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357

February 15, 2001

VIA COURIER

Magalie Roman Salas, Esquire
Secretary
Federal Communications Commission
445 Twelfth Street, SW
Washington, DC 20554

Dear Ms. Salas:

On behalf of Montana State University, licensee of KUSM(TV), Bozeman, Montana, there are transmitted herewith an original and five copies of its *Petition for Rule Making* proposing the substitution of Channel *8 for Channel *20 as the station's paired DTV allocation.

A construction permit application reflecting the proposed substitution is being filed concurrently. A copy is attached to this Petition. It is requested that the Commission refrain from acting upon the application until such time as it has completed action upon the Petition.

If any additional information is needed in connection with this matter, please contact me.

Respectfully submitted,

Scott S. Patrick

Enclosure

cc(w/): Mr. H. John Morgan (FCC; Hand Delivered Stamp-and-Return Copy)

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Amendment of Section 73.622(b)	)	MM Docket No. _____
Table of Allotments,	)	RM-_____
Digital Television Broadcast Stations	)	
(Bozeman, Montana)	)	
	)	

To: Chief, Allocations Branch
Policy and Rules Division
Mass Media Bureau

PETITION FOR RULE MAKING
TO AMEND THE DTV TABLE OF ALLOTMENTS

Montana State University, licensee of KUSM(TV), Bozeman, Montana, by its attorneys and pursuant to Sections 1.401 and 73.622(a) of the Commission's Rules (47 C.F.R. §§1.401 and 73.622(a)), hereby respectfully petitions the Commission to institute a rule making proceeding to amend Section 73.622(b), the DTV Table of Allotments, by substituting Channel *8 as the station's paired DTV allocation for the transition period in lieu of Channel 20, as initially allotted. Specifically, the DTV Table of Allotments would be amended as follows:

	Present	**Proposed**
Bozeman, MT	16, ***20**	***8**, 16

Issuance of a Notice of Proposed Rule Making would be consistent with the Commission's rules and policies that are designed to assist noncommercial and smaller market stations in recognition of the special burden that the implementation of digital television places

on them – the most prominent being the staggered DTV construction schedule.[1] The Commission explicitly stated that noncommercial stations would be afforded "special treatment" in the transition to digital television because of the recognized financial difficulties they would face.[2] Additionally, recognizing the intricacies of DTV operations and the need for stations to maximize service efficiently, the Commission also has promised to provide broadcasters with flexibility in developing alternate allotment proposals.[3]

Montana State University operates noncommercial station KUSM(TV) on Channel *9 in Bozeman. The station provides high quality educational, informational, and cultural programming to the Butte-Bozeman DMA, ranked 190th in the United States.[4] As set forth in greater detail in the attached Engineering Statement, the proposed substitution of the VHF channel adjacent to the station's NTSC Channel *9 would allow Montana State University to reduce the impact of DTV build-out and operating costs by permitting the sharing of certain transmission equipment and facilities. By necessity, as a noncommercial educational license operating with a limited budget, Montana State University must be a careful steward of its resources, even while it seeks to offer the highest quality of public broadcasting service. In addition to minimizing financial burdens, the equipment sharing will facilitate the anticipated transfer of digital operations to the station's traditional Channel *9 at the close of the DTV transition. Operation on the VHF channel also would help overcome terrain shielding problems and thereby ensure effective service replication for viewers throughout the mountainous Butte-

---

[1] Advanced Television Systems and Their Impact Upon the Existing Television Broadcast Service, *Fifth Report and Order*, MM Docket 87-268, 12 FCC Rcd 12809, ¶78 (1997).

[2] *Id.* at ¶104.

[3] Advanced Television Systems and Their Impact Upon the Existing Television Broadcast Service, *Sixth Report and Order*, MM Docket 87-268, 12 FCC Rcd 14588, ¶172 (1997).

Bozeman DMA. Accordingly, the public interest would be served through enhanced service and more efficient use of the broadcast spectrum.

The proposed channel change also will assist the overall implementation of a new community tower to be shared with KBZK, the other television station licensed to Bozeman. Montana State University soon expects to submit a relocation application for KUSM's NTSC facilities to operate from the new tower. Montana State University understands that, in response to the requested NPRM proposing the substituted channel for KUSM-DT, television station KBZK will submit comments in support of the channel change. Indeed, station KBZK-DT also has submitted a petition to change its DTV channel, and, to the extent permitted, Montana State University accordingly and respectfully requests that the Commission accelerate processing of this petition so as to issue the two NPRM's addressing the KUSM-DT and KBZK-DT requests as close in time as possible.

As demonstrated in the Engineering Statement, KUSM-DT's proposed service area encompasses the community of license as required,[5] and the proposed allotment parameters conform with the Commission's *de minimis* interference standard.[6] Additionally, there would be no impact to any potential Class A stations. A copy of the concurrently filed construction permit application reflecting the proposed facilities is enclosed.

Accordingly, for the reasons set forth above, Montana State University respectfully requests that the Commission initiate a rule making proceeding to amend Section 73.622(b) of its Rules to substitute Channel *8 for Channel *20 for use by KUSM-DT in Bozeman, Montana.

---

[4] Broadcasting & Cable Yearbook 2000, B-169 (2000).

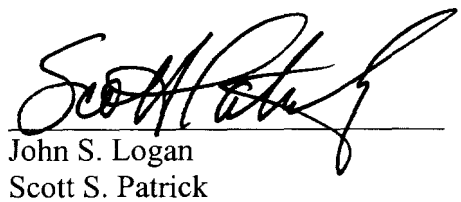
[5] 47 C.F.R. §73.623(c)(1).

[6] 47 C.F.R. §73.623(c)(2).

The amendment would serve the public interest because the proposed change would enable KUSM to provide better coverage and would result in a more efficient use of the broadcast spectrum.

Respectfully submitted,

MONTANA STATE UNIVERSITY

By: 

John S. Logan
Scott S. Patrick

Its Attorneys

Dow, Lohnes & Albertson, PLLC
1200 New Hampshire Avenue, N.W.
Suite 800
Washington, D.C. 20036-6802
(202) 776-2000

Dated: February 15, 2001

ATTACHMENT

Engineering Statement

EXHIBIT E

ENGINEERING STATEMENT
PETITION FOR RULEMAKING OF §73.622 OF THE FCC RULES
TO CHANGE DTV CHANNEL
ON BEHALF OF
MONTANA PUBLIC TELEVISION
KUSM-TV, BOZEMAN, MONTANA
CHANNEL 8, 160KW ERP, 305 METERS HAAT

FEBRUARY 2001

COHEN, DIPPELL AND EVERIST, P.C.
CONSULTING ENGINEERS
RADIO AND TELEVISION
WASHINGTON, D.C.

COHEN, DIPPELL AND EVERIST, P. C.

City of Washington)
) ss
District of Columbia)

Donald G. Everist, being duly sworn upon his oath, deposes and states that:

He is a graduate electrical engineer, a Registered Professional Engineer in the District of Columbia, and is President of Cohen, Dippell and Everist, P.C., Consulting Engineers, Radio - Television, with offices at 1300 L Street, N.W., Suite 1100, Washington, D.C. 20005;

That his qualifications are a matter of record in the Federal Communications Commission;

That the attached engineering report was prepared by him or under his supervision and direction and

That the facts stated herein are true of his own knowledge, except such facts as are stated to be on information and belief, and as to such facts he believes them to be true.

Donald G. Everist
District of Columbia
Professional Engineer
Registration No. 5714

Subscribed and sworn to before me this 2nd day of February, 2001.

Notary Public

My Commission Expires: 2/28/2003

COHEN, DIPPELL AND EVERIST, P. C.

City of Washington)
) ss
District of Columbia)

Wesley A. Lawson, being duly sworn upon his oath, deposes and states that:

He is a graduate electrical engineer of Virginia Polytechnic Institute & State University, and is a staff engineer at Cohen, Dippell and Everist, P.C., Consulting Engineers, Radio - Television, with offices at 1300 L Street, N.W., Suite 1100, Washington, D.C. 20005;

That the attached engineering report was prepared by him or under his supervision and direction and

That the facts stated herein are true of his own knowledge, except such facts as are stated to be on information and belief, and as to such facts he believes them to be true.

Wesley A. Lawson

Subscribed and sworn to before me this 23rd day of February, 2001.

Notary Public

My Commission Expires: 2/28/2003

This engineering statement has been prepared on behalf of Montana Public Television licensee of Television Station KUSM-TV, Bozeman, Montana, assigned NTSC Channel 9. It is proposed to change the current digital television channel allotment contained in §73.622 of the FCC Rules from UHF Channel 20 to VHF Channel 8 with an ERP of 160kW, this is the maximum VHF-DT ERP allowed in Zone II for the proposed HAAT of 305 meters. The resulting service area encompasses the entire community of license.

This request is supported by an analysis of the impact of this proposal on other authorized NTSC stations, DTV stations, and other proposed DTV allotment changes. An allocation analysis has been performed using the Federal Communications Commission (FCC) OET Bulletin No. 69 dated July 2, 1997 and the FCC supplemental processing guidelines dated August 1998. The analysis was performed by using the FCC Longley-Rice model adapted for use an Intel platform. The results of this adapted program have been compared to other known FCC studies and have been found to give comparable results.

DTV Channel	ERP (kW)	HAAT (meters)	RCAMSL (meters)
	Existing DTV Table of Allotments, Page B-34[1]		
20	50	30	---
	Current DTV Application		
20	200	217.8	2067
	Proposed DTV Facilities		
8	160	305	2164

[1] "In the Matter of Advanced Television Systems and Their Impact Upon the Existing Television Broadcast Service", MM Docket No. 87-268, Memorandum Opinion and Order on Reconsideration of the Sixth Report and Order (FCC 98-24), 2/12/98.

Table 1 shows the stations to be considered according to the processing guidelines.[2] The bearing and distance values noted in the table are calculated from the coordinates of the proposed site, which follow below. The proposed site corresponds to that listed in the current KUSM application for DTV Channel 20.

North Latitude: 45° 40' 24"

West Longitude: 110° 52' 02"

NAD-27

None of the stations are predicted to receive more than 2% new interference from the proposed Channel 8 operation. Also, none of these stations exceed the allowed cumulative interference level of 10%. Stations that exceed the minimum geographic spacing requirements for new stations are presumed to have zero or much less than de minimis interference.[3] For the proposed Channel 8 operation, all stations listed in the FCC database (CDBS 9/22/00) are fully spaced except for KFFB-TV DR Channel 8, Great Falls, Montana, KULR-TV, License, Channel 8, Billings, Montana, and KUSM-TV, License, Channel 9, Bozeman, Montana. The KUSM station is owned by the applicant and with the grant of this application intends to move the KUSM-TV operation to the proposed site, thus eliminating all caused interference to the existing KUSM-TV operation; therefore, these studies assume NTSC/DTV co-location while using the Longley-Rice program.

Furthermore, an examination of co-channel low-power television and translator stations within 50 km has been performed. No other low-power or translator station is found that

[2] "Additional Application Processing Guidelines for digital Television (DTV)", Public Notice 84889 (August 10, 1998).

[3] 47 C.F.R., Section 73.623(d).

requires further consideration. Therefore, it is believed that the request for DTV channel will be consistent with the FCC Rules. In addition, a review of the Class A list of those stations qualifying for a certificate of eligibility find that no potential Class A station needs to be considered with this request to amend §73.622 of the FCC Rules.

TABLE 1

POTENTIAL INTERFEREES OF KUSM-TV, BOZEMAN, MONTANA
CHANNEL 8, 160kW, 305 Meters
DECEMBER 2000

DTV	CHANNEL	STATUS	CITY/STATE	POWER (kW)	BEARING/DISTANCE FROM KUSM-DT	NEW INTERFERENCE*
KRTV	7	DR	Great Falls, MT	160	351.4°/209.5 km	Fully-Spaced
KFFB-TV	8	DR	Great Falls, MT	160	351.4°/209.5 km	0.1%
KCWC-DT	8	APP	Lander/Riverton, WY	60	152.6°/384.3 km	Fully-Spaced
NTSC						
KCTZ-TV	7	LIC	Bozeman, MT	43.7	0.0°/0.0 km	Co-located
KIFI-TV	8	LIC	Idaho Falls, ID	316	211.1°/280.3 km	Fully-Spaced
KULR	8	LIC	Billings, MT	316	86.2°/188.2 km	1.5%
KPAX-TV	8	LIC	Missoula, MT	275	302.9°/284.5 km	Fully-Spaced

Source: FCC CDBS 12/7/00
*Stations that exceed the minimum geographic spacing requirements for new stations [§73.623(d)] are presumed to receive much less than de minimis interference.

ATTACHMENT

Construction Permit Application
Concurrently Filed

DOW, LOHNES & ALBERTSON, PLLC
ATTORNEYS AT LAW

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TELEPHONE 770-901-8800
FACSIMILE 770-901-8874

February 15, 2001

VIA HAND DELIVERY

Magalie Roman Salas, Esq.
Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

NOTE: EXEMPT FROM FEES

Re: KUSM-DT, Bozeman, Montana (Facility Id. No. 43567)
Application for Minor Change in Digital Facilities

Dear Ms. Salas:

On behalf of Montana State University, licensee of KUSM(TV), Bozeman, Montana, we hereby submit in triplicate an application to modify the station's digital facilities. The application reflects proposed operation on DTV Channel 8, the channel sought in a Petition for Rule Making concurrently submitted today. As explained in the attached waiver request, to ensure eligibility under the Public Telecommunications Facilities Program ("PTFP") administered by the National Telecommunications and Information Administration ("NTIA"), Montana State University is filing the application for authority to construct on DTV Channel 8 despite that the Commission has not yet had the opportunity to act on the Petition for Rule Making.

Please note that the application is a combination of FCC Form 340 (Sections I and VII) and Form 301 (Section III), which we understand to be the staff's preferred format at this time.

The applicant is a noncommercial educational licensee and uses the facility on a noncommercial educational basis. This application is therefore exempt from FCC filing fee requirements under Section 1.1114 of the Commission's Rules (47 C.F.R. § 1.1114).

Kindly contact the undersigned if you have any questions about this application.

Respectfully submitted,

Scott S. Patrick

Enclosure
cc(w/): Mr. H. John Morgan (FCC)

Federal Communications Commission
Washington, D. C. 20554

Approved by OMB
3060-0034
Expires 11/30/97

FCC 340

APPLICATION FOR CONSTRUCTION PERMIT FOR NONCOMMERCIAL EDUCATIONAL BROADCAST STATION

(Carefully read instructions before filing form) Return only form to FCC

FOR COMMISSION USE ONLY
FILE NO.

Section I - GENERAL INFORMATION

1. Name of Applicant		
Montana State University		
Street Address or P.O. Box KUSM Visual Comm. Building		
City Bozeman	State MT	ZIP Code 59717
Telephone Number *(include Area Code)* (406) 994-3437		

Send notices and communications to the following person at the address below:		
Name Scott S. Patrick, Esq.		
Street Address or P.O. Box 1200 New Hampshire Ave., NW, Ste 800		
City Washington	State DC	ZIP Code 20036
Telephone Number *(include Area Code)* (202) 776-2000		

2. This application is for: ☐ AM ☐ FM ☒ TV Digital Television

(a) Channel No. or Frequency	(b) Principal Community	City	State
8		Bozeman	MT

(c) Check one of the following boxes:

☐ Application for NEW station

☐ MAJOR change in licensed facilities; call sign: .....

☐ MINOR change in licensed facilities; call sign: .....

☐ MAJOR modification of construction permit; call sign: .....

File No. of construction permit; call sign: .....

☒ MINOR modification of construction permit; call sign: ..... KUSM-DT

File No. of construction permit; call sign: BPEDT-20000501AHQ

☐ AMENDMENT to pending application: Application File Number: .....

NOTE: It is not necessary to use this form to amend a previously filed application. Should you do so, however, please submit only Section I and those other portions of the form that contain the amended information.

3. Is this application mutually exclusive with a renewal application? ☐ Yes ☒ No

If Yes, state:

Call letters	Community of License	
	City	State

February 1992 edition useable.

FCC 340
July 1997

SECTION VI - EQUAL EMPLOYMENT OPPORTUNITY PROGRAM

Does the applicant propose to employ five or more full-time employees? ☐ Yes ☐ No N/A

If Yes, the applicant must include an EEO program called for in the separate Broadcast Equal Employment Opportunity Program Report (FCC Form 396-A). (See also 47 C.F.R. Section 73.2080.)

SECTION VII - CERTIFICATIONS

1. Has or will the applicant comply with the public notice requirements of 47 C.F.R. Section 73.3580? ☐ Yes ☐ No ☒ Not applicable (minor change)

2. By checking Yes, the applicant certifies, that, in the case of an individual applicant, he or she is not subject to a denial of federal benefits that includes FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. 862, or, in the case of a non-individual applicant (e.g., corporation, partnership or other unincorporated association), no party to the application is subject to a denial of federal benefits that includes FCC benefits pursuant to that section. For the definition of a "party" for these purposes, see 47 C.F.R. Section 1.2002(b). ☒ Yes ☐ No

The APPLICANT hereby waives any claim to the use of any particular frequency as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise, and requests an authorization in accordance with this application. (See Section 304 of the Communications Act of 1934, as amended.)

The APPLICANT acknowledges that all the statements made in this application and attached Exhibits are considered material representations, and that all Exhibits are a material part hereof and incorporated herein.

The APPLICANT represents that this application is not filed for the purpose of impeding, obstructing, or delaying determination on any other application with which it may be in conflict.

In accordance with 47 C.F.R. Section 1.65, the APPLICANT has a continuing obligation to advise the Commission, through amendments, of any substantial and significant changes in information furnished.

I certify that the statements in this application are true, complete, and correct to the best of my knowledge and belief, and are made in good faith.

Name	Signature
Montana State University	
Title	Date
Authorized Official	
Typed or Printed Name of Person Signing	
Dean Lawver	2/14/01

WILLFUL FALSE STATEMENTS ON THIS FORM ARE PUNISHABLE BY FINE AND/OR IMPRISONMENT (U.S. CODE, TITLE 18, SECTION 1001), AND/OR REVOCATION OF ANY STATION LICENSE OR CONSTRUCTION PERMIT (U.S. CODE, TITLE 47, SECTION 312(a)(1)), AND/OR FORFEITURE (U.S. CODE, TITLE 47, SECTION 503).

SECTION III PREPARER'S CERTIFICATION

I certify that I have prepared Section III (Engineering Data) on behalf of the applicant, and that after such preparation, I have examined and found it to be accurate and true to the best of my knowledge and belief.

Name: Wesley A. Lawson Cohen, Dippell & Everist, P.C.		Relationship to Applicant (e.g., Consulting Engineer): Consulting Engineer
Signature: Wesley A Lawson		Date: February 7, 2001
Mailing Address: 1300 L Street, N.W., Suite 1100		
City: Washington	State or Country (if foreign address): D.C.	ZIP Code: 20005
Telephone Number (include area code): (202) 898-0111	E-Mail Address (if available): cde@bellatlantic.net	

WILLFUL FALSE STATEMENTS ON THIS FORM ARE PUNISHABLE BY FINE AND/OR IMPRISONMENT (U.S. CODE, TITLE 18, SECTION 1001), AND/OR REVOCATION OF ANY STATION LICENSE OR CONSTRUCTION PERMIT (U.S. CODE, TITLE 47, SECTION 312(a)(1)), AND/OR FORFEITURE (U.S. CODE, TITLE 47, SECTION 503).

Complete Questions 1-5 of the Certification Checklist and provide all data and information for the proposed facility, as requested in Technical Specifications, Items 1-13.

Certification Checklist: A correct answer of "Yes" to all of the questions below will ensure an expeditious grant of a construction permit. However, if the proposed facility is located within the Canadian or Mexican borders, coordination of the proposal under the appropriate treaties may be requird prior to grant of the application. An answer of "No" will require additional evaluation of the applicable information in this form before a construction permit can be granted.

1. The proposed DTV facility complies with 47 C.F.R. Section 73.622 in the following respects:

   (a) It will operate on the DTV channel for this station as established in 47 C.F.R. Section 73.622. ☐ Yes ☒ No

   (b) It will operate from a transmitting antenna located within 5.0 km (3.1 miles) of the DTV reference site for this station as established in 47 C.F.R. Section 73.622. ☐ Yes ☒ No

   (c) It will operate with an effective radiated power (ERP) and antenna height above average terrain (HAAT) that do not exceed the DTV reference ERP and HAAT for this station as established in 47 C.F.R. Section 73.622. ☐ Yes ☒ No

2. The proposed facility will not have a significant environmental impact, including exposure of workers or the general public to levels of RF radiation exceeding the applicable health and safety guidelines, and therefore will not come within 47 C.F.R. Section 1.1307. ☒ Yes ☐ No

   Applicant must **submit the Exhibit** called for in Item 13.

3. Pursuant to 47 C.F.R. Section 73.625, the DTV coverage contour of the proposed facility will encompass the allotted principal community. ☒ Yes ☐ No

4. The requirements of 47 C.F.R. Section 73.1030 regarding notification to radio astronomy installations, radio receiving installations and FCC monitoring stations have either been satisfied or are not applicable. ☒ Yes ☐ No

5. The antenna structure to be used by this facility has been registered by the Commission and will not require reregistration to support the proposed antenna, OR the FAA has previously determined that the proposed structure will not adversely effect 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. ☐ Yes ☒ No

TECHNICAL SPECIFICATIONS

Ensure that the specifications below are accurate. Contradicting data found elsewhere in this application will be disregarded. All items must be completed. The response "on file" is not acceptable.

TECH BOX

1. Channel Number: DTV 8 Analog TV, if any 9

2. Zone: ☐ I ☒ II ☐ III

3. Antenna Location Coordinates: (NAD 27)

45 ° 40 ' 24 " ☒ N ☐ S Latitude

110 ° 52 ' 02 " ☐ E ☒ W Longitude

4. Antenna Structure Registration Number: 1000681

☐ Not applicable ☐ FAA Notification Filed with FAA

5. Antenna Location Site Elevation Above Mean Sea Level: 2015 meters

6. Overall Tower Height Above Ground Level: 155 meters

7. Height of Radiation Center Above Ground Level: 149 meters

8. Height of Radiation Center Above Average Terrain: 305 meters

9. Maximum Effective Radiated Power (average power): 160 kW

10. Antenna Specifications:

a.

Manufacturer	Model
DIELECTRIC	THA-P2-2H/4HD-1

b. Electrical Beam Tilt: _____ degrees ☒ Not Applicable

c. Mechanical Beam Tilt: _____ degrees toward azimuth _____ degrees True ☒ Not Applicable

Attach as an Exhibit all data specified in 47 C.F.R. Section 73.625(c). Exhibit No.

d. Polorization: ☒ Horizontal ☐ Circular ☐ Elliptical

TECH BOX

e. Directional Antenna Relative Field Values: ☐ Not applicable (Nondirectional)

Rotation: _____ ° ☒ No rotation

Degree	Value	Degree	Value	Degree	Value	Degree	Value	Degree	Value	Degree	Value
0	0.039	60	0.753	120	0.753	180	0.039	240	0.753	300	0.753
10	0.061	70	0.877	130	0.585	190	0.061	250	0.877	310	0.585
20	0.128	80	0.962	140	0.365	200	0.128	260	0.962	320	0.365
30	0.158	90	1.000	150	0.158	210	0.158	270	1.000	330	0.158
40	0.365	100	0.962	160	0.128	220	0.365	280	0.962	340	0.128
50	0.585	110	0.877	170	0.061	230	0.585	290	0.877	350	0.061
Additional Azimuths											

If a directional antenna is proposed, the requirements of 47 C.F.R. Section 73.625(c) must be satisfied. **Exhibit required.**

Exhibit No. E-2, E-3

11. Does the proposed facility satisfy the interference protection provisions of 47 C.F.R. Section 73.623(a)? (Applicable only if **Certification Checklist** Items 1(a), (b), or (c) are answered "No.") ☒ Yes ☐ No

If "No," attach as an Exhibit justification therefor, including a summary of any related previously granted waivers.

Exhibit No. N/A

12. If the proposed facility will not satisfy the coverage requirement of 47 C.F.R. Section 73.625, attach as an Exhibit justification therefor. (Applicable only if **Certification Checklist** Item 3 is answered "No.")

Exhibit No. N/A

13. **Environmental Protection Act. Submit in an Exhibit** the following:

Exhibit No. E(TEXT)

a. If **Certification Checklist** Item 3 is answered "Yes," a brief explanation of why an Environmental Assessment is not required. Also describe in the Exhibit the steps that will be taken to limit RF radiation exposure to the public and to persons authorized access to the tower site.

By checking "Yes" to **Cettification Checklist** Item 3, the applicant also certifies that it, in coordination with other users of the site, will reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency electromagnetic exposure in excess of FCC guidelines.

If **Certification Checklist** Item 3 is answered "No," an Environmental Assessment as required by 47 C.F.R. Section 1.1311.

PREPARER'S CERTIFICATION IN SECTION III MUST BE COMPLETED AND SIGNED.

EXHIBIT A
REQUEST FOR WAIVER

By this application, Montana State University seeks authorization for the construction of digital facilities for KUSM (the "Station"). Montana State University concurrently is submitting a Petition for Rule Making seeking to substitute Channel 8 as the Station's paired DTV allocation for the transition period in lieu of Channel 20, as initially allotted. This waiver request asks the Commission to defer processing this application until such time as it has acted upon the Petition for Rule Making.

Montana State University is submitting the instant application to ensure that the Station will be eligible for public funds to construct the proposed digital facilities. Specifically, Montana State University is requesting federal funding for this project under the Public Telecommunications Facilities Program ("PTFP"), administered by the National Telecommunications and Information Administration ("NTIA") under the Department of Commerce.[1] The PTFP rules encourage that any application for an FCC authorization which will rely on federal funding be filed prior to February 15, 2001 to ensure adequate processing time. Although the instant application is not technically required for eligibility for such public funding, Montana State University believes that the submission of the application demonstrates the commitment and good faith effort on its part to obtain Commission authorization for the proposed facilities.

Obviously, the Commission has not had the opportunity to act on Montana State University's Petition for Rule Making to substitute a new DTV allotment for the Station. Accordingly, Montana Statue University is requesting waiver of Section 73.3572[2] to permit the submission of this construction permit application for the Station that reflects the facilities proposed in the Petition. Montana State University respectfully requests that the Commission defer processing this instant application until such time as it has acted upon the Petition for Rule Making. Grant of the waiver request is in the public interest because it will ensure that Montana State University will be eligibile for public funding for construction of the Station's proposed facilities.

Because Montana State University has pending an application for a DTV construction permit for operation on the initially allotted Channel 20,[3] for the reasons explained above, it also seeks waiver of Sections 73.622(c), 73.3517, 73.3518, 73.3520,[4] and any other rules deemed necessary. Montana State University intends to prosecute this instant application and dismiss the pending DTV Channel 20 application if the rule making is granted. Conversely, if the rule making is not granted, Montana State University intends to prosecute the pending application.

---

1 *See* 47 U.S.C. §§ 390, *et seq.*

2 47 C.F.R. § 73.3572.

3 FCC File No. BPEDT-20000501AHQ.

4 47 C.F.R. §§ 73.622(c), 73.3517, 73.3518, and 73.3520.

EXHIBIT E

ENGINEERING STATEMENT
REQUEST TO
CONSTRUCT DTV FACILITIES
ON BEHALF OF
MONTANA PUBLIC TELEVISION
KUSM-DT, BOZEMAN, MONTANA
CHANNEL 8 160 KW MAX ERP 305 METERS HAAT

FEBRUARY 2001

COHEN, DIPPELL AND EVERIST, P.C.
CONSULTING ENGINEERS
RADIO AND TELEVISION
WASHINGTON, D.C.

COHEN, DIPPELL AND EVERIST, P. C.

City of Washington)
) ss
District of Columbia)

Donald G. Everist, being duly sworn upon his oath, deposes and states that:

He is a graduate electrical engineer, a Registered Professional Engineer in the District of Columbia, and is President of Cohen, Dippell and Everist, P.C., Consulting Engineers, Radio - Television, with offices at 1300 L Street, N.W., Suite 1100, Washington, D.C. 20005;

That his qualifications are a matter of record in the Federal Communications Commission;

That the attached engineering report was prepared by him or under his supervision and direction and

That the facts stated herein are true of his own knowledge, except such facts as are stated to be on information and belief, and as to such facts he believes them to be true.

Donald G. Everist
District of Columbia
Professional Engineer
Registration No. 5714

Subscribed and sworn to before me this 8th day of February, 2001.

Notary Public

My Commission Expires: 2/28/2003

COHEN, DIPPELL AND EVERIST, P. C.

City of Washington)
) ss
District of Columbia)

Wesley A. Lawson, being duly sworn upon his oath, deposes and states that:

He is a graduate electrical engineer of Virginia Polytechnic Institute & State University, and is a staff engineer at Cohen, Dippell and Everist, P.C., Consulting Engineers, Radio - Television, with offices at 1300 L Street, N.W., Suite 1100, Washington, D.C. 20005;

That the attached engineering report was prepared by him or under his supervision and direction and

That the facts stated herein are true of his own knowledge, except such facts as are stated to be on information and belief, and as to such facts he believes them to be true.

Wesley A. Lawson

Subscribed and sworn to before me this 8th day of February, 2001.

Notary Public

My Commission Expires: 2/28/2003

INTRODUCTION

This engineering statement has been prepared on behalf of Montana Public Television, licensee of KUSM-TV in support of its request to construct DTV facilities at the Green Mountain electronics site. In accordance with the instructions of FCC staff, the engineering portion of this submission uses FCC Form 301 in lieu of FCC Form 340. An application to relocate the KUSM-TV NTSC Channel 9 is also being submitted to the Commission.

§73.622 OF THE COMMISSION'S RULES

A rulemaking request to change DTV Channel 20 to DTV Channel 8 is being submitted to the Commission. Montana Public Television currently has a pending application that has not yet been granted for DTV Channel 20 at 200kW effective radiated power and 218 meters HAAT that was filed as required for the May 1, 2000 deadline. The purpose of this additional filing for Channel 8 is to implement a four-station, two-antenna operation at the proposed site.

KUSM-TV TOWER AND SITE

It is proposed to mount the antenna to an existing guyed tower that will be modified to increase height. The proposed operation will implement a broadband antenna and accept the input from the proposed DTV Channel 8 and a DTV Channel 13 operation. Modifications will have to be made to the tower. Since it is an existing site it will not require an environmental assessment, as discussed later in the statement. The extent of the changes made will be determined by the amount of funding provided by an NTIA grant and other funding. A 7.5-minute USGS quadrangle map displaying the proposed site is included as Exhibit E-1 of this report. The coordinates of the tower follow below:

North Latitude: 45° 40' 24"

West Longitude: 110° 52' 02"

NAD-27

The existing tower with FCC Tower Registration Number 1000681 will have to be modified and reregistered to accommodate the proposed facilities.

EQUIPMENT DATA

The antenna is a Dielectric, Type THA-P2-2H/4HD-1, or the equivalent. This is a directional antenna implementing a 'peanut' shaped pattern. All exhibits required by §73.625 of the Commission's rules have been included as Exhibits E-2(a,b) and E-3(a,b,c).

POWER DATA

Transmitter output	15.9 kW	12.01dBk
Combiner efficiency/loss	0.989	0.05dB
Transmission line efficiency/loss Type EIA/DCA 3-1/8 50 ohm, or equivalent, 152.4m (500ft)	0.860	0.66dB
Antenna Input	13.5 kW	11.30dBk
Antenna gain (MAX)	11.8	10.73dB
Maximum Effective Radiated Power (ERP)	160 kW	22.03dBk

ELEVATION DATA

Vertical dimension of Channel 8 antenna	6.2 meters 20 feet
Elevation of site above mean sea level	2015 meters 6611 feet

Overall height above ground of the existing antenna structure (including all appurtenances)	155 meters 509 feet
Overall height above mean sea level of existing antenna structure (including all appurtenances)	2170 meters 7119 feet
Center of radiation of Channel 8 antenna above ground	149 meters 489 feet
Center of radiation of Channel 8 antenna above mean sea level	2164 meters 7100 feet
Antenna height above average terrain	305 meters

Note: Slight height differences result due to conversion to metric.

ALLOCATION

A DTV allocation study from the proposed site has been performed for the proposed operation. The proposed change moves the operation 14.5 km from the current allocated site. Two facilities were found within the required inclusion distances from the proposed site that were not fully spaced and interference to these television stations was investigated using the Commission's Longley-Rice modeled as detailed below.

COVERAGE

The average elevation data for 3.2 to 16.1 km along each radial equally spaced at every 10 degrees has been determined based upon 30-second NGDC terrain data. The F(50,90) coverage contours have been computed from reference to the propagation data for Channel 7-13 as modeled using commercial software.

Utilizing the formula in §73.625(b)(2) of the Rules for the effective heights, it is found that the depression angle, A_h, varies from 0.164 to 0.698 degrees. The relative field in the

vertical plane is greater than 90% for all calculated depression angles and the maximum power was used to determine the distance to the DTV noise limited contour. A map is included as Exhibit E-4 showing the proposed contour. This map shows the computed coverage contour encompasses the city of license.

INTERFERENCE ANALYSIS

A study of predicted interference caused by the proposed KUSM-DT service has been performed using a version of the Longley-Rice program as described in OET Bulletin No. 69 (July 2, 1997) and the Public Notice, "Additional Application Processing Guidelines for Digital Television (DTV)" (August 1998). The FCC's FORTRAN-77 code was modified only to the extent necessary (primarily input/output handling) for the program to run on a Windows98/Intel platform. Comparison of service/interference areas and populations indicates that this model closely matches the FCC's evaluation program. Best efforts have been made to use data and calculations identical to the FCC's program. Any slight differences are attributable to compiler, operating system and/or processor characteristics. The effect of any variance in calculated population values versus the FCC's program is minimized when differencing a given model's results, such as calculating new interference as total interference less baseline interference. Any variance effect is further reduced when using ratios of calculated population values such as measuring the incremental population affected as a percent of the total population served. The model employs the Longley-Rice propagation methodology and evaluates in grid cells of approximately 4 km^2 using 3-second terrain data sampled approximately every 0.1 km at one degree azimuth intervals with 1990 census centroids.

The stations to be considered for potential interference according to the processing guidelines are listed in Table 1. None of the potentially affected stations are predicted to receive more than their maximum allowable interference.

RADIO FREQUENCY FIELD LEVEL

This section evaluates the radio frequency field ("RFF") exposure condition created by the operation of the proposed KUSM-TV operation.

For DTV, Channel 8, KUSM-DT will use a Dielectric, Type THA-P2-2H/4HD-1, or equivalent, antenna. The antenna manufacturer's data indicates that the elevation pattern for this antenna has a maximum relative field of approximately 0.1 towards the ground in the vicinity of the tower. The RFF level is calculated using this relative field factor and the procedures prescribed in OET Bulletin No. 65, at 160.0 kW and a radiation center of 149.0 meters above ground The maximum resulting RFF existing two meters above the base of the tower is computed to be less than 2.50 $\mu W/cm^2$. This is less than 0.3% of the maximum allowed controlled exposure and less than 1.3% of the maximum allowed uncontrolled exposure for the general population.

There are no AM towers within 3.2 kilometers of the proposed site. According to the CDBS database dated February 2, 2001 there are three FM stations broadcasting from the KBZK tower, and two television translators within 100 meters. According to the property owner K32EP in fact is not located near this site and is not included in the evaluation.

In 1999 the chief engineer of the property owner evaluated the RFF levels two meters above the base of the tower and found the RFF levels to be 25% of the permissible amount. This was tested with KBZK-TV, KMMS-FM, KSCY-FM, and KYWB-LP operating around the

perimeter of the tower at full power. In addition the FCC CDBS database indicates KXLB-FM operates on this tower with an ERP of 94kW and 82 meters above the ground. The KXLB-FM operation will introduce about another 7% to the RFF amount resulting in a total of 32% of the permissible amount existing around the base of the tower

The DTV Channel 13 operation will also transmit through the same antenna at 160kW creating RFF levels identical to the current DTV Channel 8 operation currently in place on the tower and are not calculated since they would have been incorporated in the 1999 study. It is also proposed to mount another broadband antenna to transmit NTSC Channel 7 and NTSC Channel 13. The maximum ERP for each of these operations will be 44 kW, resulting in a total ERP of 88 kW. Assuming a relative downward radiation factor of approximately 0.1 towards the ground in the vicinity of the tower the total of the NTSC operations and the DTV Channel 13 operation, the RFF in the vicinity of the base of the tower will be less than 1.0% of the maximum allowed for controlled exposure and less than 2.0% maximum allowed for uncontrolled exposure to the general population. In total, the exposure rate around the base of the tower will not exceed 40% of the maximum allowed for uncontrolled exposure with all a facilities within 100 meters of the tower operating at full power.

Authorized personnel and rigging contractors will be alerted to the potential zone of high radiation on the tower, and if necessary, the station will operate with reduced power or terminate the operation of the transmitter as appropriate when it is necessary for authorized personnel or contractors to perform work on the tower. Workers and the general public therefore, will not be subjected to RFF levels in excess of the current FCC guidelines.

FCC Rule Section 1.1307

The proposed operation based upon the current OET Bulletin No. 65, Edition 97-01 dated August 1997 and Supplement A meets the provisions of the FCC radio frequency field (RFF) guidelines, and thus, complies with §1.1307 of the FCC Rules.

An environmental assessment (EA) is categorically excluded under §1.1307 of the FCC Rules and Regulations since the licensee indicates:

(a)(1)	The existing site is not located in an officially designated wilderness area.
(a)(2)	The existing site is not located in an officially designated wildlife preserve.
(a)(3)	The proposed facilities will not affect any listed threatened or endangered species or habitats.
(a)(3)(ii)	The proposed facilities will not jeopardize the continued existence of any proposed endangered or threatened species or likely to result in the destruction or adverse modification of proposed critical habitats.
(a)(4)	The proposed facilities will not affect any known districts, sites, buildings, structures, or objects significant in American history, architecture, archaeology, engineering, or culture.
(a)(5)	The existing site is not located near any known Indian religious sites.
(a)(6)	The existing site is not located in a flood plain.
(a)(7)	The installation of the new panel antenna on the modified tower will not involve a significant change in surface features of the ground in the vicinity of the tower.
(a)(8)	It is not proposed to change the current lighting on the tower.
(b)	Workers and the general public will not be subjected to RFF levels in excess of the current FCC guidelines. Authorized personnel will be alerted to areas of the antennas where potential radiation is in excess of the FCC guidelines. A security fence with a locked gate deters unauthorized access to the tower site.

TABLE 1

POTENTIAL INTERFEREES OF KUSM-DT, BOZEMAN, MONTANA
CHANNEL 8 160kW 305 Meters
FEBRUARY 2001

DTV	CHANNEL	STATUS	CITY/STATE	POWER (kW)	BEARING/DISTANCE FROM KUSM-DT	NEW INTERFERENCE*
KRTV	7	DR	Great Falls, MT	160	351.4°/209.5 km	Fully-Spaced
KFFB-TV	8	DR	Great Falls, MT	160	351.4°/209.5 km	0.1%
KCWC-DT	8	APP	Lander/Riverton, WY	60	152.6°/384.3 km	Fully-Spaced
NTSC						
KBZK-TV	7	LIC	Bozeman, MT	43.7	0.0°/0.0 km	Co-located
KIFI-TV	8	LIC	Idaho Falls, ID	316	211.1°/280.3 km	Fully-Spaced
KULR	8	LIC	Billings, MT	316	86.2°/188.2 km	1.5%
KPAX-TV	8	LIC	Missoula, MT	275	302.9°/284.5 km	Fully-Spaced

Source: FCC CDBS 12/7/00
*Stations that exceed the minimum geographic spacing requirements for new stations [§73.623(d)] are presumed to receive much less than de minimis interference.

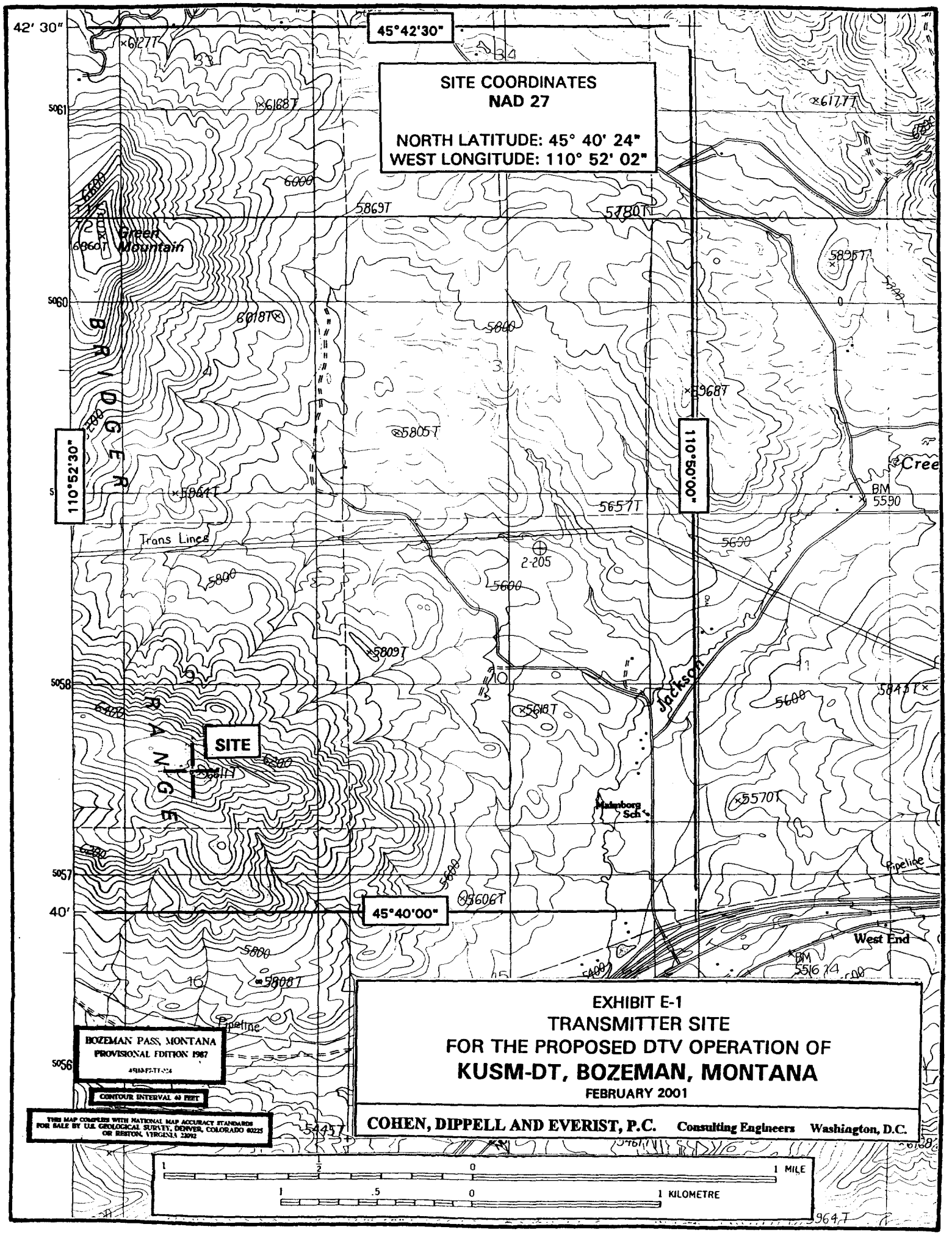


EXHIBIT E-1
TRANSMITTER SITE
FOR THE PROPOSED DTV OPERATION OF
KUSM-DT, BOZEMAN, MONTANA
FEBRUARY 2001

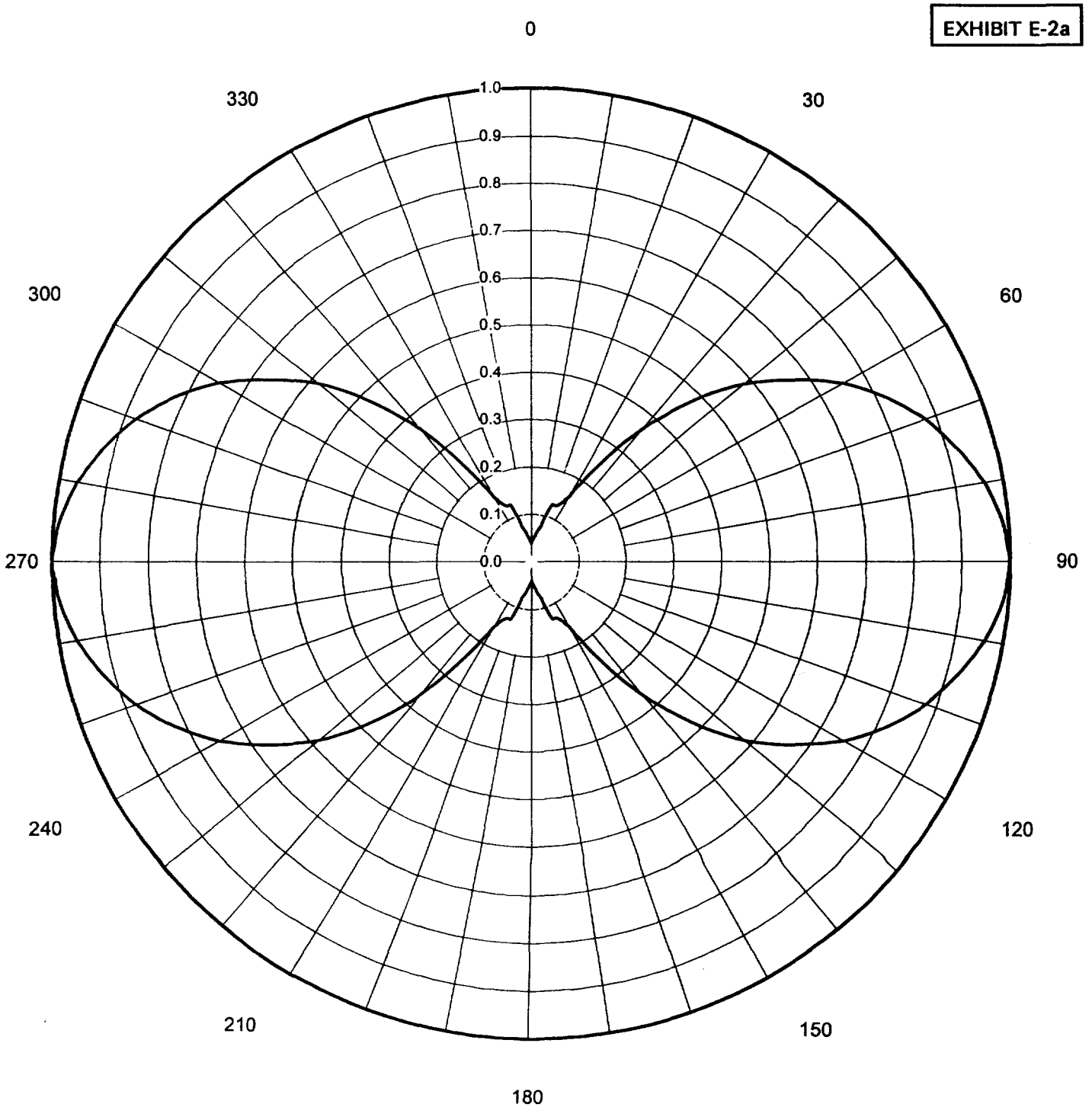
COHEN, DIPPELL AND EVERIST, P.C. Consulting Engineers Washington, D.C.

Proposal Number	**DCA-9073**	Revision:	**2**
Date	**15-Jan-01**		
Call Letters	**KCTZ**	Channel	**8**
Location	**Bozeman, MT**		
Customer	**Cordillera**		
Antenna Type	**THA-P2-2H/4HD-1**		

AZIMUTH PATTERN

Gain	**2.75** **(4.40 dB)**	Frequency	**183.00 MHz**
Calculated / Measured	**Calculated**	Drawing #	**THA-P4-8**

EXHIBIT E-2a



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TABULATION OF AZIMUTH PATTERN

Azimuth Pattern Drawing #: **THA-P4-8**

EXHIBIT E-2b

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
0	0.039	45	0.478	90	1.000	135	0.478	180	0.039	225	0.478	270	1.000	315	0.478
1	0.041	46	0.501	91	0.998	136	0.456	181	0.041	226	0.501	271	0.998	316	0.456
2	0.043	47	0.523	92	0.995	137	0.433	182	0.043	227	0.523	272	0.995	317	0.433
3	0.045	48	0.544	93	0.993	138	0.410	183	0.045	228	0.544	273	0.993	318	0.410
4	0.046	49	0.565	94	0.991	139	0.388	184	0.046	229	0.565	274	0.991	319	0.388
5	0.047	50	0.585	95	0.988	140	0.365	185	0.047	230	0.585	275	0.988	320	0.365
6	0.051	51	0.603	96	0.983	141	0.342	186	0.051	231	0.603	276	0.983	321	0.342
7	0.053	52	0.620	97	0.978	142	0.318	187	0.053	232	0.620	277	0.978	322	0.318
8	0.056	53	0.637	98	0.972	143	0.295	188	0.056	233	0.637	278	0.972	323	0.295
9	0.059	54	0.653	99	0.967	144	0.272	189	0.059	234	0.653	279	0.967	324	0.272
10	0.061	55	0.670	100	0.962	145	0.249	190	0.061	235	0.670	280	0.962	325	0.249
11	0.065	56	0.687	101	0.954	146	0.229	191	0.065	236	0.687	281	0.954	326	0.229
12	0.068	57	0.705	102	0.946	147	0.210	192	0.068	237	0.705	282	0.946	327	0.210
13	0.072	58	0.721	103	0.938	148	0.192	193	0.072	238	0.721	283	0.938	328	0.192
14	0.075	59	0.738	104	0.929	149	0.174	194	0.075	239	0.738	284	0.929	329	0.174
15	0.077	60	0.753	105	0.922	150	0.158	195	0.077	240	0.753	285	0.922	330	0.158
16	0.086	61	0.767	106	0.913	151	0.150	196	0.086	241	0.767	286	0.913	331	0.150
17	0.096	62	0.781	107	0.904	152	0.144	197	0.096	242	0.781	287	0.904	332	0.144
18	0.106	63	0.794	108	0.895	153	0.138	198	0.106	243	0.794	288	0.895	333	0.138
19	0.117	64	0.808	109	0.886	154	0.134	199	0.117	244	0.808	289	0.886	334	0.134
20	0.128	65	0.821	110	0.877	155	0.131	200	0.128	245	0.821	290	0.877	335	0.131
21	0.128	66	0.832	111	0.866	156	0.130	201	0.128	246	0.832	291	0.866	336	0.130
22	0.128	67	0.844	112	0.855	157	0.129	202	0.128	247	0.844	292	0.855	337	0.129
23	0.129	68	0.855	113	0.844	158	0.128	203	0.129	248	0.855	293	0.844	338	0.128
24	0.130	69	0.866	114	0.832	159	0.128	204	0.130	249	0.866	294	0.832	339	0.128
25	0.131	70	0.877	115	0.821	160	0.128	205	0.131	250	0.877	295	0.821	340	0.128
26	0.134	71	0.886	116	0.808	161	0.117	206	0.134	251	0.886	296	0.808	341	0.117
27	0.138	72	0.895	117	0.794	162	0.106	207	0.138	252	0.895	297	0.794	342	0.106
28	0.144	73	0.904	118	0.781	163	0.096	208	0.144	253	0.904	298	0.781	343	0.096
29	0.150	74	0.913	119	0.767	164	0.086	209	0.150	254	0.913	299	0.767	344	0.086
30	0.158	75	0.922	120	0.753	165	0.077	210	0.158	255	0.922	300	0.753	345	0.077
31	0.174	76	0.929	121	0.738	166	0.075	211	0.174	256	0.929	301	0.738	346	0.075
32	0.192	77	0.938	122	0.721	167	0.072	212	0.192	257	0.938	302	0.721	347	0.072
33	0.210	78	0.946	123	0.705	168	0.068	213	0.210	258	0.946	303	0.705	348	0.068
34	0.229	79	0.954	124	0.687	169	0.065	214	0.229	259	0.954	304	0.687	349	0.065
35	0.249	80	0.962	125	0.670	170	0.061	215	0.249	260	0.962	305	0.670	350	0.061
36	0.272	81	0.967	126	0.653	171	0.059	216	0.272	261	0.967	306	0.653	351	0.059
37	0.295	82	0.972	127	0.637	172	0.056	217	0.295	262	0.972	307	0.637	352	0.056
38	0.318	83	0.978	128	0.620	173	0.053	218	0.318	263	0.978	308	0.620	353	0.053
39	0.342	84	0.983	129	0.603	174	0.051	219	0.342	264	0.983	309	0.603	354	0.051
40	0.365	85	0.988	130	0.585	175	0.047	220	0.365	265	0.988	310	0.585	355	0.047
41	0.388	86	0.991	131	0.565	176	0.046	221	0.388	266	0.991	311	0.565	356	0.046
42	0.410	87	0.993	132	0.544	177	0.045	222	0.410	267	0.993	312	0.544	357	0.045
43	0.433	88	0.995	133	0.523	178	0.043	223	0.433	268	0.995	313	0.523	358	0.043
44	0.456	89	0.998	134	0.501	179	0.041	224	0.456	269	0.998	314	0.501	359	0.041

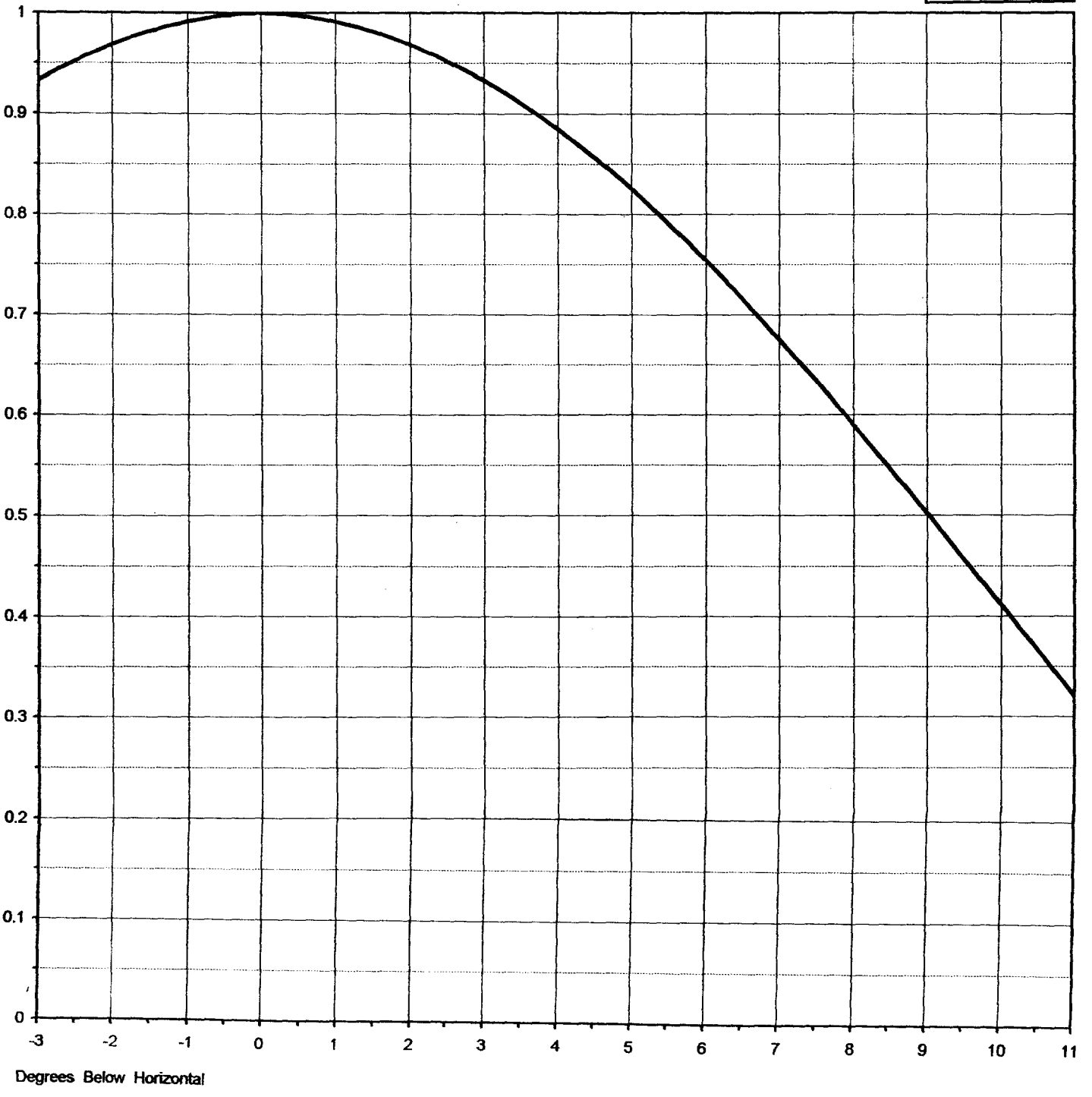
Dielectric

Proposal Number	DCA-9073	Revision:	2
Date	15-Jan-01		
Call Letters	KCTZ	Channel	8
Location	Bozeman, MT		
Customer	Cordillera		
Antenna Type	THA-P2-2H/4HD-1		

ELEVATION PATTERN

RMS Gain at Main Lobe	4.30 (6.33 dB)	Beam Tilt	0.00 deg
RMS Gain at Horizontal	4.30 (6.33 dB)	Frequency	183.00 MHz
Calculated / Measured	Calculated	Drawing #	02H043000

EXHIBIT E-3a



Dielectric

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Call Letters	KCTZ	Channel	8
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ELEVATION PATTERN

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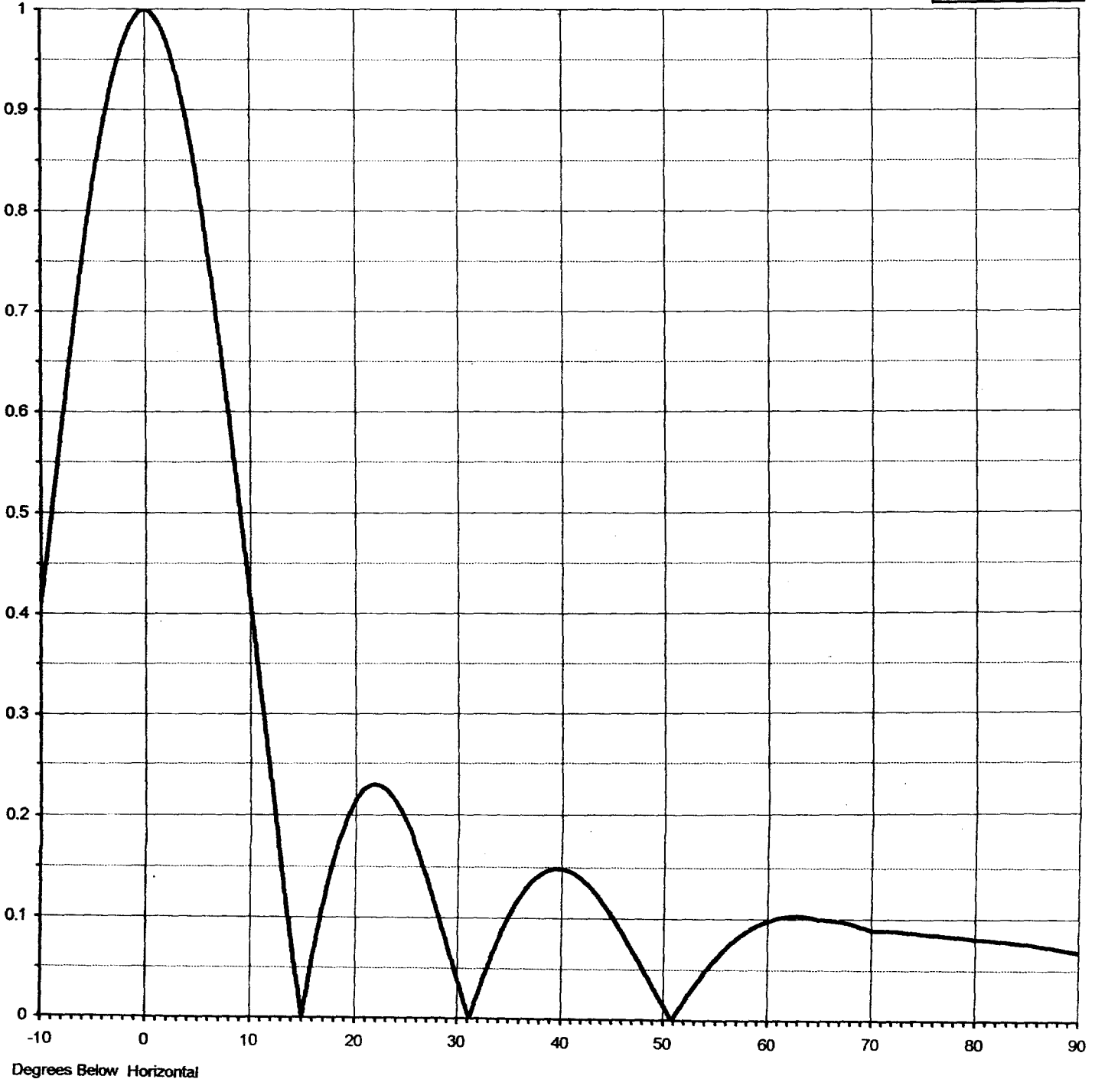
RMS Gain at Horizontal	4.30 (6.33 dB)	Frequency	183.00 MHz
Calculated / Measured	Calculated	Drawing #	02H043000-90

EXHIBIT E-3b



Dielectric

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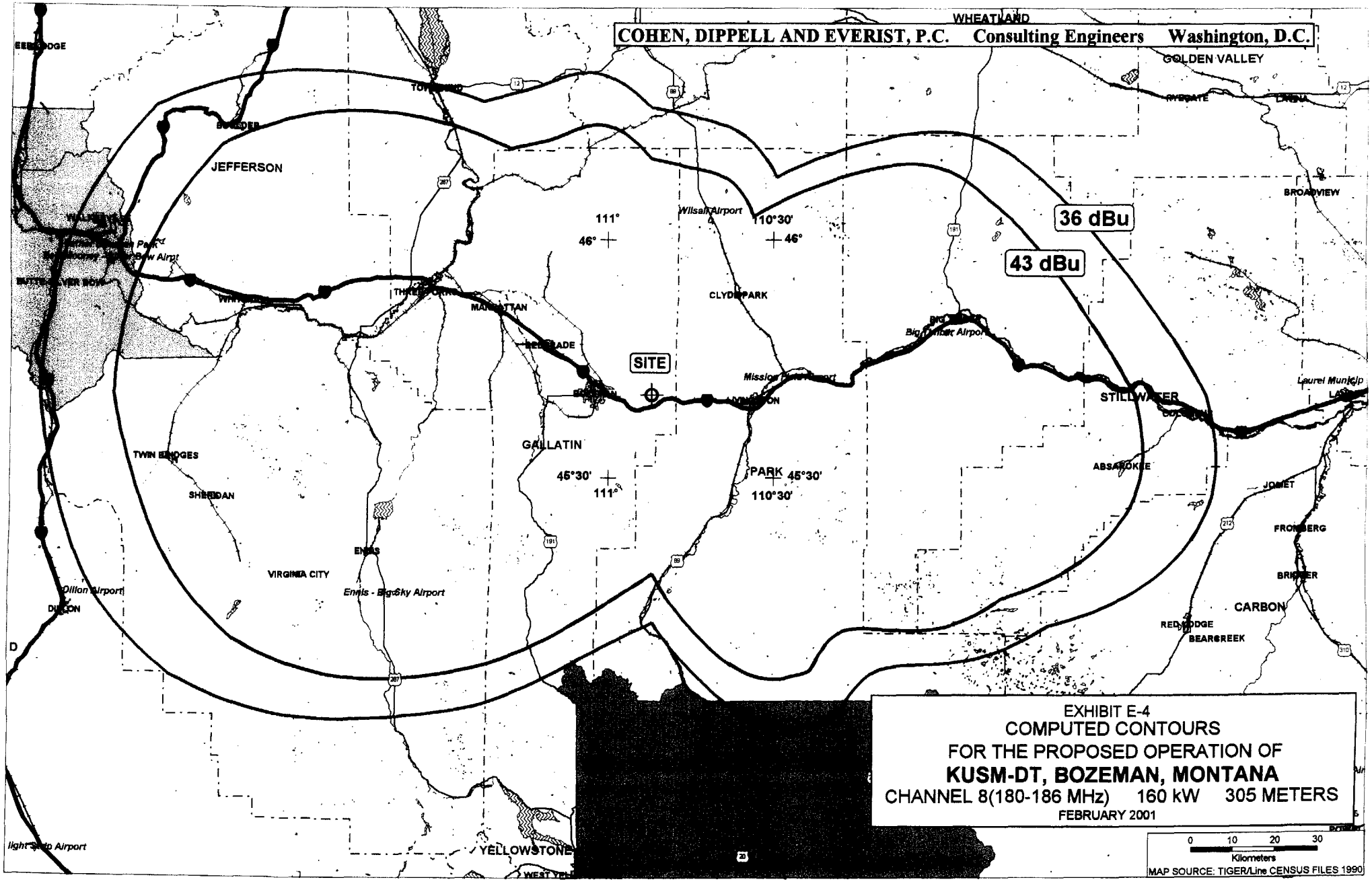
TABULATION OF ELEVATION PATTERN

Elevation Pattern Drawing #: **02H043000-90**

EXHIBIT E-3c

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.411	2.4	0.956	10.6	0.366	30.5	0.024	51.0	0.001	71.5	0.089
-9.5	0.457	2.6	0.949	10.8	0.347	31.0	0.008	51.5	0.010	72.0	0.088
-9.0	0.502	2.8	0.941	11.0	0.329	31.5	0.008	52.0	0.018	72.5	0.088
-8.5	0.546	3.0	0.933	11.5	0.284	32.0	0.024	52.5	0.026	73.0	0.088
-8.0	0.590	3.2	0.924	12.0	0.240	32.5	0.039	53.0	0.033	73.5	0.087
-7.5	0.633	3.4	0.915	12.5	0.197	33.0	0.053	53.5	0.040	74.0	0.086
-7.0	0.675	3.6	0.906	13.0	0.156	33.5	0.066	54.0	0.047	74.5	0.086
-6.5	0.715	3.8	0.896	13.5	0.115	34.0	0.079	54.5	0.054	75.0	0.085
-6.0	0.754	4.0	0.885	14.0	0.077	34.5	0.090	55.0	0.060	75.5	0.085
-5.5	0.791	4.2	0.874	14.5	0.040	35.0	0.101	55.5	0.065	76.0	0.085
-5.0	0.826	4.4	0.863	15.0	0.005	35.5	0.111	56.0	0.071	76.5	0.084
-4.5	0.857	4.6	0.851	15.5	0.028	36.0	0.119	56.5	0.075	77.0	0.084
-4.0	0.885	4.8	0.839	16.0	0.058	36.5	0.126	57.0	0.080	77.5	0.083
-3.5	0.910	5.0	0.826	16.5	0.086	37.0	0.133	57.5	0.084	78.0	0.083
-3.0	0.933	5.2	0.812	17.0	0.112	37.5	0.138	58.0	0.087	78.5	0.082
-2.8	0.941	5.4	0.798	17.5	0.135	38.0	0.142	58.5	0.091	79.0	0.082
-2.6	0.949	5.6	0.784	18.0	0.156	38.5	0.145	59.0	0.093	79.5	0.081
-2.4	0.956	5.8	0.769	18.5	0.174	39.0	0.147	59.5	0.095	80.0	0.080
-2.2	0.963	6.0	0.754	19.0	0.190	39.5	0.148	60.0	0.097	80.5	0.080
-2.0	0.969	6.2	0.739	19.5	0.202	40.0	0.148	60.5	0.099	81.0	0.080
-1.8	0.974	6.4	0.723	20.0	0.213	40.5	0.147	61.0	0.101	81.5	0.079
-1.6	0.979	6.6	0.707	20.5	0.221	41.0	0.146	61.5	0.102	82.0	0.079
-1.4	0.984	6.8	0.691	21.0	0.226	41.5	0.143	62.0	0.102	82.5	0.078
-1.2	0.988	7.0	0.675	21.5	0.229	42.0	0.139	62.5	0.103	83.0	0.078
-1.0	0.991	7.2	0.659	22.0	0.230	42.5	0.135	63.0	0.103	83.5	0.077
-0.8	0.994	7.4	0.642	22.5	0.228	43.0	0.130	63.5	0.103	84.0	0.077
-0.6	0.997	7.6	0.625	23.0	0.225	43.5	0.124	64.0	0.102	84.5	0.076
-0.4	0.998	7.8	0.608	23.5	0.219	44.0	0.117	64.5	0.101	85.0	0.075
-0.2	0.999	8.0	0.590	24.0	0.212	44.5	0.110	65.0	0.099	85.5	0.075
0.0	1.000	8.2	0.573	24.5	0.204	45.0	0.103	65.5	0.099	86.0	0.074
0.2	0.999	8.4	0.555	25.0	0.193	45.5	0.095	66.0	0.099	86.5	0.073
0.4	0.998	8.6	0.537	25.5	0.181	46.0	0.087	66.5	0.098	87.0	0.072
0.6	0.997	8.8	0.520	26.0	0.168	46.5	0.079	67.0	0.097	87.5	0.072
0.8	0.994	9.0	0.502	26.5	0.154	47.0	0.070	67.5	0.097	88.0	0.071
1.0	0.991	9.2	0.484	27.0	0.140	47.5	0.061	68.0	0.095	88.5	0.070
1.2	0.988	9.4	0.466	27.5	0.124	48.0	0.052	68.5	0.094	89.0	0.069
1.4	0.984	9.6	0.447	28.0	0.108	48.5	0.043	69.0	0.092	89.5	0.068
1.6	0.979	9.8	0.438	28.5	0.091	49.0	0.034	69.5	0.091	90.0	0.067
1.8	0.974	10.0	0.420	29.0	0.074	49.5	0.025	70.0	0.089		
2.0	0.969	10.2	0.402	29.5	0.058	50.0	0.016	70.5	0.089		
2.2	0.963	10.4	0.384	30.0	0.041	50.5	0.007	71.0	0.089		


COHEN, DIPPELL AND EVERIST, P.C. Consulting Engineers Washington, D.C.
36 dBu
43 dBu
SITE
111°
46°
110°30'
46°
45°30'
111°
45°30'
110°30'
JEFFERSON
GALLATIN
PARK
CARBON
YELLOWSTONE
TWIN BRIDGES
SHERIDAN
VIRGINIA CITY
ENNIS
DILLON
MANHATTAN
CLYDE PARK
BIG TIMBER
STILLWATER
ABSAROKEE
JOLIET
FROMBERG
BRIDGER
RED LODGE
BEAR CREEK
GOLDEN VALLEY
BROADVIEW
WHEATLAND
Wilsall Airport
Big Timber Airport
Ennis - Big Sky Airport
Dillon Airport
Laurel Municip
EXHIBIT E-4
COMPUTED CONTOURS
FOR THE PROPOSED OPERATION OF
KUSM-DT, BOZEMAN, MONTANA
CHANNEL 8(180-186 MHz) 160 kW 305 METERS
FEBRUARY 2001
0 10 20 30
Kilometers
MAP SOURCE: TIGER/Line CENSUS FILES 1990