

# DELAWDER COMMUNICATIONS, INC.

2121 Eisenhower Avenue, Suite 200

Alexandria, Virginia 22314

(703) 299-9222

## ENGINEERING REPORT

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Cooperative TV Association of Southern Minnesota

St. James, MN (Channel 41- Minor Modification)

### EXHIBIT 6

#### LPTV MINOR MODIFICATION – INTERFERENCE STUDIES

##### I. Introduction

1. Cooperative TV Association of Southern Minnesota (“CTV”) is the licensee of K41IZ, St. James, MN, channel 41(-). By this minor change modification, CTV proposes to replace its current antenna with a Kathrein 771-304 omnidirectional antenna and to relocate by less than 0.3 kilometers to the top of an existing 1000-foot tower. The radiation centerline height and ERP are also being increased by this proposal. The following changes are being proposed by this modification application:

	<u>As Authorized</u>	<u>as Modified</u>
Latitude (NAD 27):	N44° 06' 28"	N44° 06' 25"
Longitude (NAD 27):	W94° 35' 55"	W94° 35' 44"
Ground Elevation:	314.6 meters AMSL	317 meters AMSL
Radiation Center Hgt:	182.4 meters AGL	299 meters AGL
Overall Height:	186.6 meters AGL	303.3 meters AGL
Antenna Make/Model:	MCI 955116	Kathrein 771-304
ERP (max):	1.32 kW	2.0 kW

2. No other changes are proposed. Interference studies are provided below to demonstrate adequate protection to all known LPTV (TV translator and TV booster) stations, analog TV stations and digital TV stations. Pursuant to 47 C.F.R. Section 73.3572(a)(4)(iv)(A), because the authorized K41IZ transmitter site is located within 265 kilometers of co-channel DTV stations KTIV-DT (Sioux City, IA) and WKBT-DT (La Crosse, WI), the changes herein proposed qualify as minor changes and this is not considered a major change modification.

3. All terrain studies use USGS/DMA three arc-second data. All population information in this application are taken from year 2000 US Census Data.

4. Attached as Table 1 is a Dataworld TV Spacing Study for Channel 41(-). The Dataworld Study was conducted from a reference site at the new transmitter

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location. Protection to the following stations has caused design constraints to the proposed Channel 41(-) transmit facility:

- a. K26CS, St. James, MN, Authorized LPTV Channel 26-;
- b. K40BU, St. James, MN, Licensed LPTV Channel 40n;
- c. K42AV, St. James, MN, Licensed LPTV Channel 42-;
- d. K41EG, Jackson, MN, Licensed LPTV Channel 41+;
- e. K41AD, Lansing, IA, Licensed LPTV Channel 41n;
- f. KPXM, St. Cloud, MN, Licensed TV Channel 41z;
- g. KTIV-DT, Sioux City, IA, CP DTV Channel 41d;
- h. WKBT-DT, La Crosse, WI, CP DTV Channel 41d.

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 proposed facility.

6. The use of frequency offset is required, and is made in order to add protection to any nearby analog co-channel station. 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.

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### II. Interference Studies

#### Regarding K41EG, Jackson, MN, LPTV Channel 41+

7. In accordance with 47 C.F.R. Section 74.707(d)(1), a co-channel UHF LPTV station is protected to a C/I ratio that is no less than 28 dB for offset carrier frequency operation. As demonstrated by Figure 1A, attached, the 46 dBu (F50,10) interference contour for the proposed facility will overlap with the 74 dBu (F50,50) service contour of K41EG. (Figure 1B is a tabulation of the K41EG service contour.)

8. Using the service and interference contours, interference is predicted to result; however, the FCC allows for the use of the Longley-Rice point-to-point radio propagation model, version 1.2.2 (hereafter "Longley-Rice") in order to demonstrate that interference will not be caused to a LPTV station. (A description of the allowed use of Longley-Rice {as stated by the FCC}, and a description of the Longley-Rice studies included with this application, are made in Section III, below.) Using Longley-Rice, as demonstrated by Figure 1C, co-channel interference to K41EG from the proposed facility is determined as follows:

Total Population within K41EG Service Contour:	4,241
Total Interference Population within K41EG Service Contour:	48
Percent Interference Population within K41EG Service Contour:	1.13%

As shown above, using Longley-Rice, the predicted amount of interference caused to K41EG is below the two percent *de minimus* interference standard allowed to LPTV stations.

#### Regarding K41AD, Lansing, IA, LPTV Channel 41n

9. In accordance with 47 C.F.R. Section 74.707(d)(1), a co-channel UHF LPTV station is protected to a C/I ratio that is no less than 45 dB for non-offset carrier frequency operation. As demonstrated by Figure 2A, attached, the 29 dBu (F50,10)

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interference contour for the proposed facility will overlap with the 74 dBu (F50,50) service contour of K41AD. (Figure 2B is a tabulation of the K41AD service contour.)

10. Using the service and interference contours, interference is predicted to result; however, by using Longley-Rice, as demonstrated by Figure 2C, co-channel interference to K41AD is not predicted to result from the proposed facility. (See paragraph 8, above, and Section III, below, for a discussion of Longley-Rice.)

### Regarding KPXM, St. Cloud, MN, TV Channel 41z

11. In accordance with 47 C.F.R. Section 74.705(d)(1), a co-channel UHF TV station is protected to a C/I ratio that is no less than 28 dB for offset carrier frequency operation. As demonstrated by Figure 3A, attached, the 36 dBu (F50,10) interference contour for the proposed facility will overlap with the 64 dBu (F50,50) service contour of KPXM. (Figure 3B is a tabulation of the KPXM service contour.)

12. Using the service and interference contours, interference is predicted to result; however, the FCC allows for the use of Longley-Rice in order to demonstrate that interference will not be caused to a TV station. Using Longley-Rice, as demonstrated by Figure 3C, co-channel interference to KPXM from the proposed facility is determined as follows:

Total Population within KPXM Service Contour:	3,039,794
Total Interference Population within KPXM Service Contour:	39
Percent Interference Population within KPXM Service Contour:	<0.1%

As shown above, using Longley-Rice, the predicted amount of interference caused to KPXM is well below the *de minimus* interference standard allowed to TV stations. (See paragraph 8, above, and Section III, below, for a discussion of Longley-Rice.)

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### Regarding KTIV-DT, Sioux City, IA, Channel 41d

13. In accordance with 47 C.F.R. Section 74.706(d)(1), a co-channel DTV UHF station is protected to a C/I ratio of 21 dB. As demonstrated by Figure 4A, attached, the 20 dBu (F50,10) interference contour for the proposed facility will overlap with the 41 dBu (F50,90) noise-limited service contour of KTIV-DT. (Figure 4B is a tabulation of the KTIV-DT service contour.)

14. Using the service and interference contours, interference is predicted to result; however, the FCC allows for the use of Longley-Rice in order to demonstrate that interference will not be caused to a DTV station. Using Longley-Rice, as demonstrated by Figure 4C, co-channel interference to KTIV-DT from the proposed facility is determined as follows:

Total Population within KTIV-DT Noise-Limited Service Contour:	663,799
Total Interference Population within KTIV-DT NL Service Contour:	187
Percent Interference Population within KTIV-DT NL Service Contour:	<0.1%

As shown above, using Longley-Rice, the predicted amount of interference caused to KTIV-DT is well below the *de minimus* interference standard allowed to DTV stations. (See paragraph 8, above, and Section III, below, for a discussion of Longley-Rice.)

### Regarding WKBT-DT, La Crosse, WI, Channel 41d

15. In accordance with 47 C.F.R. Section 74.706(d)(1), a co-channel DTV UHF station is protected to a C/I ratio of 21 dB. As demonstrated by Figure 5A, attached, the 20 dBu (F50,10) interference contour for the proposed facility will overlap with the Grade B Service Contour of WKBT (which is used as the noise-limited service contour of WKBT-DT). (Figure 5B is a tabulation of the WKBT-DT service contour.)

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16. Using the service and interference contours, interference is predicted to result; however, by using Longley-Rice, as demonstrated by Figure 5C, co-channel interference to WKBT-DT is not predicted to result from the proposed facility. (See paragraph 8, above, and Section III, below, for a discussion of Longley-Rice.)

### Regarding K26CS (26-), K40BU (40n) and K42AV (42-), St. James, MN, LPTVs

17. In accordance with 47 C.F.R. Section 74.707(d)(4), an adjacent-channel UHF LPTV station is protected to a C/I ratio that is no less than -15 dB. In accordance with 47 C.F.R. Section 74.707(d)(5), a UHF LPTV station located 15 channels below the proposed is protected to a C/I ratio that is no less than -6 dB. The proposed facility is nearly collocated with the other listed St. James stations, and will not transmit with more than 5 dB ERP of any St. James stations listed above in any given direction. K26CS, K40BU and K42AV will be adequately protected by this proposal. Furthermore, since CTV is also the licensee of these nearly collocated stations, it would accept any interference between these LPTV stations that may occur.

## III. DESCRIPTION OF LONGLEY-RICE STUDIES

18. 47 C.F.R. Sections 74.705(e), and 74.707(e) allow for the use of Longley-Rice in order to demonstrate protection to TV broadcast analog stations and LPTV stations, respectively. Furthermore, Paragraph 105 of the FCC's *In the Matter of Amendment of Parts 73 and 74 of the Commission's Rules for Digital Low Power Television, Television Translator, and Television Booster Stations and to Amend Rules for Digital Class A Television Stations - Report and Order (FCC 04-220, released September 30, 2004)* states that the use of Longley-Rice is permitted as an optional showing for processing analog LPTV (and TV translator and TV booster) stations to all protected TV stations (primary, secondary, digital or analog) without requiring a waiver. (Previously, a waiver request was necessary in order to demonstrate protection using the Longley-Rice Methodology.)

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19. EDX Engineering, Inc.'s computer software program MSITE™ includes the Longley-Rice version 1.2.2 model; and the MSITE™ program is used to conduct the Longley-Rice studies which are included with this application. With the exception of not being able to identify and use population centroids, the procedures and parameters specified by the FCC's OET Bulletin No. 69, *Longley-Rice Methodology for Evaluating TV Coverage and Interference* (dated July 2, 1997) are used by the MSITE™ program. In order to compensate for the programs inability to choose population centroids, the grid size for each study has been reduced from two kilometer spacing (the spacing used by the FCC), to one kilometer or less spacing. (For protection to LPTV, TV translator and TV booster stations, the grid size used is 0.5 kilometer or less.) With the reduced grid spacing, the applicant can confidently conclude that a study using population centroids will also demonstrate protection from interference.

20. The software is limited to a study distance of 399 kilometers; therefore, in some instances, the study is truncated at 399 kilometers from the proposed transmitter site. Interference is not predicted to result beyond 399 kilometers from the proposed LPTV transmitter site. Furthermore, any contour overlap area is located completely within 399 kilometers; and, therefore, the contour overlap area is completely studied.

21. For each Longley-Rice study, the dipole factor adjustment specified by OET Bulletin No. 69 is applied to both the point-to-point evaluation and the contour distances. Also, USGS three arc-second terrain data is used. The product of each study is a map which identifies those examined points of the study-grid (within the protected station's applicable service, Grade B or noise-limited contour) which are above or below the C/I protection requirement. (For the included studies, all C/I results are above the required protection standards.)

22. As allowed by OET Bulletin No. 69, only those grid points which are predicted to receive a field strength from the desired station that is above the threshold for reception are considered. The MSITE™ output exhibits of this application show the threshold of reception as the corresponding minimum allowed receive power.

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23. As with most complicated computer propagation models, much of the underlying data of each study cannot be easily generated or reported in text form. To the extent possible, if requested by the FCC, additional data regarding the Longley-Rice studies will be provided.



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**Alexandria, VA**

Table 1, Page 1 of 2  
Monday, April 04, 2005

Dataworld LPTV/TV Translator Interference Study

**Title: St James, MN**

Channel: 41 Offset: Unspecified (680-686 MHz) Analog  
Database: FCC 4/1/2005 12:00:00 AM

Latitude: N 44° 06' 25.0"  
Longitude: W 94° 35' 44.0"  
Safety Zone: 32.0 km

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)
K26CS	CP	COOPERATIVE TV ASSN. OF SOUTHERN	26 -		2	N 44° 06' 28.0"	290.8	0.262	
ST. JAMES		MN	BMJPTTL-20000821ADJ		497.0	W 94° 35' 55.0"	110.8		

**Calculated HAAT: 184 m**

**DeLawder Note: Nearly collocated; Attached study shows adequate protection; See Engineering Statement**

K26CS	LIC	COOPERATIVE TV ASSN. OF SOUTHERN	26 -		1.13	N 44° 06' 28.0"	290.8	0.262	
ST. JAMES		MN	BLTTL-19970507JQ		497.0	W 94° 35' 55.0"	110.8		

**Calculated HAAT: 184 m**

**DeLawder Note: Nearly collocated; Attached study shows adequate protection; See Engineering Statement**

K40BU	LIC	COOPERATIVE TV ASSN. OF SOUTHERN	40		1.34	N 44° 06' 28.0"	290.8	0.262	
ST. JAMES		MN	BLTTL-19951120JZ		497.0	W 94° 35' 55.0"	110.8		

**Calculated HAAT: 184 m**

**DeLawder Note: Nearly collocated; Attached study shows adequate protection; See Engineering Statement**

K41IZ	LIC	COOPERATIVE TV ASSN. OF SOUTHERN	41 -		1.32	N 44° 06' 28.0"	290.8	0.262	
ST. JAMES		MN	BLTT-20041119ADV		497.0	W 94° 35' 55.0"	110.8		

**Calculated HAAT: 184 m**

**DeLawder Note: Applicant; Station that's being modified**

K41EG	LIC	FEDERAL RURAL ELECTRIC ASSN.	41 +		1.8	N 43° 36' 12.0"	209.8	64.42	
JACKSON		MN	BLTTL-19950515ID		525.0	W 94° 59' 33.0"	29.5		

**Calculated HAAT: 90 m**

**DeLawder Note: Attached study shows adequate protection; See Engineering Statement**

K47EA	CP	MINNESOTA VALLEY TV IMPROVEMENT	41 -		1.58	N 44° 48' 17.0"	315.1	110.2	
GRANITE FALLS		MN	BPTTL-20020926ABY		404.1	W 95° 34' 49.0"	134.4		

**Calculated HAAT: 91 m**

**DeLawder Note: Expired CP; No interference study is required**

K41AD	LIC	IOWA PUBLIC BROADCASTING BOARD	41		16.6	N 43° 21' 10.0"	126.6	139.2	
LANSING		IA	BLTT-19840126IA		451.0	W 93° 13' 00.0"	307.6		

DA: BOG B16UA @ 270.0°; **Calculated HAAT: 81 m**

**DeLawder Note: Attached study shows adequate protection; See Engineering Statement**

KPXM	LIC	PAXSON MINNEAPOLIS LICENSE, INC.	41 o	448.0	2750	N 45° 23' 00.0"	26.0	158.3	
ST. CLOUD		MN	BLCT-19850822KK	II	738.0	W 93° 42' 30.0"	206.6		

DA: AND ODDKXLI @ 0.0°

**DeLawder Note: Attached study shows adequate protection; See Engineering Statement**

NEW	APP	PURI FAMILY LIMITED PARTNERSHIP	41 o		25	N 44° 02' 28.0"	91.5	180.8	
ROCHESTER		MN	BNPTTL-20000831BNS		579.8	W 92° 20' 25.0"	273.1		

**Calculated HAAT: 227 m**

**DeLawder Note: Too far away; No interference study is required**

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Table 1, Page 2 of 2  
Monday, April 04, 2005

Dataworld LPTV/TV Translator Interference Study

**Title: St James, MN**

Channel: 41 Offset: Unspecified (680-686 MHz) Analog  
Database: FCC 4/1/2005 12:00:00 AM

Latitude: N 44° 06' 25.0"  
Longitude: W 94° 35' 44.0"  
Safety Zone: 32.0 km

Call	Auth	Licensee name	Chan	HAAT(m)	ERP	Latitude	Br-to	Dist	Req
City of License		St	FCC File Number	Zone	HAMSL(m)	(kW)	Longitude	-from	(km)

KTIV	CP	KTIV TELEVISION, INC.	41	609.0	873	N 42° 35' 12.0"	218.4	214.3	
SIoux CITY		IA	BPCDT-19991101AIH	II	1000.4	W 96° 13' 18.0"	37.3		

Digital channel

**DeLawder Note: Attached study shows adequate protection; See Engineering Statement**

WKBT	CP	QUEENB TELEVISION, LLC	41	461.5	875	N 44° 05' 28.0"	89.3	260.9	
LACROSSE		WI	BMPCDT-20040812AAY	II	719.1	W 91° 20' 17.0"	271.5		

Digital channel

**DeLawder Note: Attached study shows adequate protection; See Engineering Statement**

K42AV	LIC	COOPERATIVE TV ASSN. OF SOUTHERN	42 -		1.32	N 44° 06' 28.0"	290.8	0.262	
ST. JAMES		MN	BLTTL-19970507JP		497.0	W 94° 35' 55.0"	110.8		

**Calculated HAAT: 184 m**

**DeLawder Note: Nearly collocated; Attached study shows adequate protection; See Engineering Statement**

>> End of channel 41 study <<

TABLE 2A - ST. JAMES, MN F50,50 CONTOURS

DATE: April 18, 2005

DISTANCES TO CONTOURS (Kilometers):

Antenna COR elevation (AMSL): 616 mtrs Average HAAT: 303 mtrs

Frequency: 635.0000 MHz

Coordinates: N 44 6 25.00 W 94 35 44.00

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

AZ (degs)	HAAT (m)	ERPd (kW)	CONTOUR LEVELS (dBu):				
			89.0	80.0	79.0	74.0	70.0
0.0	310	2.0000	6.6	11.7	12.5	17.4	22.1
15.0	309	2.0000	6.6	11.7	12.5	17.4	22.1
30.0	309	2.0000	6.6	11.7	12.5	17.4	22.1
45.0	311	2.0000	6.6	11.7	12.5	17.4	22.1
60.0	309	2.0000	6.6	11.7	12.5	17.4	22.1
75.0	308	2.0000	6.6	11.7	12.4	17.4	22.0
90.0	304	2.0000	6.6	11.6	12.4	17.2	21.9
105.0	305	2.0000	6.6	11.6	12.4	17.2	21.9
120.0	313	2.0000	6.6	11.8	12.5	17.5	22.2
135.0	301	2.0000	6.6	11.6	12.3	17.1	21.8
150.0	297	2.0000	6.5	11.5	12.2	17.0	21.7
165.0	294	2.0000	6.5	11.5	12.2	16.9	21.6
180.0	297	2.0000	6.5	11.5	12.2	17.0	21.7
195.0	296	2.0000	6.5	11.5	12.2	17.0	21.7
210.0	294	2.0000	6.5	11.4	12.2	16.9	21.6
225.0	294	2.0000	6.5	11.5	12.2	16.9	21.6
240.0	291	2.0000	6.5	11.4	12.1	16.8	21.5
255.0	292	2.0000	6.5	11.4	12.1	16.8	21.5
270.0	299	2.0000	6.5	11.5	12.3	17.1	21.8
285.0	302	2.0000	6.6	11.6	12.3	17.2	21.9
300.0	307	2.0000	6.6	11.7	12.4	17.3	22.0
315.0	309	2.0000	6.6	11.7	12.5	17.4	22.1
330.0	309	2.0000	6.6	11.7	12.5	17.4	22.1
345.0	309	2.0000	6.6	11.7	12.5	17.4	22.1

TABLE 2B - ST. JAMES, MN F50,10 CONTOURS

DATE: April 18, 2005

DISTANCES TO CONTOURS (Kilometers):

Antenna COR elevation (AMSL): 616 mtrs Average HAAT: 303 mtrs

Frequency: 635.0000 MHz

Coordinates: N 44 6 25.00 W 94 35 44.00

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	310	2.0000	63.5	93.3	126.1	174.9	180.6
15.0	309	2.0000	63.4	93.3	126.0	174.8	180.5
30.0	309	2.0000	63.4	93.3	126.0	174.8	180.5
45.0	311	2.0000	63.6	93.5	126.2	175.0	180.8
60.0	309	2.0000	63.4	93.3	126.0	174.8	180.5
75.0	308	2.0000	63.3	93.1	125.9	174.7	180.4
90.0	304	2.0000	62.9	92.7	125.4	174.2	179.8
105.0	305	2.0000	63.0	92.8	125.5	174.3	180.0
120.0	313	2.0000	63.7	93.7	126.4	175.2	181.0
135.0	301	2.0000	62.7	92.4	125.2	173.9	179.5
150.0	297	2.0000	62.4	92.0	124.8	173.5	179.1
165.0	294	2.0000	62.2	91.7	124.5	173.2	178.7
180.0	297	2.0000	62.4	92.0	124.8	173.5	179.1
195.0	296	2.0000	62.3	91.9	124.7	173.4	178.9
210.0	294	2.0000	62.1	91.6	124.4	173.1	178.6
225.0	294	2.0000	62.2	91.7	124.5	173.2	178.7
240.0	291	2.0000	61.9	91.3	124.1	172.8	178.2
255.0	292	2.0000	62.0	91.5	124.2	173.0	178.5
270.0	299	2.0000	62.6	92.2	125.0	173.7	179.3
285.0	302	2.0000	62.8	92.5	125.3	174.0	179.7
300.0	307	2.0000	63.2	93.0	125.8	174.6	180.3
315.0	309	2.0000	63.4	93.3	126.0	174.8	180.5
330.0	309	2.0000	63.4	93.2	126.0	174.8	180.5
345.0	309	2.0000	63.4	93.2	126.0	174.8	180.5

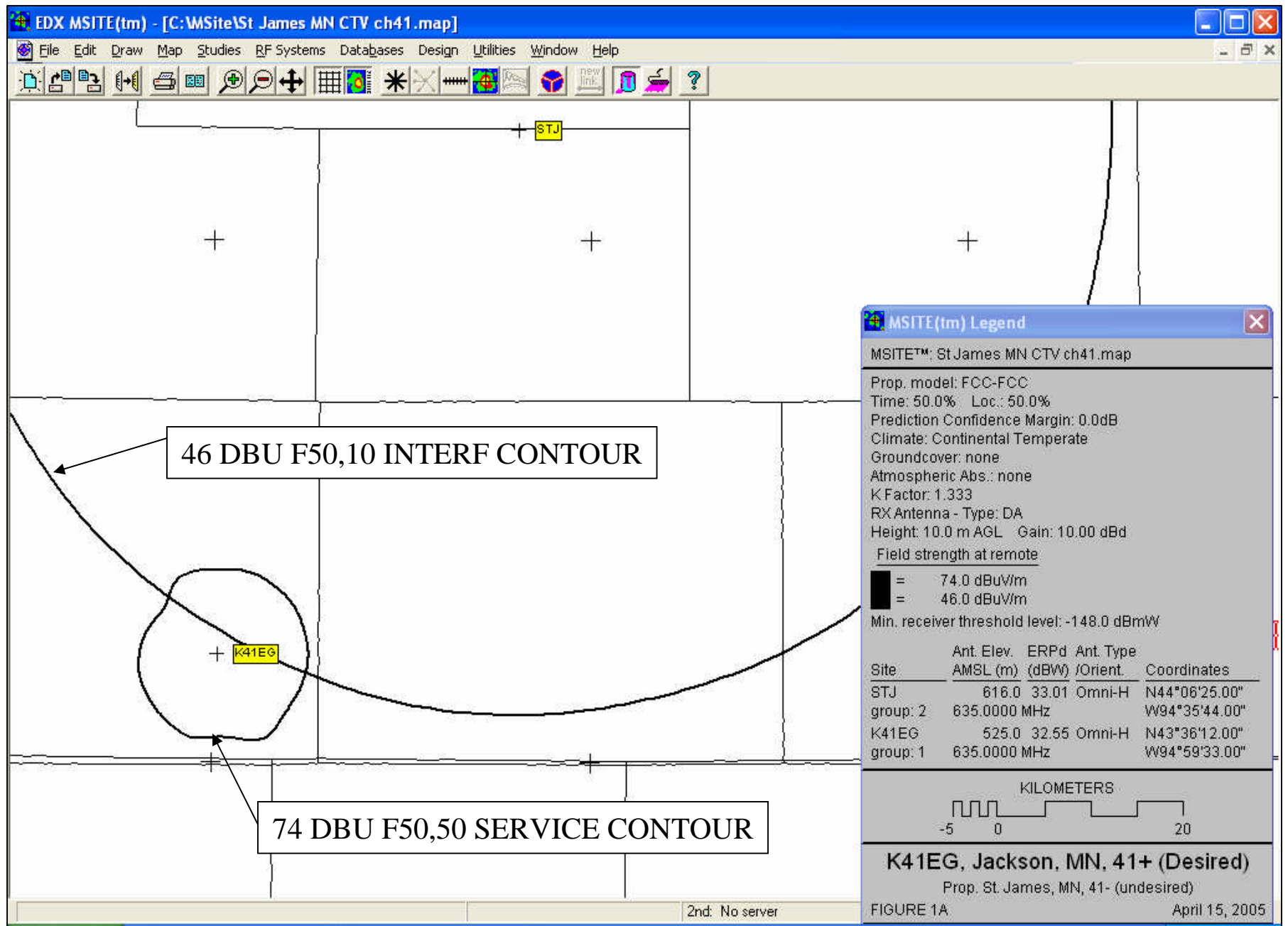


FIGURE 1B - K41EG, JACKSON, MN F50,50 CONTOUR

DATE: April 18, 2005

DISTANCES TO CONTOURS (Kilometers):

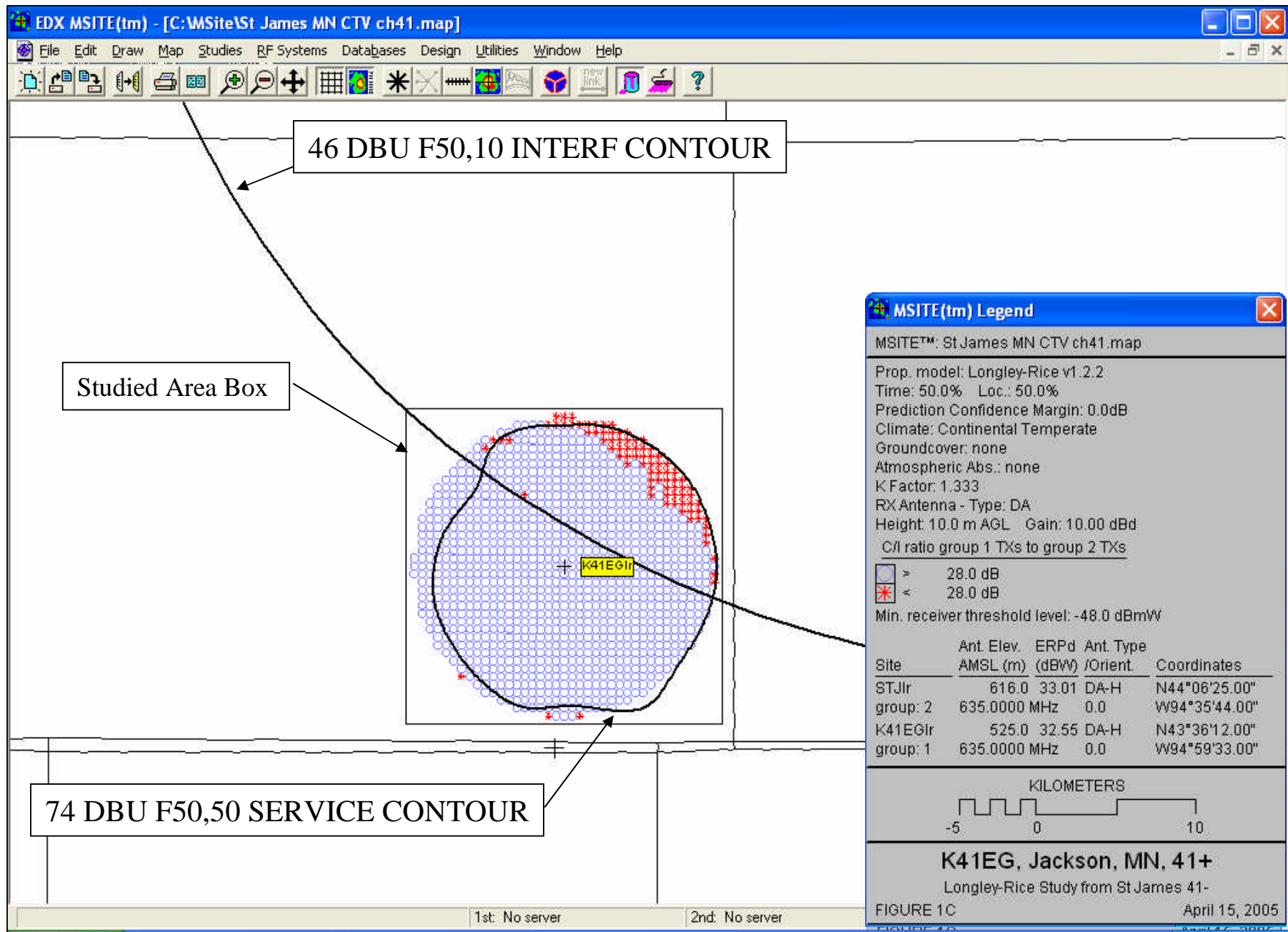
Antenna COR elevation (AMSL): 525 mtrs Average HAAT: 92 mtrs

Frequency: 635.0000 MHz

Coordinates: N 43 36 12.00 W 94 59 33.00

F(50,50) Curves Number of Contours: 1 2

AZ (deg)	HAAT (m)	ERPd (kW)	CONTOUR LEVELS (dBu): 74.0
0.0	89	1.8000	8.9
15.0	94	1.8000	9.2
30.0	98	1.8000	9.4
45.0	101	1.8000	9.5
60.0	103	1.8000	9.6
75.0	104	1.8000	9.6
90.0	106	1.8000	9.7
105.0	103	1.8000	9.6
120.0	101	1.8000	9.5
135.0	104	1.8000	9.7
150.0	120	1.8000	10.3
165.0	98	1.8000	9.4
180.0	88	1.8000	8.9
195.0	95	1.8000	9.3
210.0	92	1.8000	9.1
225.0	87	1.8000	8.8
240.0	82	1.8000	8.6
255.0	81	1.8000	8.5
270.0	76	1.8000	8.2
285.0	70	1.8000	7.9
300.0	63	1.8000	7.5
315.0	65	1.8000	7.6
330.0	88	1.8000	8.9
345.0	92	1.8000	9.1



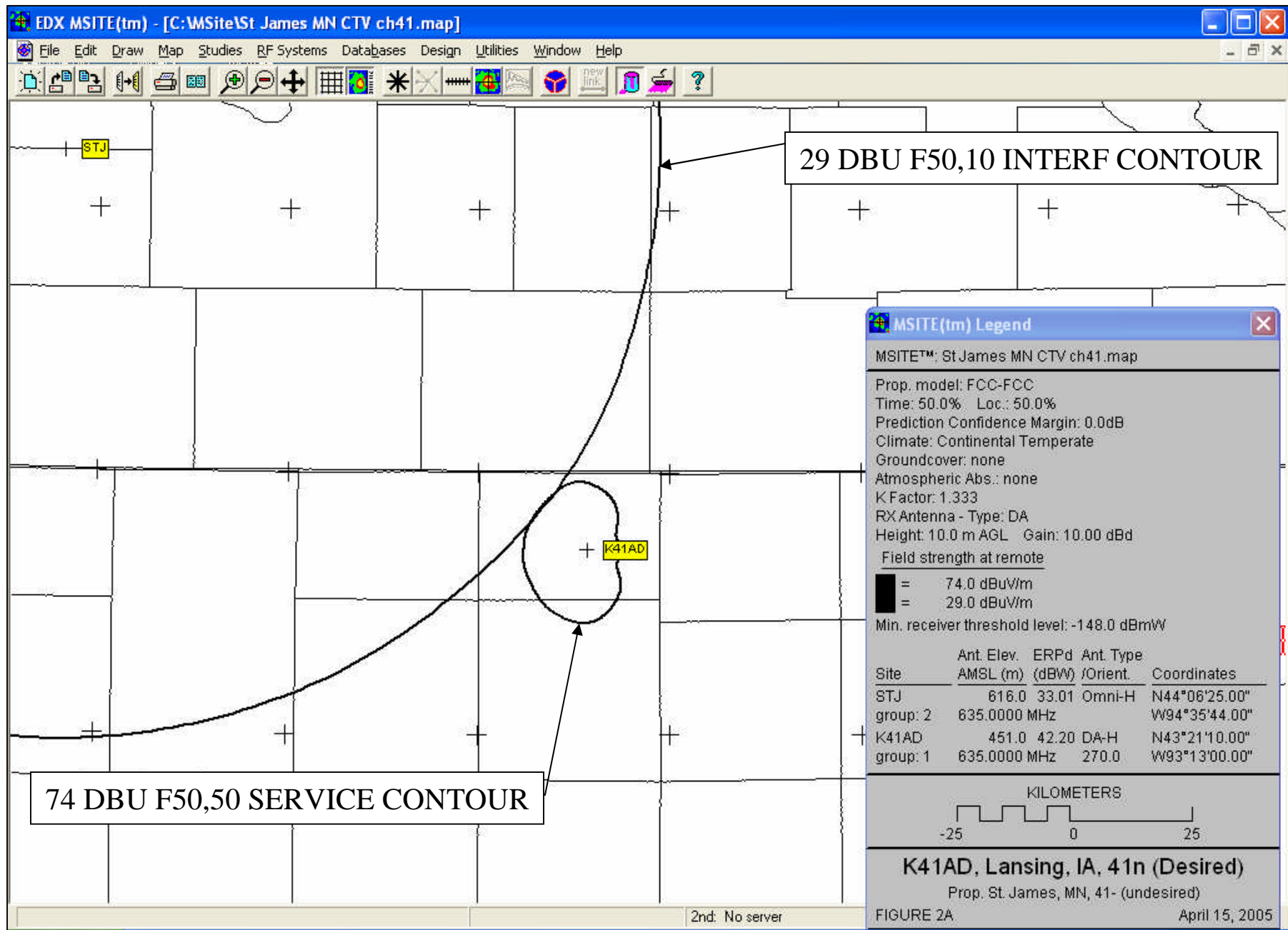




FIGURE 2B - K41AD, LANSING, IA F50,50 CONTOUR

DATE: April 18, 2005

DISTANCES TO CONTOURS (Kilometers):

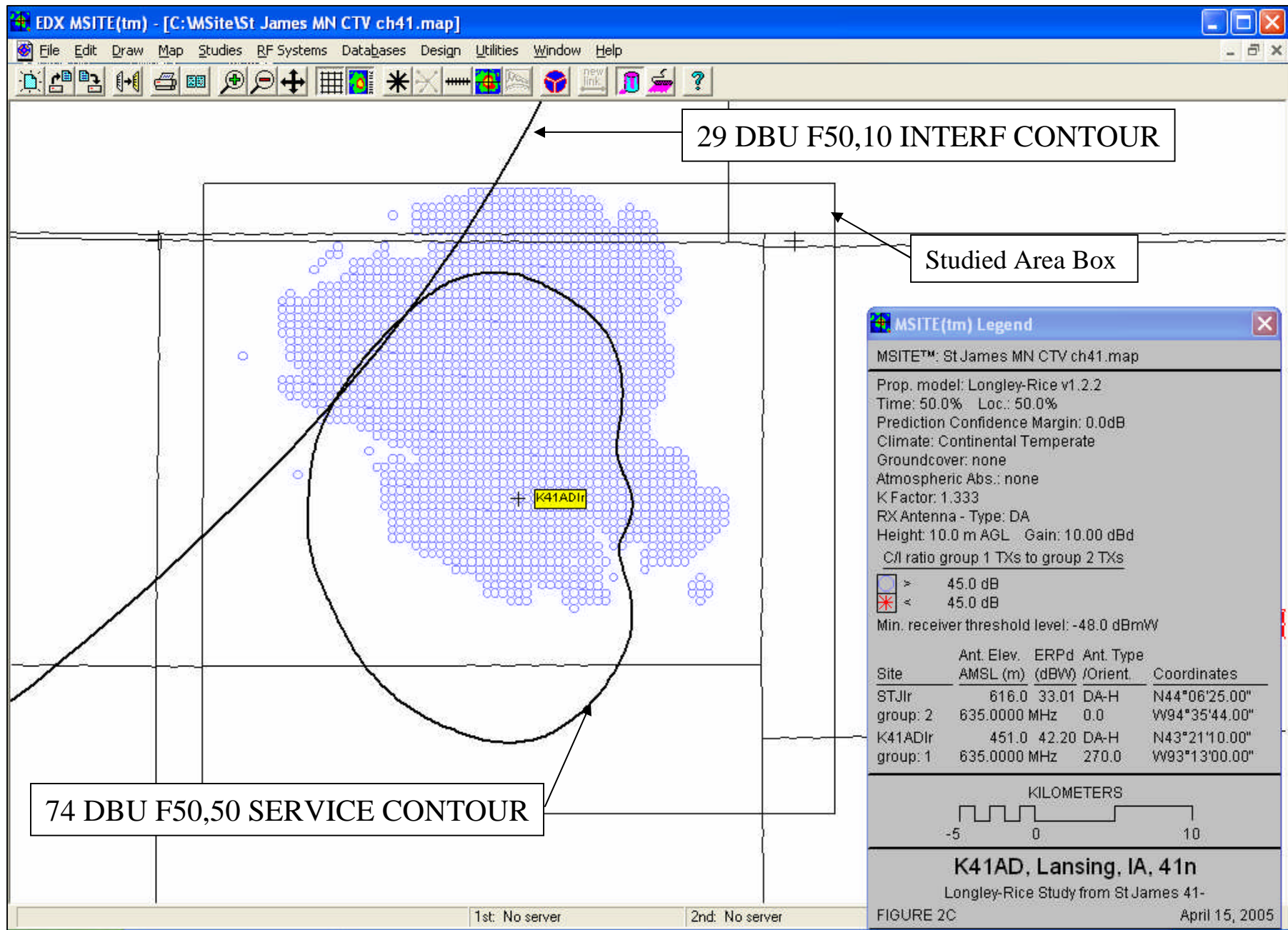
Antenna COR elevation (AMSL): 451 mtrs Average HAAT: 81 mtrs

Frequency: 635.0000 MHz

Coordinates: N 43 21 10.00 W 93 13 0.00

F(50,50) Curves Number of Contours: 1 2

AZ (deg)	HAAT (m)	ERPd (kW)	CONTOUR LEVELS (dBu): 74.0
0.0	80	14.9778	14.2
15.0	78	11.2956	13.0
30.0	80	6.5869	11.6
45.0	77	2.7898	9.3
60.0	78	0.9559	7.2
75.0	78	0.7671	6.8
90.0	82	0.9165	7.2
105.0	86	0.7671	7.1
120.0	92	0.8032	7.4
135.0	97	2.5502	10.2
150.0	94	6.3795	12.4
165.0	94	11.1591	14.3
180.0	94	14.9778	15.5
195.0	88	16.4303	15.3
210.0	86	15.7765	14.9
225.0	83	14.3538	14.3
240.0	77	14.1998	13.7
255.0	72	15.6151	13.6
270.0	66	16.6000	13.3
285.0	69	15.7441	13.3
300.0	71	14.1998	13.2
315.0	72	14.5085	13.3
330.0	74	15.7765	13.8
345.0	81	16.2656	14.5



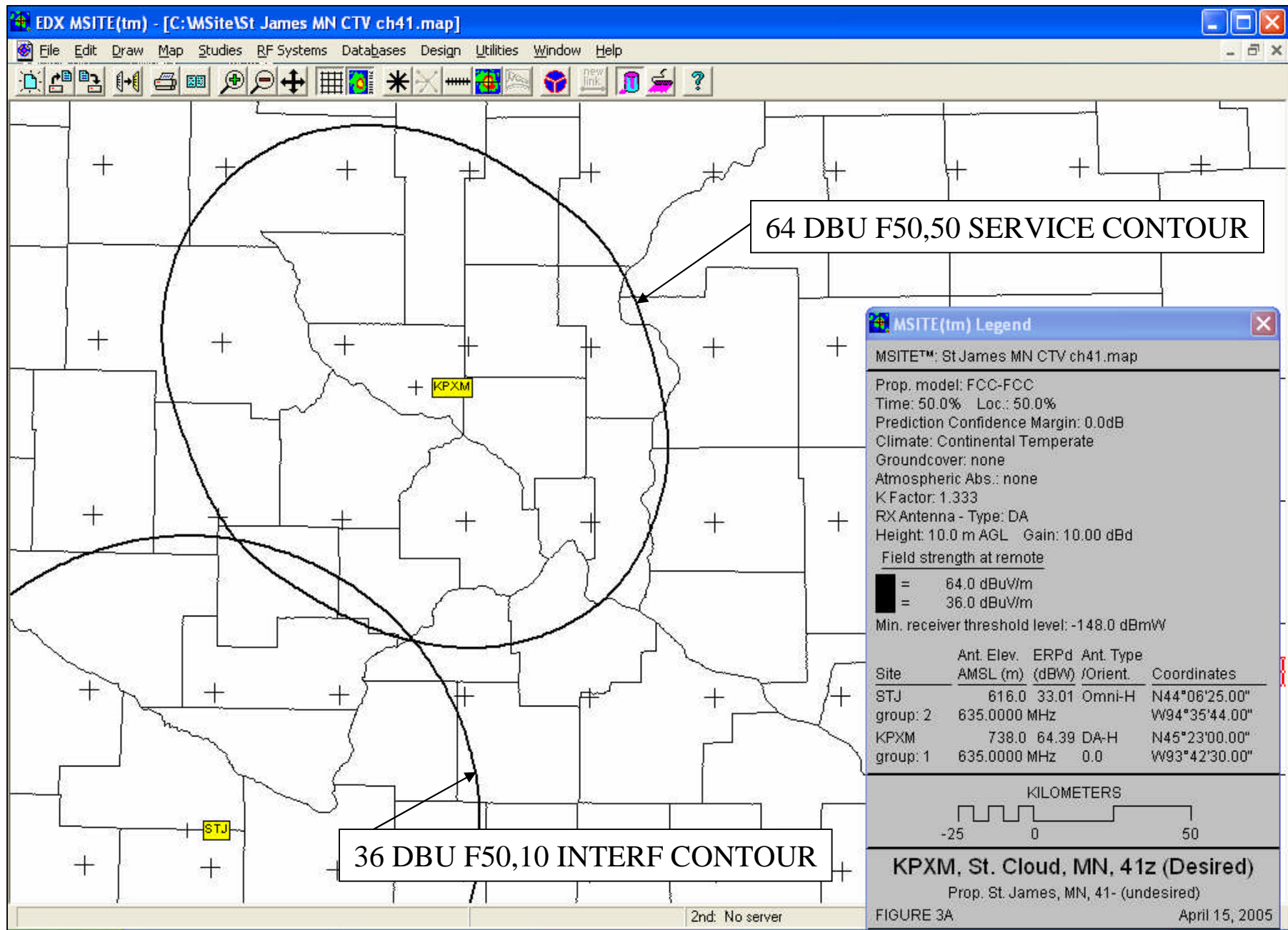


FIGURE 3B - KPXM, ST CLOUD, MN F50,50 CONTOUR

DATE: April 18, 2005

DISTANCES TO CONTOURS (Kilometers):

Antenna COR elevation (AMSL): 738 mtrs Average HAAT: 444 mtrs

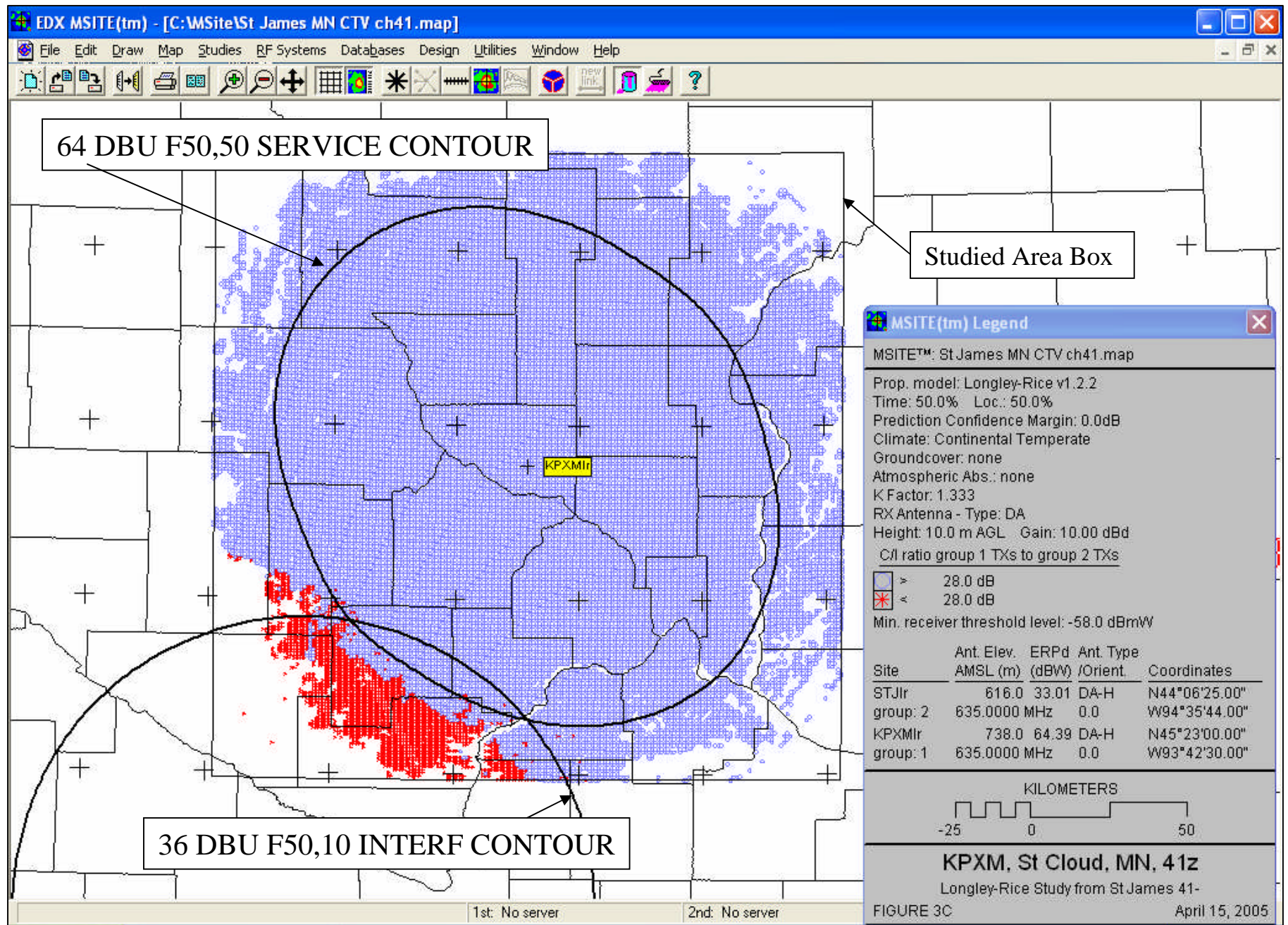
Frequency: 635.0000 MHz

Coordinates: N 45 23 0.00 W 93 42 30.00

F(50,50) Curves Number of Contours: 1 2

AZ (deg)	HAAT (m)	ERPd (kW)	CONTOUR LEVELS (dBU): 64.0
0.0	441	1160.9850	81.1
15.0	443	714.7269	77.0
30.0	447	508.0855	74.3
45.0	439	544.1518	74.5
60.0	440	556.4485	74.7
75.0	440	568.8828	74.9
90.0	442	771.8831	77.6
105.0	443	1404.7919	82.9
120.0	441	2176.6069	86.8
135.0	458	2666.0730	89.9
150.0	451	2532.4585	88.9
165.0	447	1847.6832	85.6
180.0	441	1125.5375	80.8
195.0	447	659.7692	76.6
210.0	443	508.0855	74.2
225.0	446	531.9921	74.7
240.0	447	508.0855	74.4
255.0	447	531.9921	74.8
270.0	450	831.2380	78.6
285.0	448	1404.7919	83.2
300.0	443	2176.6069	87.0
315.0	439	2666.0730	88.7
330.0	440	2585.4937	88.4
345.0	440	1847.6832	85.3





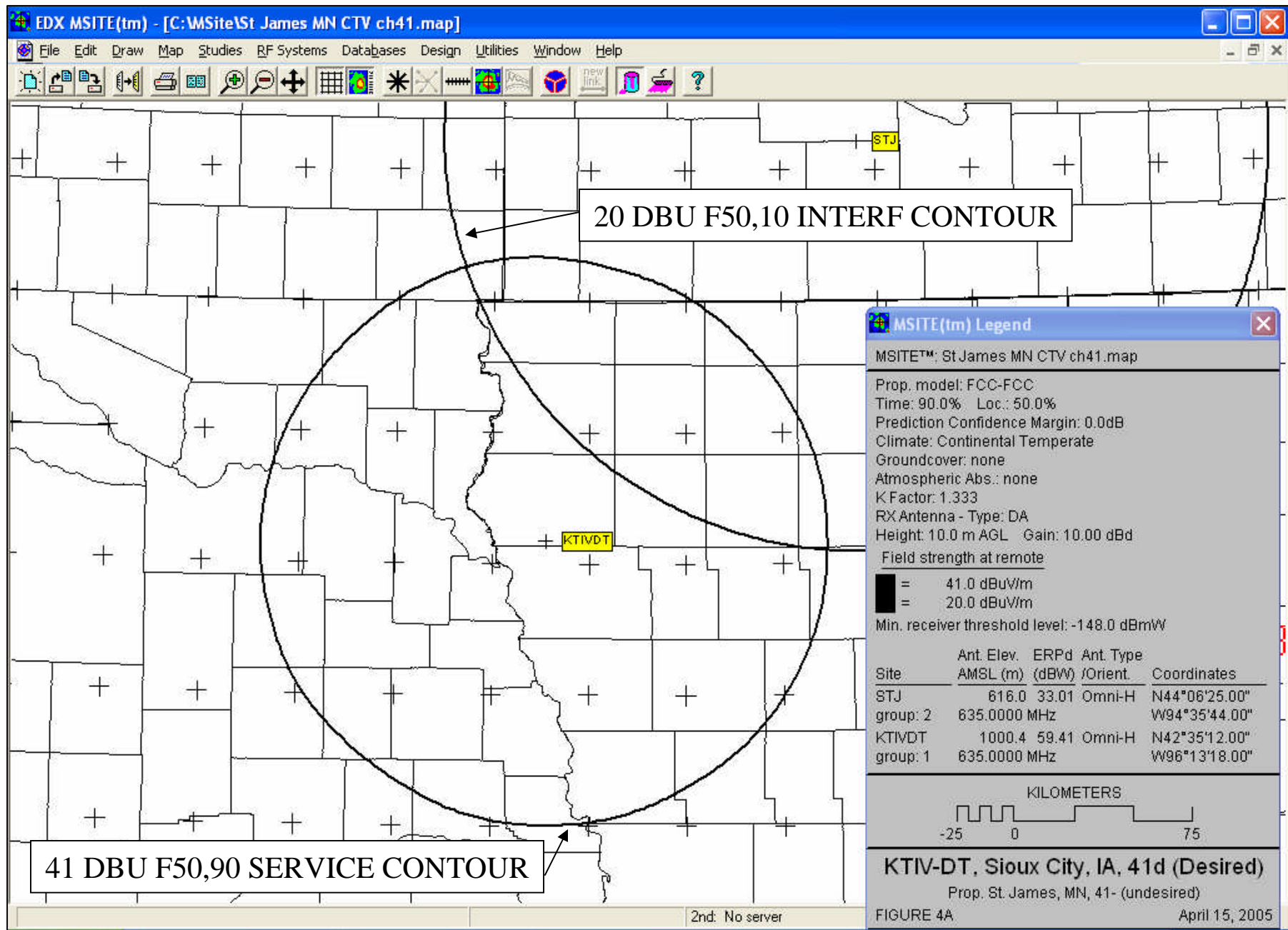


FIGURE 4B - KTIV-DT, SIOUX CITY, IA F50,90 CONTOUR

DATE: April 18, 2005

DISTANCES TO CONTOURS (Kilometers):

Antenna COR elevation (AMSL): 1000 mtrs Average HAAT: 610 mtrs

Frequency: 635.0000 MHz

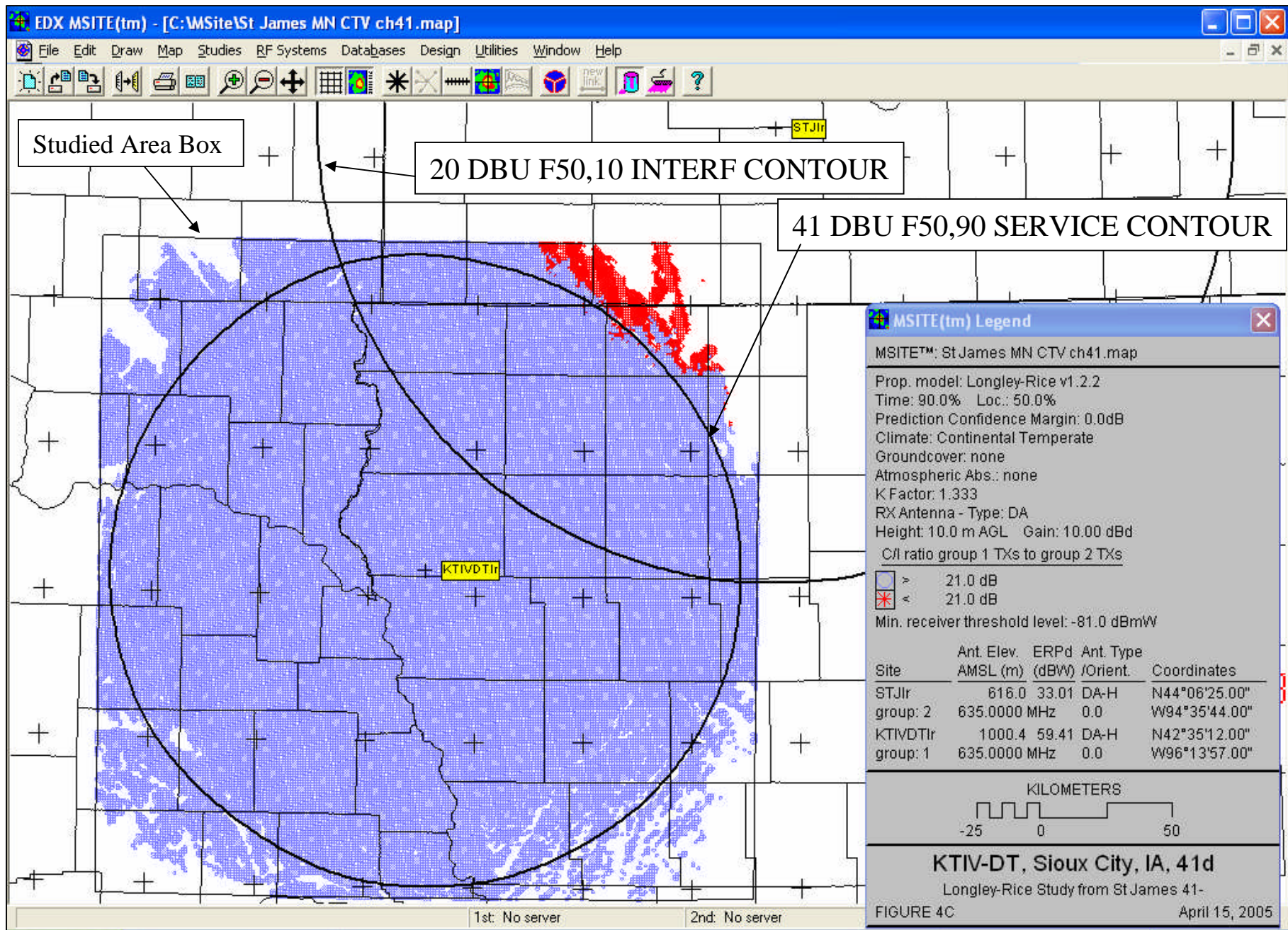
Coordinates: N 42 35 12.00 W 96 13 18.00

F(50,90) Curves Number of Contours: 1 2

AZ (deg)	HAAT (m)	ERPd (kW)	CONTOUR LEVELS (dBU): 41.0
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0.0	611	873.0000	120.0
15.0	591	873.0000	118.9
30.0	594	873.0000	119.1
45.0	583	873.0000	118.4
60.0	586	873.0000	118.6
75.0	594	873.0000	119.1
90.0	591	873.0000	118.9
105.0	604	873.0000	119.6
120.0	610	873.0000	120.0
135.0	618	873.0000	120.4
150.0	610	873.0000	120.0
165.0	623	873.0000	120.6
180.0	621	873.0000	120.6
195.0	625	873.0000	120.7
210.0	603	873.0000	119.6
225.0	608	873.0000	119.9
240.0	633	873.0000	121.2
255.0	627	873.0000	120.8
270.0	622	873.0000	120.6
285.0	613	873.0000	120.1
300.0	609	873.0000	119.9
315.0	606	873.0000	119.7
330.0	618	873.0000	120.4
345.0	629	873.0000	121.0







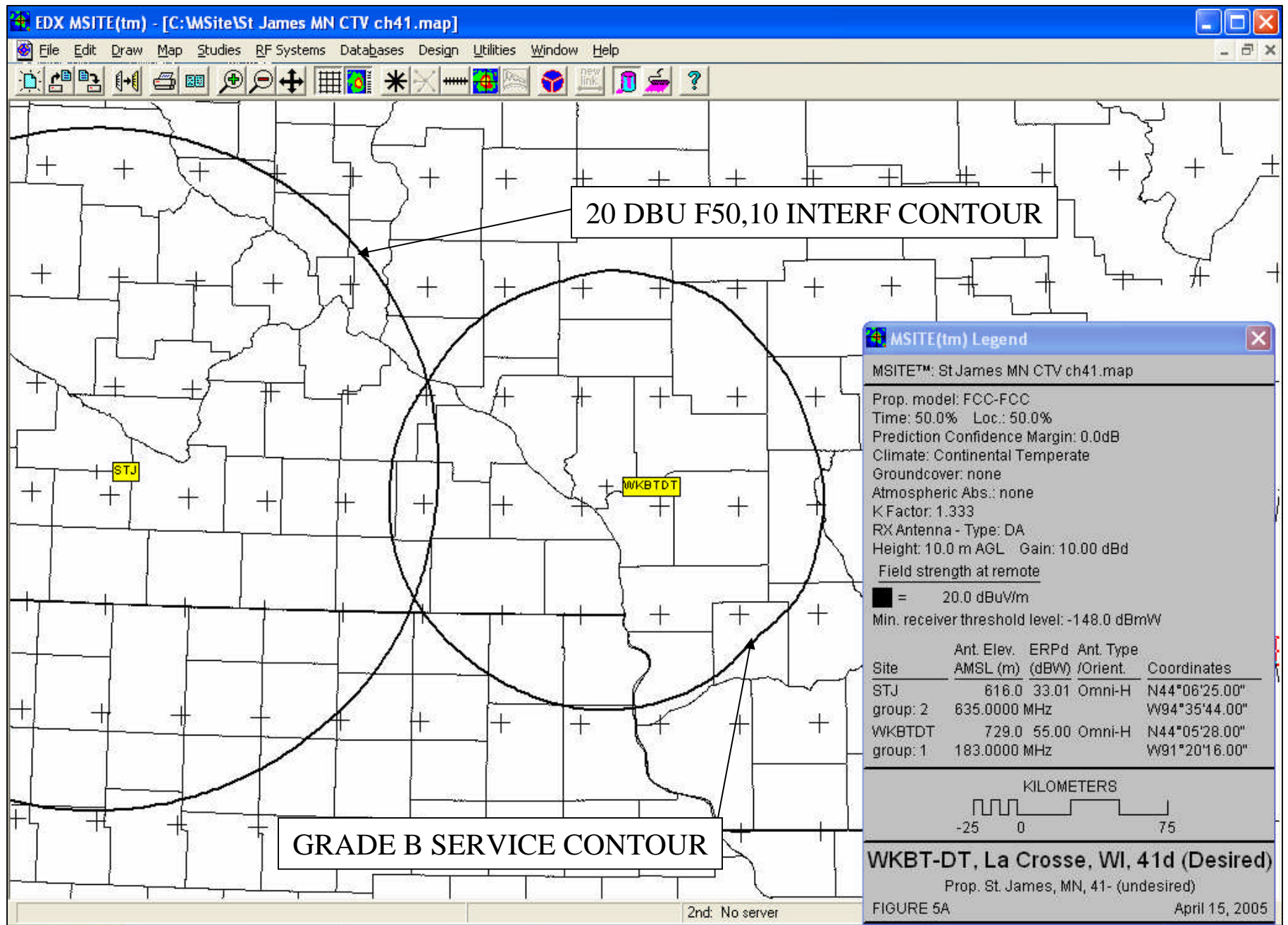


FIGURE 5B - WKBT, LA CROSSE, WI GRADE B CONTOUR

DATE: April 18, 2005

DISTANCES TO CONTOURS (Kilometers):

Antenna COR elevation (AMSL): 729 mtrs Average HAAT: 473 mtrs

Frequency: 183.0000 MHz

Coordinates: N 44 5 28.00 W 91 20 16.00

F(50,50) Curves Number of Contours: 1 2

AZ (deg)	HAAT (m)	ERPd (kW)	CONTOUR LEVELS (dBu): 56.0
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0.0	469	316.0000	110.2
15.0	463	316.0000	109.6
30.0	472	316.0000	110.4
45.0	438	316.0000	107.3
60.0	438	316.0000	107.4
75.0	435	316.0000	107.1
90.0	474	316.0000	110.6
105.0	488	316.0000	111.7
120.0	498	316.0000	112.5
135.0	452	316.0000	108.7
150.0	486	316.0000	111.6
165.0	512	316.0000	113.5
180.0	528	316.0000	114.6
195.0	520	316.0000	114.1
210.0	510	316.0000	113.3
225.0	511	316.0000	113.4
240.0	512	316.0000	113.5
255.0	498	316.0000	112.5
270.0	471	316.0000	110.3
285.0	454	316.0000	108.8
300.0	419	316.0000	105.7
315.0	429	316.0000	106.6
330.0	432	316.0000	106.9
345.0	433	316.0000	106.9

