

TECHNICAL EXHIBIT  
DTV MAXIMIZATION APPLICATION  
STATION KFSM-DT  
FORT SMITH, ARKANSAS  
CH 18 1000 KW 286 M

Technical Narrative

This Technical Exhibit supports an application for digital television (DTV) station KFSM-DT for its "maximized" DTV operation at Fort Smith, Arkansas. This application requests a construction permit (CP) for KFSM-DT digital television operation on channel 18 at Fort Smith with a non-directional effective radiated power of 1000 kilowatts.

Proposed Facilities

Station KFSM-DT proposes to operate DTV channel 18 from its licensed DTV facility. The antenna height above average terrain for the channel 18 DTV operation will be 286 meters. The proposed KFSM-DT effective radiated power exceeds the Commission's *Appendix B* allocated maximum effective radiated power in some azimuthal directions for KFSM-DT.<sup>1</sup> Therefore, an allocation study was completed to ensure no prohibited interference would occur.

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<sup>1</sup> See Seventh Report And Order And Eighth Further Notice Of Proposed Rule Making in the Matter of Advanced Television Systems and their Impact Upon the Existing Television Broadcast Service, MB Docket 87-268, Released August 6, 2007; Adopted August 1, 2007.

The proposed DTV transmitter site will be located at the licensed KFSM-DT site. Therefore, the proposed site location is:

35° 49' 49" North Latitude  
94° 09' 24" West Longitude

A sketch of antenna and pertinent elevations are included as Figure 1.

Figure 2 is a map showing the proposed DTV predicted coverage contour and the associated DTV appendix B Noise-Limited coverage contour. The extent of the contours have been calculated using the normal FCC prediction method.

#### Population Served

The herein proposed KFSM-DT "maximized" facility is predicted to serve 784,792 persons, post-transition based upon the 2000 Census. KFSM-DT's associated Appendix B facility is predicted to serve 736,000 persons. Therefore, the herein proposed KFSM-DT facility would serve more than 100% of KFSM-DT's Appendix B population.

#### Allocation Considerations

The proposed KFSM-DT Channel 18 facility meets the requirements of Section 73.623 of the FCC Rules concerning predicted interference to other Appendix B DTV allotments. Longley-Rice interference analyses were conducted pursuant to the requirements of the FCC Rules; OET Bulletin No. 69; and published FCC guidelines for preparation of such interference analyses. The Longley-Rice interference analyses were conducted using the software developed by du Treil, Lundin &

Rackley, Inc. based on the FCC published software routines.<sup>2</sup> Stations selected for analysis were determined pursuant to the distance requirements outlined in the FCC DTV Processing Guidelines Public Notice. The results of the interference analyses for the proposed KFSM-DT facility are summarized herein at Figure 3. As indicated therein, the proposed facility will meet the 0.5% criterion outlined in the FCC Rules and published guidelines with respect to all considered stations.<sup>3</sup>

#### Radiofrequency Electromagnetic Field Exposure

The proposed KFSM-DT facilities were evaluated in terms of potential radiofrequency electromagnetic field exposure at ground level to workers and the general public. The radiation center for the proposed KFSM-DT antenna is located 163 meters above ground level. The maximum effective radiated power is 1000 kilowatts. A "worst case" downward relative field value of 0.1 is assumed for the antenna's downward radiation. The calculated power density at a point 2 meters above ground level is 0.0129 mW/cm<sup>2</sup>. This is less than 5 percent of the Commission's recommended limit of 0.33 mW/cm<sup>2</sup> for channel 18 for an "uncontrolled" environment.

Access to the transmitting site is restricted and appropriately marked with warning signs. In the event that workers or other authorized personnel enter restricted areas or climb the tower, appropriate measures will be taken to

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<sup>2</sup> The duTreil, Lundin & Rackley, Inc. DTV interference analysis program is based on the program and procedures outlined by the FCC in the Sixth Report and Order; subsequent Memorandum Opinion and Order; and FCC OET Bulletin No. 69. A nominal grid size resolution of 2 km was employed.

<sup>3</sup> Interference analysis results reflect the net change in interference to a given station considering the interference predicted to occur from all other stations (i.e. "masking") including the allotment facility for KFSM-DT. This properly reflects the net interference change for determining compliance with the FCC 0.5% *de minimis* standard.

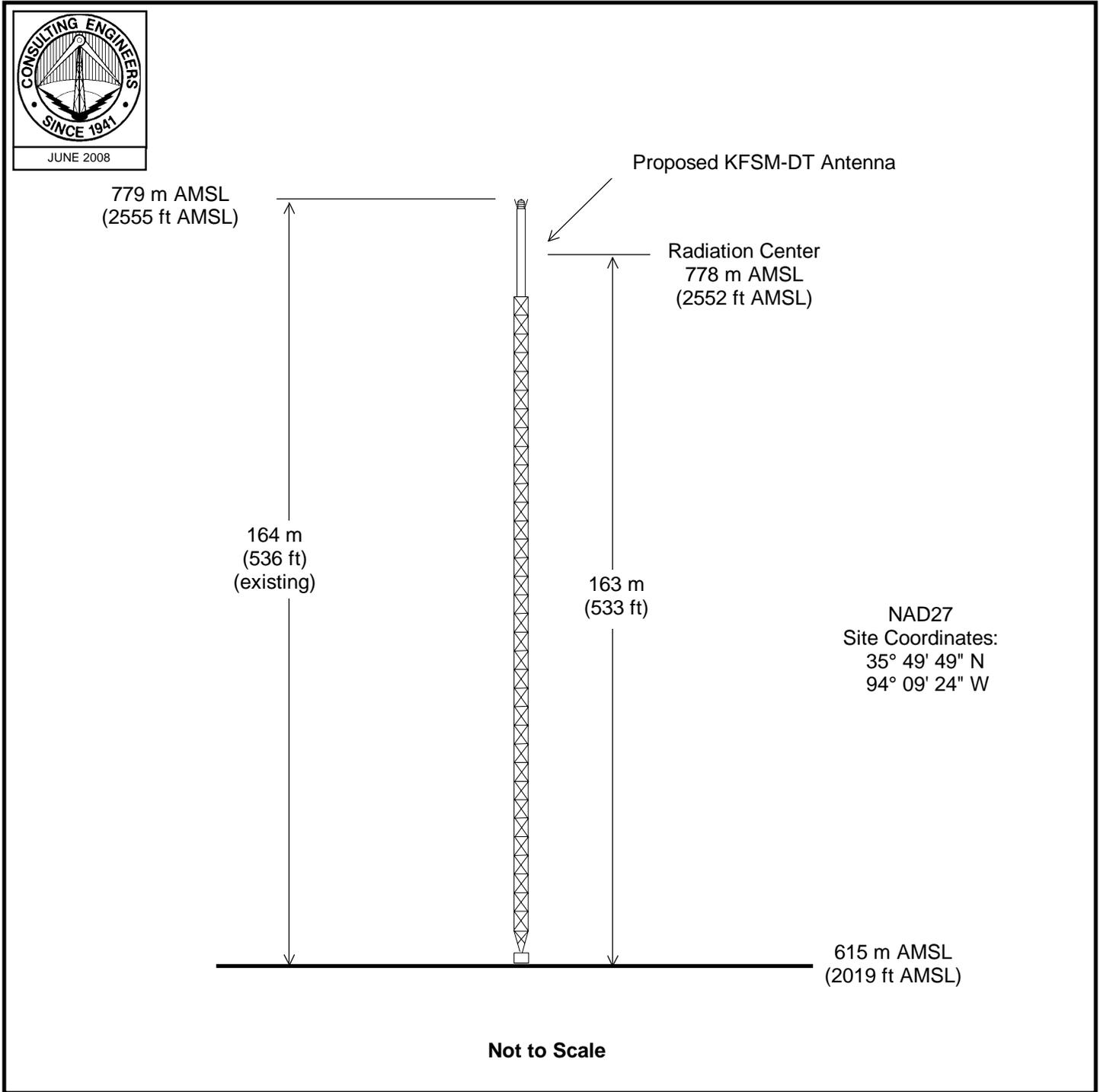
assure worker safety with respect to radio frequency radiation exposure. Such measures include reducing the average exposure by spreading out the work over a longer period of time, wearing "accepted" RFR protective clothing and/or RFR exposure monitors or scheduling work when the stations are at reduced power or shut down. The proposed KFSM-DT operation appears to be otherwise categorically excluded from environmental processing.

It is noted that this statement only addresses the potential for radiofrequency electromagnetic field exposure. All other aspects of the environmental processing analysis will be or already have been provided to the FCC by the tower owner.

Charles Cooper

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June 17, 2008

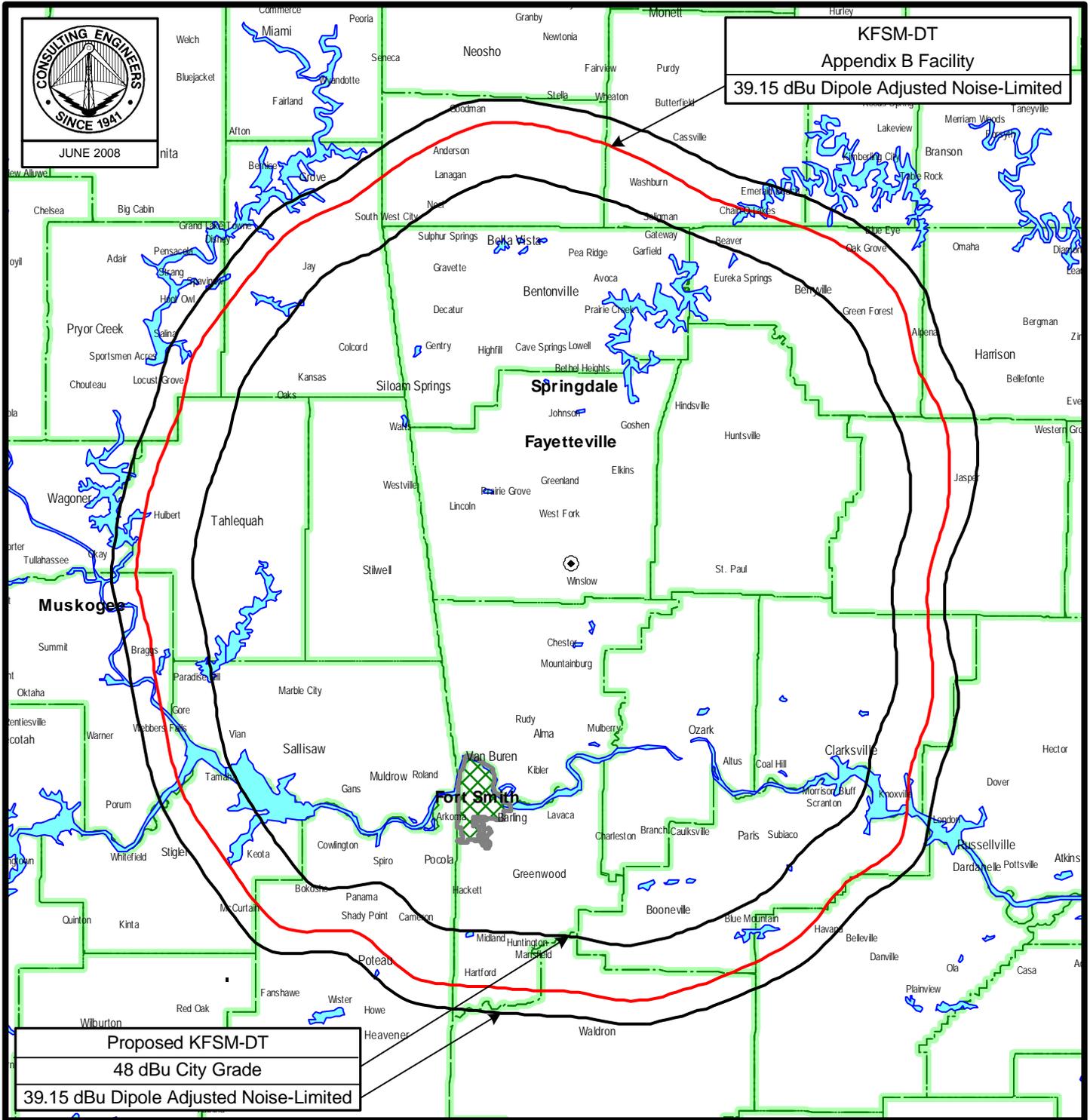


## ANTENNA AND SUPPORTING STRUCTURE

DTV STATION KFSM-DT  
FORT SMITH, ARKANSAS  
CH 18 1000 KW 286 M

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

Figure 2



**PREDICTED COVERAGE CONTOURS**

DTV STATION KFSM-DT  
FORT SMITH, ARKANSAS  
CH 18 1000 KW 286 M

du Treil, Lundin & Rackley, Inc Sarasota, Florida

Figure 3

TW Census data selected 2000
Post Transition Data Base Selected /export/home/cdbs/pt\_tvdb.sff

TV INTERFERENCE and SPACING ANALYSIS PROGRAM

Date: 06-14-2008 Time: 15:03:58

Record Selected for Analysis

KFSM USERRECORD-01 FORT SMITH AR US
Channel 18 ERP 1000. kW HAAT 285. m RCAMSL 00778 m
Latitude 035-49-49 Longitude 0094-09-24
Status APP Zone 2 Border
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

Table with 4 columns: Azimuth (Deg), ERP (kW), HAAT (m), 41.0 dBu F(50,90) (km). Rows show values for various azimuths from 0.0 to 315.0.

Evaluation toward Class A Stations

No Spacing violations or contour overlap to Class A stations

Class A Evaluation Complete

SPACING VIOLATION FOUND BETWEEN STATION

KFSM 18 FORT SMITH AR USERRECORD01

and station

Figure 3

SHORT TO: KFSM-TV 18 FORT SMITH AR BLCDT 20060530AIM
035-49-49 0094-09-24
Req. separation 223.7 Actual separation 0.0 Short 223.7 km

SHORT TO: KFSM-TV 18 FORT SMITH AR DTVPLN DTVP0629
35 -49-49 94 -09-24
Req. separation 223.7 Actual separation 0.0 Short 223.7 km

LANDMOBILE SPACING VIOLATIONS FOUND

NONE

Proposed facility OK to FCC Monitoring Stations

Proposed facility OK toward West Virginia quiet zone

Proposed facility OK toward Table Mountain

Proposed facility is beyond the Canadian coordination distance

Proposed facility is beyond the Mexican coordination distance

Proposed station is OK toward AM broadcast stations

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Start of Interference Analysis

Table with 4 columns: Channel, Proposed Station Call, City/State, ARN. Row 1: 18, KFSM, FORT SMITH AR, USERRECORD01

Stations Potentially Affected by Proposed Station

Table with 7 columns: Chan, Call, City/State, Dist(km), Status, Application, Ref. No. Rows list affected stations like KDOR-TV, KCPT, KSPR.

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Analysis of Interference to Affected Station 1

Table with 5 columns: Channel, Call, City/State, Application, Ref. No. Row 1: 17, KDOR-TV, BARTLESVILLE OK, DTVPLN, -DTV0614

Figure 3

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application Ref. No.
17	KAAS-TV	SALINA KS	320.8	LIC	BLCDT -20021120AAP
17	KAAS-TV	SALINA KS	320.8	PLN	DTVPLN -DTVP0599
17	KMIZ	COLUMBIA MO	378.1	PLN	DTVPLN -DTVP0604
17	KMIZ	COLUMBIA MO	378.1	CP	BPCDT -20080317AFG
18	KFSM-TV	FORT SMITH AR	163.6	PLN	DTVPLN -DTVP0629
18	KFSM	FORT SMITH AR	163.6	APP	USERRECORD-01

Proposal causes no interference

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Analysis of Interference to Affected Station 2

Analysis of current record

Channel	Call	City/State	Application Ref. No.
17	KDOR-TV	BARTLESVILLE OK	BPCDT -20080307ABP

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application Ref. No.
17	KAAS-TV	SALINA KS	320.8	LIC	BLCDT -20021120AAP
17	KAAS-TV	SALINA KS	320.8	PLN	DTVPLN -DTVP0599
17	KMIZ	COLUMBIA MO	378.1	PLN	DTVPLN -DTVP0604
17	KMIZ	COLUMBIA MO	378.1	CP	BPCDT -20080317AFG
18	KFSM-TV	FORT SMITH AR	163.6	PLN	DTVPLN -DTVP0629
18	KFSM	FORT SMITH AR	163.6	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.
18	KCPT	KANSAS CITY MO	BLEDT -20060327AGR

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application Ref. No.
17	KMIZ	COLUMBIA MO	169.9	PLN	DTVPLN -DTVP0604
17	KMIZ	COLUMBIA MO	169.9	CP	BPCDT -20080317AFG
18	KFSM-TV	FORT SMITH AR	362.7	PLN	DTVPLN -DTVP0629
18	KFSM	FORT SMITH AR	362.7	APP	USERRECORD-01

Proposal causes no interference

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Analysis of Interference to Affected Station 4

Figure 3

Analysis of current record

Channel	Call	City/State	Application Ref. No.
18	KCPT	KANSAS CITY MO	DTVPLN -DTVP0642

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application Ref. No.
17	KMIZ	COLUMBIA MO	169.9	PLN	DTVPLN -DTVP0604
17	KMIZ	COLUMBIA MO	169.9	CP	BPCDT -20080317AFG
18	KFSM-TV	FORT SMITH AR	362.7	PLN	DTVPLN -DTVP0629
18	KFSM	FORT SMITH AR	362.7	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.
19	KSPR	SPRINGFIELD MO	BMPCDT -20071205AAU

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application Ref. No.
18	KFSM-TV	FORT SMITH AR	184.7	PLN	DTVPLN -DTVP0629
19	KSCW	WICHITA KS	410.2	PLN	DTVPLN -DTVP0681
20	KNLJ	JEFFERSON CITY MO	185.8	LIC	BLCDT -20061219AAX
20	KNLJ	JEFFERSON CITY MO	185.8	PLN	DTVPLN -DTVP0730
18	KFSM	FORT SMITH AR	184.7	APP	USERRECORD-01

Total scenarios = 2

Result key: 1  
Scenario 1 Affected station 5  
Before Analysis

Results for: 19A MO SPRINGFIELD BMPCDT 20071205AAU CP  
HAAT 590.0 m, ATV ERP 363.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	853260	41103.8
not affected by terrain losses	836248	40500.0
lost to NTSC IX	0	0.0
lost to additional IX by ATV	241	32.0
lost to ATV IX only	241	32.0
lost to all IX	241	32.0

Potential Interfering Stations Included in above Scenario 1

20A MO JEFFERSON CITY	BLCDT	20061219AAX	LIC
18A AR FORT SMITH	DTVPLN	DTVP0629	PLN

After Analysis

Figure 3

Results for: 19A MO SPRINGFIELD      BMPCDT    20071205AAU   CP  
 HAAT 590.0 m, ATV ERP 363.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	853260	41103.8
not affected by terrain losses	836248	40500.0
lost to NTSC IX	0	0.0
lost to additional IX by ATV	279	36.0
lost to ATV IX only	279	36.0
lost to all IX	279	36.0

Potential Interfering Stations Included in above Scenario    1

20A MO JEFFERSON CITY      BLCDT    20061219AAX   LIC  
 18A AR FORT SMITH      USERRECORD01      APP

Percent new IX =    0.0045%

Result key:            2  
 Scenario            2 Affected station            5  
 Before Analysis

Results for: 19A MO SPRINGFIELD      BMPCDT    20071205AAU   CP  
 HAAT 590.0 m, ATV ERP 363.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	853260	41103.8
not affected by terrain losses	836248	40500.0
lost to NTSC IX	0	0.0
lost to additional IX by ATV	241	32.0
lost to ATV IX only	241	32.0
lost to all IX	241	32.0

Potential Interfering Stations Included in above Scenario    2

20A MO JEFFERSON CITY      DTVPLN    DTVP0730    PLN  
 18A AR FORT SMITH      DTVPLN    DTVP0629    PLN

After Analysis

Results for: 19A MO SPRINGFIELD      BMPCDT    20071205AAU   CP  
 HAAT 590.0 m, ATV ERP 363.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	853260	41103.8
not affected by terrain losses	836248	40500.0
lost to NTSC IX	0	0.0
lost to additional IX by ATV	279	36.0
lost to ATV IX only	279	36.0
lost to all IX	279	36.0

Potential Interfering Stations Included in above Scenario    2

20A MO JEFFERSON CITY      DTVPLN    DTVP0730    PLN  
 18A AR FORT SMITH      USERRECORD01      APP

Percent new IX =    0.0045%

Worst case new IX    0.0045% Scenario            1

Figure 3

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Analysis of Interference to Affected Station    6

Analysis of current record  
 Channel    Call            City/State            Application Ref. No.  
 19          KSPR            SPRINGFIELD MO      DTVPLN      -DTV0687

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application Ref. No.
18	KFSM-TV	FORT SMITH AR	188.3	PLN	DTVPLN -DTV0629
19	KSCW	WICHITA KS	408.5	PLN	DTVPLN -DTV0681
20	KNLJ	JEFFERSON CITY MO	181.5	LIC	BLCDT -20061219AAX
20	KNLJ	JEFFERSON CITY MO	181.5	PLN	DTVPLN -DTV0730
18	KFSM	FORT SMITH AR	188.3	APP	USERRECORD-01

Total scenarios =    2

Result key:            3  
 Scenario            1 Affected station            6  
 Before Analysis

Results for: 19A MO SPRINGFIELD      DTVPLN    DTVP0687    PLN  
 HAAT 596.0 m, ATV ERP 1000.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	953866	48537.2
not affected by terrain losses	936497	47677.9
lost to NTSC IX	0	0.0
lost to additional IX by ATV	858	91.9
lost to ATV IX only	858	91.9
lost to all IX	858	91.9

Potential Interfering Stations Included in above Scenario    1

19A KS WICHITA            DTVPLN    DTVP0681    PLN  
 20A MO JEFFERSON CITY      BLCDT    20061219AAX   LIC  
 18A AR FORT SMITH      DTVPLN    DTVP0629    PLN

After Analysis

Results for: 19A MO SPRINGFIELD      DTVPLN    DTVP0687    PLN  
 HAAT 596.0 m, ATV ERP 1000.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	953866	48537.2
not affected by terrain losses	936497	47677.9
lost to NTSC IX	0	0.0
lost to additional IX by ATV	1177	107.9
lost to ATV IX only	1177	107.9
lost to all IX	1177	107.9

Potential Interfering Stations Included in above Scenario    1

19A KS WICHITA            DTVPLN    DTVP0681    PLN

Figure 3

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20A MO JEFFERSON CITY      BLCDT    20061219AAX  LIC
18A AR FORT SMITH         USERRECORD01      APP

Percent new IX =      0.0341%

Result key:              4
Scenario                 2 Affected station      6
Before Analysis

Results for: 19A MO SPRINGFIELD      DTVPLN  DTVP0687  PLN
HAAT  596.0 m, ATV ERP 1000.0 kW
      POPULATION  AREA (sq km)
within Noise Limited Contour      953866      48537.2
not affected by terrain losses      936497      47677.9
lost to NTSC IX                      0           0.0
lost to additional IX by ATV          858          91.9
lost to ATV IX only                   858          91.9
lost to all IX                        858          91.9

Potential Interfering Stations Included in above Scenario      2

19A KS WICHITA              DTVPLN  DTVP0681  PLN
20A MO JEFFERSON CITY      DTVPLN  DTVP0730  PLN
18A AR FORT SMITH         DTVPLN  DTVP0629  PLN

After Analysis

Results for: 19A MO SPRINGFIELD      DTVPLN  DTVP0687  PLN
HAAT  596.0 m, ATV ERP 1000.0 kW
      POPULATION  AREA (sq km)
within Noise Limited Contour      953866      48537.2
not affected by terrain losses      936497      47677.9
lost to NTSC IX                      0           0.0
lost to additional IX by ATV          1177         107.9
lost to ATV IX only                   1177         107.9
lost to all IX                        1177         107.9

Potential Interfering Stations Included in above Scenario      2

19A KS WICHITA              DTVPLN  DTVP0681  PLN
20A MO JEFFERSON CITY      DTVPLN  DTVP0730  PLN
18A AR FORT SMITH         USERRECORD01      APP

Percent new IX =      0.0341%

Worst case new IX      0.0341% Scenario      1

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Analysis of Interference to Affected Station      7

Analysis of current record
Channel  Call      City/State      Application Ref. No.
  18     KFSM      FORT SMITH AR      USERRECORD-01
    
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Figure 3

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Stations Potentially Affecting This Station

Chan  Call      City/State      Dist(km) Status Application Ref. No.
  17  KDOR-TV  BARTLESVILLE OK      163.6  PLN    DTVPLN    -DTVP0614
  17  KDOR-TV  BARTLESVILLE OK      163.6  CP     BPCDT     -20080307ABP
  18  KCPT    KANSAS CITY MO      362.7  LIC    BLEDT     -20060327AGR
  18  KCPT    KANSAS CITY MO      362.7  PLN    DTVPLN    -DTVP0642
  19  KSPR    SPRINGFIELD MO      184.7  CP MOD BPCDT     -20071205AAU
  19  KSPR    SPRINGFIELD MO      188.3  PLN    DTVPLN    -DTVP0687

Total scenarios =      2

Result key:              5
Scenario                 1 Affected station      7
Before Analysis

Results for: 18A AR FORT SMITH      USERRECORD01      APP
HAAT  285.0 m, ATV ERP 1000.0 kW
      POPULATION  AREA (sq km)
within Noise Limited Contour      806941      30557.0
not affected by terrain losses      785889      29162.4
lost to NTSC IX                      0           0.0
lost to additional IX by ATV          1097         72.3
lost to ATV IX only                   1097         72.3
lost to all IX                        1097         72.3

Potential Interfering Stations Included in above Scenario      1

17A OK BARTLESVILLE      BPCDT    20080307ABP  CP
19A MO SPRINGFIELD        BPCDT    20071205AAU  CP

Result key:              6
Scenario                 2 Affected station      7
Before Analysis

Results for: 18A AR FORT SMITH      USERRECORD01      APP
HAAT  285.0 m, ATV ERP 1000.0 kW
      POPULATION  AREA (sq km)
within Noise Limited Contour      806941      30557.0
not affected by terrain losses      785889      29162.4
lost to NTSC IX                      0           0.0
lost to additional IX by ATV          752          44.2
lost to ATV IX only                   752          44.2
lost to all IX                        752          44.2

Potential Interfering Stations Included in above Scenario      2

17A OK BARTLESVILLE      BPCDT    20080307ABP  CP
19A MO SPRINGFIELD        DTVPLN  DTVP0687  PLN

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FINISHED FINISHED FINISHED FINISHED FINISHED FINISHED
    
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