

***APPLICATION FOR MODIFICATION OF
CONSTRUCTION PERMIT***

**K56GF – SIOUX FALLS, SOUTH DAKOTA
FACILITY ID: 67998**

DIGITAL NETWORKS—MIDWEST, LLC

AUGUST 2020

APPLICATION FOR MODIFICATION OF CONSTRUCTION PERMIT

The following engineering statement and attached exhibits have been prepared for **Digital Networks-Midwest, LLC** ("Midwest"), licensee of low power television station K56GF at Sioux Falls, South Dakota, and are in support of their application for modification of construction permit.¹ This application proposes a modification to the displacement construction permit for the facility under FCC File No. BDISDTL-20110829ABH. The proposed changes include a relocation of the facility, changes to the maximum effective radiated power and antenna, and related elevation changes.

The existing construction permit for displacement for the facility authorizes operation on channel 23 with a maximum effective radiated power of 15 kW at a center of radiation of 499 meters above mean sea level, 57 meters above ground level, utilizing a directional antenna. The proposed facility would operate on television channel 23 with a maximum effective radiated power of 2 kW at a center of radiation of 490.3 meters above mean sea level, 30 meters above ground level, also utilizing a directional antenna. The proposed directional antenna is a single Kathrein-Scala PR-TV oriented at 250 degrees true.

The proposed technical parameters represent a minor change to both the licensed K56HF analog facilities, and the authorized displaced parameters on channel 23. Exhibit E-1 illustrates that the proposed 51 dBu F(50,90) dBu contour overlaps both the authorized 51 dBu F(50,90) contour and the licensed 74 dBu F(50,50) contour. Additionally, the proposed transmitter site is located within 30 miles of both the licensed and authorized transmitter sites.

¹ The Facility ID for K56GF at Sioux Falls, South Dakota is 67998.

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Exhibit E-2 is the study output from *TVStudy* for the proposed facility. This study demonstrates that there are no outgoing interference check failures to any proposed or authorized facilities. This study was performed at a cell size resolution of 1.0 km, and a profile spacing increment of 1.0 km.

The proposed facility would not constitute a significant environmental impact, and is exempt from environmental processing. The proposed antenna array would be mounted to an existing tower that is registered with the Commission. The addition of the antenna system to this tower would not increase the already existing environmental impact present from the structure.

In addition, the proposed facility would not result in human exposure at ground level to radiofrequency radiation in excess of the Commission's safety standards. Using the equations in Supplement A of *OET Bulletin 65*, the calculated worst-case power density at ground level assuming a downward radiation relative field of 0.3 is $7.67 \mu\text{W}/\text{cm}^2$. This value is substantially less than the upper limit of the uncontrolled environment condition.

Midwest certifies it will coordinate with all other users of the site to ensure that workers and other personnel are not exposed to levels of radiofrequency radiation in excess of the applicable safety standards. Coordination activities will include, but are not necessarily limited to, a reduction in transmitter power or cessation of operation.

The proposed facility complies with the provisions of Section 74.709 of the Commission's Rules. No land mobile protection issues have been identified based on the tables in that section of

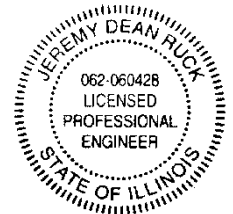
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the rules, or on the output of *TVStudy*. The proposed facility also complies with Sections 74.793(e)-(h) of the Commission's Rules.

The preceding statement and attached exhibits have been prepared by me, or under my direction, and are true and accurate to the best of my belief and knowledge.



Above signature is digitized copy of actual signature
License Expires November 30, 2021

Jeremy D. Ruck, PE
August 25, 2020

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8.25.2020

K56GF-D.X

BDISDTL-20110829ABH
Latitude: 43-34-25.90 N
Longitude: 096-38-55.10 W
ERP: 2.00 kW
Channel: 23
Frequency: 527.0 MHz
AMSL Height: 490.3 m
Horiz. Pattern: Directional
Prop Model: FCC Contour

K56GF

BLTT-20001020ABR
Latitude: 43-33-14 N
Longitude: 096-41-06 W
ERP: 10.10 kW
Channel: 56
Frequency: 725.0 MHz
AMSL Height: 499.0 m
Horiz. Pattern: Directional
Prop Model: FCC Contour

K56GF-D.C

BDISDTL-20110829ABH
Latitude: 43-33-14 N
Longitude: 096-41-06 W
ERP: 15.00 kW
Channel: 23
Frequency: 527.0 MHz
AMSL Height: 499.0 m
Horiz. Pattern: Omni
Prop Model: FCC Contour

Exhibit E-1

Service Contour Comparison
K56GF - Sioux Falls, South Dakota
Digital Networks-Midwest, LLC
August, 2020

Jeremy Ruck & Associates, Inc.

- Proposed 51 dBu F(50,90) Contour
- Licensed 74 dBu F(50,50) Contour
- Authorized 51 dBu F(50,90) Contour
- Proposed Site 30 Mile Radius

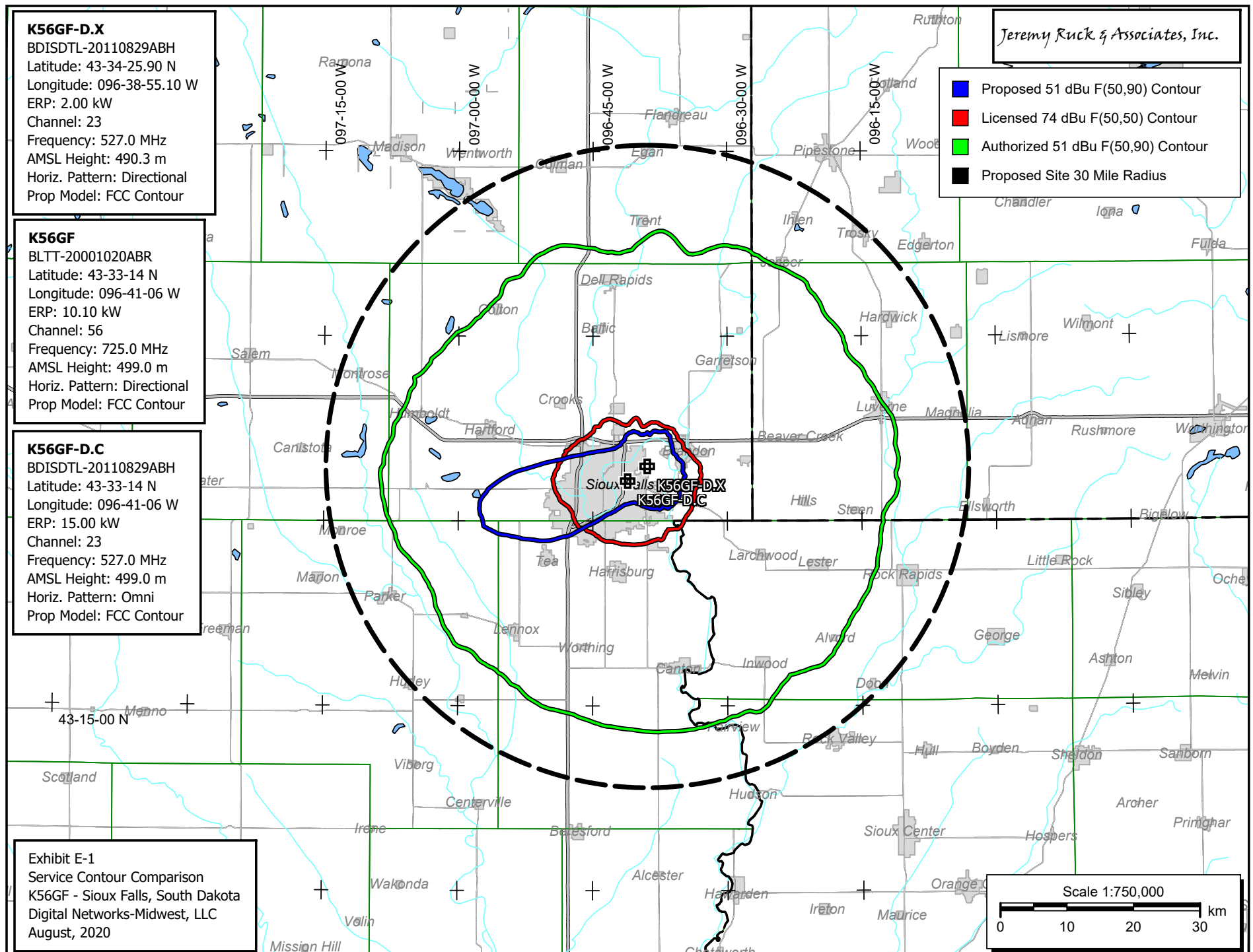


Exhibit E-2 - TVStudy Interference Study

tvstudy v2.2.5 (4uoc83)

Database: 127.0.0.1, Study: KAVC CH 27 ASRN 1254146 2 kW ERP 1581.4 m AMSL PR-TV x1 @235BLANK0000029989,
Model: Longley-Rice
Start: 2020.08.12 13:36:05

Study created: 2020.08.12 13:36:05

Study build station data: LMS TV 2020-08-12

Proposal: KAVC-LD D27 LD APP LOVELAND, CO
File number: BLANK0000029989
Facility ID: 68077
Station data: User record
Record ID: 194
Country: U.S.

Build options:

Protect pre-transition records not on baseline channel

Stations potentially affected by proposal:

| IX | Call | Chan | Svc | Status | City, State | File Number | Distance |
|-----|---------|------|-----|--------|-------------------------|-------------------|----------|
| No | K26OT-D | D26 | LD | LIC | AKRON, CO | BLANK0000117624 | 154.3 km |
| No | K26GY-D | D26 | LD | LIC | BRECKENRIDGE, CO | BLANK0000068744 | 113.2 |
| No | KKTV | D26 | DT | LIC | COLORADO SPRINGS, CO | BLANK0000094108 | 150.6 |
| No | K26FM-D | D26 | LD | LIC | PEETZ, CO | BLDTT20110928AKL | 166.5 |
| No | KZFC-LD | D26- | LD | LIC | WINDSOR, CO | BLANK0000099248 | 39.6 |
| No | K26KR-D | D26 | LD | CP | CHEYENNE, WY | BNPDTL20100324ACJ | 116.7 |
| No | K27OF-D | D27 | LD | LIC | CRESTED BUTTE, CO | BLANK0000068625 | 222.0 |
| Yes | K27MA-D | D27 | LD | LIC | DENVER, CO | BLDTL20120802ABC | 50.1 |
| No | K27CB | N27+ | TX | LIC | FRASER, ETC., CO | BLTT19890609IM | 78.8 |
| No | K27LK-D | D27 | LD | LIC | GATEVIEW, CO | BLDTT20120106ABO | 287.6 |
| No | KHGS-LD | D27 | LD | CP | GLENWOOD SPRINGS, CO | BLANK0000052045 | 217.7 |
| No | KGJT-CD | D27 | DC | LIC | GRAND JUNCTION, CO | BLDTA20131202CIV | 306.2 |
| No | K27IH-D | D27 | LD | LIC | HOLYOKE, CO | BLDTT20070604ADF | 220.2 |
| No | K27KX-D | D27 | LD | LIC | LAS ANIMAS, CO | BLDTT20110509ACX | 284.0 |
| No | K27KA-D | D27 | LD | LIC | PARLIN, CO | BLDTT20100713APC | 233.9 |
| Yes | KVSN-DT | D27 | DT | LIC | PUEBLO, CO | BLANK0000074846 | 150.6 |
| No | K27MT-D | D27 | LD | LIC | ROMEO, CO | BLANK0000055052 | 373.0 |
| No | K27KY-D | D27 | LD | CP | STERLING, CO | BLANK0000068912 | 167.1 |
| No | K48LO-D | D27 | LD | CP | WOODY CREEK, CO | BLANK0000075136 | 195.8 |
| No | KHGI-CD | D27 | DC | LIC | NORTH PLATTE, NE | BLANK0000114628 | 376.4 |
| No | K15DI | D27 | LD | CP | VERNAL, UT | BLANK0000052795 | 360.1 |
| No | KWYF-LD | D27 | LD | LIC | CASPER, WY | BLDTT20120615ACV | 317.7 |
| Yes | KLWY | D27 | DT | LIC | CHEYENNE, WY | BLCDT20090227AAD | 105.6 |
| No | K28HI-D | D28 | LD | LIC | BRECKENRIDGE/DILLON, CO | BLANK0000068743 | 113.2 |
| No | K28KU-D | D28 | LD | LIC | CRESTED BUTTE, CO | BLDTL20121119AOU | 222.0 |
| No | KTFD-TV | D28 | DT | LIC | DENVER, CO | BLANK0000066076 | 49.8 |
| No | K28FW-D | D28 | LD | LIC | PEETZ, CO | BLDTT20110928AKK | 166.5 |
| No | K28GE-D | D28+ | LD | LIC | WOODLAND PARK, CO | BLANK0000040556 | 124.6 |
| No | K28GE-D | N28+ | TX | LIC | WOODLAND PARK, CO | BLTTL19991203AAV | 124.5 |
| No | K28JH-D | D28 | LD | LIC | YUMA, CO | BLDTT20120221AAX | 177.4 |
| No | K28MF-D | D28 | LD | CP | CHEYENNE, WY | BNPDTL20100510AEU | 116.7 |
| No | K30CR | N30- | TX | LIC | FRASER, ETC., CO | BLTT19890609IK | 78.8 |
| No | K34AC-D | N34 | TX | APP | YUMA, CO | BMPTT20011106AAM | 177.4 |

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D27
Mask: Full Service
Latitude: 40 5 59.00 N (NAD83)
Longitude: 104 54 4.00 W
Height AMSL: 1581.4 m
HAAT: 61.5 m
Peak ERP: 2.00 kW
Antenna: SCA PR-TV x1 235.0 deg

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Exhibit E-2 - TVStudy Interference Study

Elev Pattn: Generic

50.0 dBu contour:

| Azimuth | ERP | HAAT | Distance |
|---------|----------|---------|----------|
| 0.0 deg | 0.004 kW | 102.0 m | 8.1 km |
| 45.0 | 0.001 | 86.9 | 5.9 |
| 90.0 | 0.002 | 63.1 | 5.8 |
| 135.0 | 0.004 | 59.5 | 6.4 |
| 180.0 | 0.006 | 29.0 | 5.0 |
| 225.0 | 1.31 | 7.0 | 19.1 |
| 270.0 | 0.029 | 60.5 | 10.4 |
| 315.0 | 0.005 | 84.0 | 7.8 |

Database HAAT does not agree with computed HAAT

Database HAAT: 62 m Computed HAAT: 61 m

Distance to Canadian border: 989.2 km

Distance to Mexican border: 935.8 km

Conditions at FCC monitoring station: Grand Island NE

Bearing: 78.4 degrees Distance: 554.4 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:

Bearing: 274.0 degrees Distance: 30.0 km

ERP: 0.018 kW Field strength: 54.6 dBu, 0.5 mV/m

Study cell size: 1.00 km

Profile point spacing: 1.00 km

Maximum new IX to full-service and Class A: 0.50%

Maximum new IX to LPTV: 2.00%

Interference to BLDLTL20120802ABC LIC scenario 1

| | Call | Chan | Svc | Status | City, State | File Number | Distance |
|-------------|---------|------|-----|--------|-------------------|-------------------|----------|
| Desired: | K27MA-D | D27 | LD | LIC | DENVER, CO | BLDTL20120802ABC | |
| Undesireds: | KAVC-LD | D27 | LD | APP | LOVELAND, CO | BLANK0000029989 | 50.1 km |
| | KVSN-DT | D27 | DT | LIC | PUEBLO, CO | BLANK0000074846 | 114.1 |
| | KLWY | D27 | DT | LIC | CHEYENNE, WY | BLCDDT20090227AAD | 149.6 |
| | KTFD-TV | D28 | DT | LIC | DENVER, CO | BLANK0000066076 | 0.4 |
| | K28GE-D | D28+ | LD | LIC | WOODLAND PARK, CO | BLANK0000040556 | 83.8 |

| | Service area | | Terrain-limited | | IX-free, before | | IX-free, after | | Percent New IX |
|--|--------------|--------|-----------------|--------|-----------------|--------|----------------|--------|----------------|
| | 350.4 | 76,554 | 275.9 | 19,293 | 157.1 | 11,058 | 152.1 | 11,051 | 3.20 0.06 |

| Undesired | | Total IX | Unique IX, before | Unique IX, after |
|--------------------|------|----------|-------------------|------------------|
| KAVC-LD D27 LD APP | 78.5 | 916 | | 5.0 7 |
| KVSN-DT D27 DT LIC | 4.0 | 13 | 1.0 13 | 0.0 0 |
| KLWY D27 DT LIC | 78.5 | 1,597 | 40.3 524 | 8.1 28 |
| KTFD-TV D28 DT LIC | 77.5 | 7,698 | 39.3 6,625 | 30.2 6,504 |

Interference to BLANK0000074846 LIC scenario 1

| | Call | Chan | Svc | Status | City, State | File Number | Distance |
|-------------|---------|------|-----|--------|----------------------|-------------------|----------|
| Desired: | KVSN-DT | D27 | DT | LIC | PUEBLO, CO | BLANK0000074846 | |
| Undesireds: | KAVC-LD | D27 | LD | APP | LOVELAND, CO | BLANK0000029989 | 150.6 km |
| | KKTV | D26 | DT | LIC | COLORADO SPRINGS, CO | BLANK0000094108 | 0.1 |
| | KLWY | D27 | DT | LIC | CHEYENNE, WY | BLCDDT20090227AAD | 256.2 |
| | KTFD-TV | D28 | DT | LIC | DENVER, CO | BLANK0000066076 | 114.4 |
| | KOAA-TV | D28 | DT | BL | PUEBLO, CO | DTVBL59014 | 0.0 |

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Exhibit E-2 - TVStudy Interference Study

| Service area | Terrain-limited | IX-free, before | IX-free, after | Percent New IX |
|----------------------|----------------------|----------------------|----------------------|----------------|
| 34166.9 2,711,233 | 31207.7 2,302,566 | 27885.1 1,047,806 | 27877.2 1,047,560 | 0.03 0.02 |

| Undesired | Total IX | Unique IX, before | Unique IX, after |
|--------------------|---------------------|-------------------|------------------|
| KAVC-LD D27 LD APP | 116.6 38,969 | | 7.9 246 |
| KKTV D26 DT LIC | 51.2 117 | 45.2 98 | 45.2 98 |
| KLWY D27 DT LIC | 3085.4 1,152,964 | 1718.3 72,423 | 1692.6 72,218 |
| KTFD-TV D28 DT LIC | 1551.0 1,182,220 | 183.9 101,679 | 175.9 99,125 |
| KOAA-TV D28 DT BL | 8.0 19 | 2.0 0 | 2.0 0 |

Interference to BLCDT20090227AAD LIC scenario 1

| Desired: | Call | Chan | Svc | Status | City, State | File Number | Distance |
|-------------|---------|------|-----|--------|--------------|------------------|----------|
| | KLWY | D27 | DT | LIC | CHEYENNE, WY | BLCDT20090227AAD | |
| Undesireds: | KAVC-LD | D27 | LD | APP | LOVELAND, CO | BLANK0000029989 | 105.6 km |
| | KVSN-DT | D27 | DT | LIC | PUEBLO, CO | BLANK0000074846 | 256.2 |
| | KTFD-TV | D28 | DT | LIC | DENVER, CO | BLANK0000066076 | 149.3 |

| Service area | Terrain-limited | IX-free, before | IX-free, after | Percent New IX |
|--------------------|--------------------|--------------------|--------------------|----------------|
| 15189.0 540,321 | 14582.9 538,402 | 14465.0 535,410 | 14454.1 534,928 | 0.08 0.09 |

| Undesired | Total IX | Unique IX, before | Unique IX, after |
|--------------------|---------------|-------------------|------------------|
| KAVC-LD D27 LD APP | 39.0 713 | | 11.0 482 |
| KVSN-DT D27 DT LIC | 91.8 2,132 | 74.8 1,925 | 69.8 1,925 |
| KTFD-TV D28 DT LIC | 43.0 1,067 | 26.0 860 | 15.0 774 |

Interference to proposal scenario 1
56.38% interference received

| Desired: | Call | Chan | Svc | Status | City, State | File Number | Distance |
|-------------|---------|------|-----|--------|--------------|------------------|----------|
| | KAVC-LD | D27 | LD | APP | LOVELAND, CO | BLANK0000029989 | |
| Undesireds: | KVSN-DT | D27 | DT | LIC | PUEBLO, CO | BLANK0000074846 | 150.6 km |
| | KLWY | D27 | DT | LIC | CHEYENNE, WY | BLCDT20090227AAD | 105.6 |
| | KTFD-TV | D28 | DT | LIC | DENVER, CO | BLANK0000066076 | 49.8 |

| Service area | Terrain-limited | IX-free | Percent IX |
|--------------------|-----------------|-----------------|----------------|
| 291.1 57,858 | 291.1 57,858 | 117.5 25,238 | 59.65 56.38 |
| Undesired | Total IX | Unique IX | Prct Unique IX |
| KVSN-DT D27 DT LIC | 11.0 122 | 1.0 32 | 0.34 0.06 |
| KLWY D27 DT LIC | 171.6 32,338 | 152.6 32,099 | 52.41 55.48 |
| KTFD-TV D28 DT LIC | 17.1 470 | 1.0 250 | 0.35 0.43 |

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