir Antenna Make CDB Model 0000000020644 Beam tilt N Ref Azimuth 0.  
Last update Cutoff date Docket  
Comments  
Applicant

Cell Size for Service Analysis 2.0 km/side

Distance Increments for Longley-Rice Analysis 1.00 km

Facility meets maximum height/power limits

Azimuth (Deg)	ERP (kW)	HAAT (m)	36.0 dBu F(50,90) (km)
0.0	1.050	169.7	66.7
45.0	4.200	197.2	79.9
90.0	1.092	227.5	71.3
135.0	0.404	238.8	64.2
180.0	1.136	232.8	72.0
225.0	4.200	204.1	80.4
270.0	1.136	190.9	69.0
315.0	0.430	170.5	60.3

Evaluation toward Class A Stations

No Spacing violations or contour overlap to Class A stations

Class A Evaluation Complete

Proposed facility OK to FCC Monitoring Stations

Proposed facility OK toward West Virginia quite zone

Proposed facility OK toward Table Mountain

Proposed facility is within the Canadian coordination distance  
Distance to border = 104.2km

Proposed facility is beyond the Mexican coordination distance

Proposed station is OK toward AM broadcast stations

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Start of Interference Analysis

	Proposed Station		
Channel	Call	City/State	ARN
13	WIRT	HIBBING MN	USERRECORD01

Stations Potentially Affected by Proposed Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
12	KCCW-TV	WALKER MN	124.0	CP	BDTV	-00000097
13	WNMU	MARQUETTE MI	403.7	CP	BDTV	-00000123
13	KFME	FARGO ND	322.7	CP	BDTV	-00000117
13	WEAU-TV	EAU CLAIRE WI	338.9	CP	BDTV	-00000125

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Analysis of Interference to Affected Station 1

Analysis of current record

Channel	Call	City/State	Application	Ref. No.
12	KCCW-TV	WALKER MN	BDTV	-00000097

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
11	KRII	CHISHOLM MN	153.4	LIC	BLCT	-20021224ACN
12	KEYC-TV	MANKATO MN	333.2	CP MOD	BMPCDT	-20010223AAQ
12	KNRR	PEMBINA ND	317.3	CP	BPCDT	-19991101AKT
12	KTTM	HURON SD	427.7	CP	BPCDT	-19991029ADD
13	KFME	FARGO ND	207.7	CP	BDTV	-00000117
13	WIRT	HIBBING MN	124.0	APP	USERRECORD-01	

Total scenarios = 1

Result key:

Scenario 1 Affected station 1  
Before Analysis

Results for: 12A MN WALKER BDTV 00000097 CP

HAAT 283.0 m, ATV ERP 14.3 kW	POPULATION	AREA (sq km)
within Noise Limited Contour	222151	27908.6
not affected by terrain losses	217725	27205.2
lost to NTSC IX	0	0.0
lost to additional IX by ATV	3069	245.2
lost to ATV IX only	3069	245.2
lost to all IX	3069	245.2

Potential Interfering Stations Included in above Scenario 1

12A MN MANKATO	BMPCDT	20010223AAQ	CP
12A ND PEMBINA	BPCDT	19991101AKT	CP

After Analysis

Results for: 12A MN WALKER BDTV 00000097 CP

HAAT 283.0 m, ATV ERP 14.3 kW	POPULATION	AREA (sq km)
within Noise Limited Contour	222151	27908.6
not affected by terrain losses	217725	27205.2
lost to NTSC IX	0	0.0
lost to additional IX by ATV	3177	257.3
lost to ATV IX only	3177	257.3
lost to all IX	3177	257.3

Potential Interfering Stations Included in above Scenario 1

12A MN MANKATO	BMPCDT	20010223AAQ	CP
12A ND PEMBINA	BPCDT	19991101AKT	CP
13A MN HIBBING	USERRECORD01		APP

Percent new IX = 0.0503%

Worst case new IX 0.0503% Scenario 1

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Analysis of Interference to Affected Station 2

Analysis of current record

Channel	Call	City/State	Application	Ref. No.
13	WNMU	MARQUETTE MI	BDTV	-00000123

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
12	WBIJ	CRANDON WI	117.3	LIC	BLCT	-20030812AAQ
13	WZZM-TV	GRAND RAPIDS MI	371.4	CP	BDTV	-00000124
13	WEAU-TV	EAU CLAIRE WI	305.9	CP	BDTV	-00000125
13	WIRT	HIBBING MN	403.7	APP	USERRECORD-01	

Proposal causes no interference

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Analysis of Interference to Affected Station 3

Analysis of current record

Channel	Call	City/State	Application	Ref. No.
13	KFME	FARGO ND	BDTV	-00000117

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
12	KCCW-TV	WALKER MN	207.7	CP	BDTV	-00000097
12	KNRR	PEMBINA ND	220.9	CP	BPCDT	-19991101AKT
13	KXMC-TV	MINOT ND	331.9	CP	BDTV	-00000127
13	KPLO-TV	RELIANCE SD	387.2	LIC	BLCDDT	-20030519AER
13	KSFY-TV	SIOUX FALLS SD	391.8	CP	BDTV	-00000121
13	WIRT	HIBBING MN	322.7	APP	USERRECORD-01	

Total scenarios = 1

Result key: 2  
Scenario 1 Affected station 3  
Before Analysis

Results for: 13A ND FARGO BDTV 00000117 CP  
HAAT 344.0 m, ATV ERP 11.4 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	258577	29377.8
not affected by terrain losses	257847	29108.9
lost to NTSC IX	0	0.0
lost to additional IX by ATV	92	108.4
lost to ATV IX only	92	108.4
lost to all IX	92	108.4

Potential Interfering Stations Included in above Scenario 1

13A ND MINOT	BDTV	00000127	CP
13A SD RELIANCE	BLCDDT	20030519AER	LIC

After Analysis

Results for: 13A ND FARGO BDTV 00000117 CP  
HAAT 344.0 m, ATV ERP 11.4 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	258577	29377.8
not affected by terrain losses	257847	29108.9
lost to NTSC IX	0	0.0
lost to additional IX by ATV	99	112.4
lost to ATV IX only	99	112.4
lost to all IX	99	112.4

Potential Interfering Stations Included in above Scenario 1

13A ND MINOT	BDTV	00000127	CP
13A SD RELIANCE	BLCDT	20030519AER	LIC
13A MN HIBBING	USERRECORD01		APP

Percent new IX = 0.0027%

Worst case new IX 0.0027% Scenario 1

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Analysis of Interference to Affected Station 4

Analysis of current record

Channel	Call	City/State	Application	Ref. No.
13	WEAU-TV	EAU CLAIRE WI	BDTV	-00000125

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
12	WBIJ	CRANDON WI	191.8	LIC	BLCT	-20030812AAQ
13	WHO-TV	DES MOINES IA	381.3	CP	BPCDT	-19990805LD
13	WREXTV	ROCKFORD IL	297.5	LIC	BLCT	-1372
13	WNMU	MARQUETTE MI	305.9	CP	BDTV	-00000123
13	WIRT	HIBBING MN	338.9	APP	USERRECORD-01	

Proposal causes no interference

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Analysis of Interference to Affected Station 5

Analysis of current record

Channel	Call	City/State	Application	Ref. No.
13	WIRT	HIBBING MN	USERRECORD-01	

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
12	KCCW-TV	WALKER MN	124.0	CP	BDTV	-00000097
13	WNMU	MARQUETTE MI	403.7	CP	BDTV	-00000123
13	KFME	FARGO ND	322.7	CP	BDTV	-00000117
13	WEAU-TV	EAU CLAIRE WI	338.9	CP	BDTV	-00000125

Total scenarios = 1

Result key: 3  
Scenario 1 Affected station 5  
Before Analysis

Results for: 13A MN HIBBING USERRECORD01 APP  
HAAT 204.0 m, ATV ERP 4.2 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	114429	15713.0
not affected by terrain losses	113870	15354.4
lost to NTSC IX	0	0.0
lost to additional IX by ATV	203	76.6
lost to ATV IX only	203	76.6
lost to all IX	203	76.6

Potential Interfering Stations Included in above Scenario 1

12A MN WALKER	BDTV	00000097	CP
13A ND FARGO	BDTV	00000117	CP
13A WI EAU CLAIRE	BDTV	00000125	CP

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