

# ***APPLICATION FOR CONSTRUCTION PERMIT***

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**KWRW-LP – ARDMORE, OKLAHOMA  
FACILITY ID: 98085**

**DIGITAL NETWORKS–MIDWEST, LLC**

**MAY 2019**

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## **APPLICATION FOR CONSTRUCTION PERMIT - DISPLACEMENT**

The following engineering statement and attached exhibits have been prepared for **Digital Networks-Midwest, LLC** ("Midwest"), licensee of low power television station KWRW-LP (K44BQ) at Ardmore, Oklahoma, and are in support of their application for construction permit for displacement. The current license for the facility is under FCC File No. BLTT-19900823II.

The licensed facility operates on television channel 44 with a maximum effective radiated power of 54.1 kW at a center of radiation of 500 meters above mean sea level utilizing a directional antenna. The proposed facility would operate on television channel 34 with a maximum effective radiated power of 15 kW at a center of radiation of 327.8 meters AMSL also utilizing a directional antenna. The antenna proposed for use is a Kathrein-Scala PR-TV array consisting of four antennas with equal power division. Two of the antennas are oriented at 170 degrees true, while the other two are oriented at 350 degrees true.<sup>1</sup> No beamtilt is specified for this antenna array.

The technical parameters for this application propose a relocation of the facility from the current analog site. Exhibit E-1 makes a comparison between the licensed 74 dBu F(50,50) service contour and the proposed 51 dBu F(50,90) service contour. As this map demonstrates, these two contours overlap. Additionally, the proposed transmitter site is located within 30 miles of the licensed transmitter site.

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<sup>1</sup> Information on the form pages is based on the pairs of elements oriented at 0 degrees and 180 degrees true, with the array rotated 170 degrees clockwise.

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Exhibit E-2 is the output from *TVStudy* for the proposed facility. This study demonstrates that there are no outgoing IX check failures to any proposed or authorized facilities. This study was performed at a cell size resolution of 0.5 km, and a profile spacing increment of 0.5 km.

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

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 0.2 is  $25.6 \mu\text{W}/\text{cm}^2$ . This value is substantially below 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.

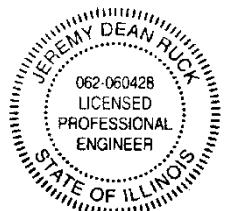
The proposed facility complies with the provisions of Section 74.709 of the Commission's Rules. No land mobile protection issues have been identified based on the tables in that section of the rules, or on the output of *TVStudy*. The proposed facility also complies with Sections 74.793(e)-(h) and 74.793(h) of the Commission's Rules,

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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.



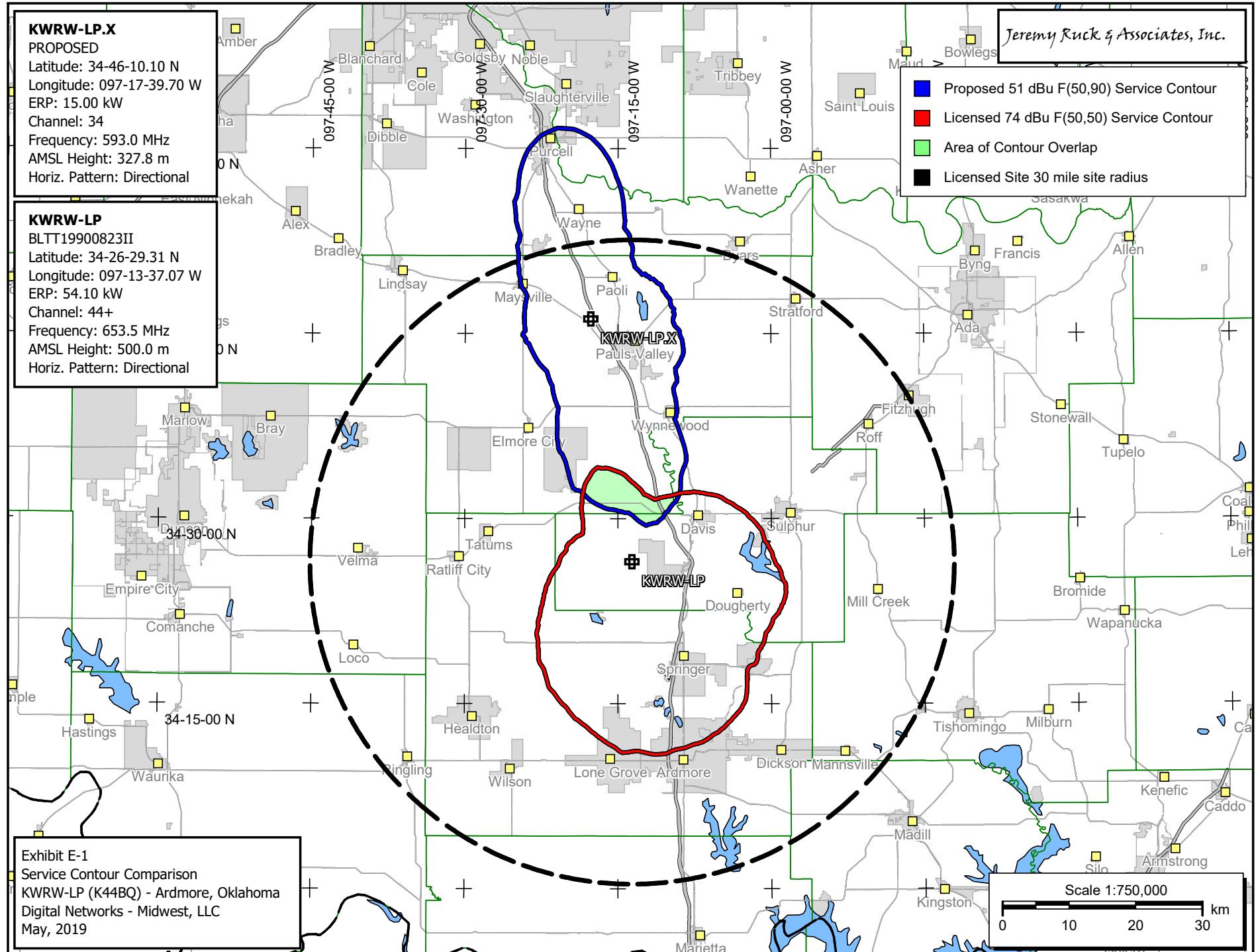
Above signature is digitized copy of actual signature  
License Expires November 30, 2019

**Jeremy D. Ruck, PE**  
**May 1, 2019**

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## Exhibit E-2 - TVStudy Interference Study

tvstudy v2.2.5 (4uoc83)  
Database: 127.0.0.1, Study: KWRW-LP Displacement to Channel 34 (05-01-2019), Model: Longley-Rice  
Start: 2019.05.01 11:27:15

Study created: 2019.05.01 11:27:14

Study build station data: LMS TV 2019-04-30

Proposal: KWRW-LP D34 LD APP ARDMORE, OK  
File number: BDFCDTL20111205AKH  
Facility ID: 68085  
Station data: User record  
Record ID: 31  
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  | KSWX-LP | N31- | TX  | LIC    | DUNCAN, OK            | BLTTL20080818AAY  | 68.5 km  |
| No  | K33MX-D | D33  | LD  | CP     | GERONIMO, OK          | BNPDTL20100510AKU | 108.0    |
| Yes | KOCB    | D33  | DT  | LIC    | OKLAHOMA CITY, OK     | BLCDT20060615AAL  | 88.5     |
| No  | KUVN-DT | D33  | DT  | CP     | GARLAND, TX           | BLANK0000063068   | 244.2    |
| No  | K33ND-D | D33  | LD  | CP     | JOLLY, TX             | BNPDTL20100510AGL | 139.2    |
| No  | KSJF-CD | D34  | DC  | LIC    | FORT SMITH, AR        | BLANK0000064259   | 278.3    |
| No  | KWFT-LP | N34z | TX  | LIC    | FORT SMITH, AR        | BLTTL20021115AAI  | 278.3    |
| No  | KASN    | D34  | DT  | CP     | PINE BLUFF, AR        | BLANK0000034796   | 465.8    |
| No  | K41MN-D | D34  | LD  | APP    | EMPORIA, KS           | BLANK0000071803   | 415.1    |
| No  | KMSS-TV | D34  | DT  | LIC    | SHREVEPORT, LA        | BLCDT20050705AAB  | 388.8    |
| No  | K41KX-D | D34  | LD  | CP     | JOPLIN, MO            | BLANK0000058756   | 364.3    |
| Yes | KCYH-LD | D34  | LD  | LIC    | ARDMORE, OK           | BLANK0000068523   | 65.1     |
| No  | K34IN-D | D34  | LD  | LIC    | BEAVER, OK            | BLDTT20091228AEJ  | 370.1    |
| No  | K34JK-D | D34  | LD  | LIC    | ELK CITY, OK          | BLDTT20100607AAA  | 191.2    |
| No  | K34JJ-D | D34  | LD  | LIC    | HOLLIS, OK            | BLDTT20100802AZI  | 229.6    |
| No  | K43LK-D | D34  | LD  | CP     | LAWTON, OK            | BLANK0000029550   | 91.3     |
| No  | K34ML-D | D34  | LD  | CP     | MC ALESTER, OK        | BNPDTL20100511ABJ | 131.7    |
| No  | KMYT-TV | D34  | DT  | LIC    | TULSA, OK             | BLANK0000067647   | 202.3    |
| No  | K34LT-D | D34  | LD  | CP     | VIAN, OK              | BNPDTL20100504AMA | 230.0    |
| No  | KOMI-CD | D34  | DC  | LIC    | WOODWARD, OK          | BLANK0000014011   | 256.5    |
| No  | KIDV-LD | D34  | LD  | LIC    | ALBANY, TX            | BLDTT20110428AAG  | 301.7    |
| No  | KZCZ-LD | D34  | LD  | LIC    | COLLEGE STATION, TX   | BLANK0000011233   | 384.2    |
| No  | KJJM-LD | D34  | LD  | LIC    | DALLAS & MESQUITE, TX | BLDTL20090319ABX  | 244.2    |
| No  | K42AL-D | D34  | LD  | CP     | MEMPHIS, TX           | BLANK0000052125   | 302.1    |
| No  | KZFB-LP | N34z | TX  | LIC    | PAMPA, TX             | BLTTL20070502AAJ  | 371.7    |
| No  | K35MV-D | D35  | LD  | LIC    | Concho, OK            | BLANK0000060256   | 112.7    |
| No  | K35LO-D | D35  | LD  | CP     | GERONIMO, OK          | BNPDTL20100510AKV | 108.0    |
| No  | KEGG-LP | N35+ | TX  | LIC    | MCALESTER, OK         | BLTT20051017ABG   | 140.3    |
| No  | KEGG-LD | D35  | LD  | CP     | TULSA, OK             | BLANK0000054185   | 159.1    |
| No  | K35MQ-D | D35  | LD  | LIC    | WEATHERFORD, OK       | BLANK0000058429   | 153.4    |
| No  | KDFW    | D35  | DT  | LIC    | DALLAS, TX            | BLCDT20090508AAB  | 244.6    |
| No  | KJBO-LP | D35  | LD  | CP     | WICHITA FALLS, TX     | BLANK0000054871   | 150.1    |
| No  | KJBO-LP | N35  | TX  | LIC    | WICHITA FALLS, TX     | BLTTL19900423JN   | 150.1    |

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D34  
Mask: Full Service  
Latitude: 34 46 10.10 N (NAD83)  
Longitude: 97 17 39.70 W  
Height AMSL: 327.8 m  
HAAT: 32.5 m  
Peak ERP: 15.0 kW  
Antenna: 170.0 deg  
Elev Pattn: Generic

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## Exhibit E-2 - TVStudy Interference Study

50.7 dBu contour:

| Azimuth | ERP     | HAAT   | Distance |
|---------|---------|--------|----------|
| 0.0 deg | 9.94 kW | 21.0 m | 27.7 km  |
| 45.0    | 0.140   | 26.7   | 10.5     |
| 90.0    | 0.127   | 46.1   | 12.5     |
| 135.0   | 0.372   | 56.2   | 18.5     |
| 180.0   | 9.94    | 25.7   | 27.7     |
| 225.0   | 0.140   | 23.3   | 10.5     |
| 270.0   | 0.127   | 18.2   | 10.2     |
| 315.0   | 0.372   | 43.1   | 15.7     |

Database HAAT does not agree with computed HAAT

Database HAAT: 32 m Computed HAAT: 33 m

Distance to Canadian border: 1467.0 km

Distance to Mexican border: 676.3 km

Conditions at FCC monitoring station: Grand Island NE

Bearing: 352.1 degrees Distance: 691.1 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:

Bearing: 312.7 degrees Distance: 917.6 km

Study cell size: 0.50 km

Profile point spacing: 0.50 km

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

Maximum new IX to LPTV: 2.00%

### Interference to BLCDT20060615AAL LIC scenario 1

| Desired:           | Call      | Chan    | Svc       | Status  | City, State       | File Number        | Distance         |
|--------------------|-----------|---------|-----------|---------|-------------------|--------------------|------------------|
|                    | KOCB      | D33     | DT        | LIC     | OKLAHOMA CITY, OK | BLCDT20060615AAL   |                  |
| Undesireds:        | KWRW-LP   | D34     | LD        | APP     | ARDMORE, OK       | BDFCDTL20111205AKH | 88.5 km          |
|                    | KNWA-TV   | D33     | DT        | CP      | ROGERS, AR        | BLANK0000027617    | 332.0            |
|                    | KUVN-DT   | D33     | DT        | CP      | GARLAND, TX       | BLANK0000063068    | 332.5            |
|                    | KMYT-TV   | D34     | DT        | LIC     | TULSA, OK         | BLANK0000067647    | 171.5            |
| Service area       |           |         |           |         | Terrain-limited   | IX-free, before    | IX-free, after   |
| 38634.0            | 1,633,799 | 38261.4 | 1,631,919 | 37869.7 | 1,626,939         | 37804.2            | 1,625,935        |
| Undesired          |           |         |           |         | Total IX          | Unique IX, before  | Unique IX, after |
| KWRW-LP D34 LD APP |           | 70.7    |           | 1,011   |                   | 65.5               | 1,004            |
| KNWA-TV D33 DT CP  |           | 129.1   |           | 853     | 106.3             | 106.3              | 579              |
| KUVN-DT D33 DT CP  |           | 245.2   |           | 3,871   | 234.4             | 3,775              | 229.2            |
| KMYT-TV D34 DT LIC |           | 40.3    |           | 530     | 28.2              | 352                | 3,768            |
|                    |           |         |           |         |                   | 28.2               | 352              |

### Interference to BLCDT20060615AAL LIC scenario 2

| Desired:     | Call      | Chan    | Svc       | Status  | City, State       | File Number        | Distance         |
|--------------|-----------|---------|-----------|---------|-------------------|--------------------|------------------|
|              | KOCB      | D33     | DT        | LIC     | OKLAHOMA CITY, OK | BLCDT20060615AAL   |                  |
| Undesireds:  | KWRW-LP   | D34     | LD        | APP     | ARDMORE, OK       | BDFCDTL20111205AKH | 88.5 km          |
|              | KNWA-TV   | D33     | DT        | CP      | ROGERS, AR        | BLANK0000027617    | 332.0            |
|              | KUVN-DT   | D33     | DT        | BL      | GARLAND, TX       | DTVBL35841         | 332.5            |
|              | KMYT-TV   | D34     | DT        | LIC     | TULSA, OK         | BLANK0000067647    | 171.5            |
| Service area |           |         |           |         | Terrain-limited   | IX-free, before    | IX-free, after   |
| 38634.0      | 1,633,799 | 38261.4 | 1,631,919 | 37895.0 | 1,627,369         | 37829.1            | 1,626,365        |
| Undesired    |           |         |           |         | Total IX          | Unique IX, before  | Unique IX, after |

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## Exhibit E-2 - TVStudy Interference Study

|                    |       |       |       |       |       |
|--------------------|-------|-------|-------|-------|-------|
| KWRW-LP D34 LD APP | 70.7  | 1,011 |       | 66.0  | 1,004 |
| KNWA-TV D33 DT CP  | 129.1 | 853   | 107.3 | 673   | 107.3 |
| KUVN-DT D33 DT BL  | 218.9 | 3,347 | 209.1 | 3,345 | 204.4 |
| KMYT-TV D34 DT LIC | 40.3  | 530   | 28.2  | 352   | 28.2  |

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Interference to BLCDT20060615AAL LIC scenario 3

| Desired:           | Call      | Chan    | Svc       | Status | City, State       | File Number        | Distance          |
|--------------------|-----------|---------|-----------|--------|-------------------|--------------------|-------------------|
|                    | KOCB      | D33     | DT        | LIC    | OKLAHOMA CITY, OK | BLCDT20060615AAL   |                   |
| Undesireds:        | KWRW-LP   | D34     | LD        | APP    | ARDMORE, OK       | BDFCDTL20111205AKH | 88.5 km           |
|                    | KNWA-TV   | D33     | DT        | BL     | ROGERS, AR        | DTVBL29557         | 332.0             |
|                    | KUVN-DT   | D33     | DT        | CP     | GARLAND, TX       | BLANK0000063068    | 332.5             |
|                    | KMYT-TV   | D34     | DT        | LIC    | TULSA, OK         | BLANK0000067647    | 171.5             |
| Service area       |           |         |           |        | Terrain-limited   | IX-free, before    |                   |
| 38634.0            | 1,633,799 | 38261.4 | 1,631,919 |        | 37880.6           | 1,626,943          | 37815.1 1,625,939 |
| Undesired          |           |         |           |        | Total IX          | Unique IX, before  |                   |
| KWRW-LP D34 LD APP |           | 70.7    |           | 1,011  |                   | Unique IX, after   |                   |
| KNWA-TV D33 DT BL  |           | 116.5   |           | 682    | 95.4              | 575                | 65.5 1,004        |
| KUVN-DT D33 DT CP  |           | 245.2   |           | 3,871  | 234.7             | 3,869              | 95.4 575          |
| KMYT-TV D34 DT LIC |           | 40.3    |           | 530    | 29.6              | 425                | 229.4 3,862       |
|                    |           |         |           |        |                   |                    | 29.6 425          |

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Interference to BLCDT20060615AAL LIC scenario 4

| Desired:           | Call      | Chan    | Svc       | Status | City, State       | File Number        | Distance          |
|--------------------|-----------|---------|-----------|--------|-------------------|--------------------|-------------------|
|                    | KOCB      | D33     | DT        | LIC    | OKLAHOMA CITY, OK | BLCDT20060615AAL   |                   |
| Undesireds:        | KWRW-LP   | D34     | LD        | APP    | ARDMORE, OK       | BDFCDTL20111205AKH | 88.5 km           |
|                    | KNWA-TV   | D33     | DT        | BL     | ROGERS, AR        | DTVBL29557         | 332.0             |
|                    | KUVN-DT   | D33     | DT        | BL     | GARLAND, TX       | DTVBL35841         | 332.5             |
|                    | KMYT-TV   | D34     | DT        | LIC    | TULSA, OK         | BLANK0000067647    | 171.5             |
| Service area       |           |         |           |        | Terrain-limited   | IX-free, before    |                   |
| 38634.0            | 1,633,799 | 38261.4 | 1,631,919 |        | 37906.2           | 1,627,467          | 37840.2 1,626,463 |
| Undesired          |           |         |           |        | Total IX          | Unique IX, before  |                   |
| KWRW-LP D34 LD APP |           | 70.7    |           | 1,011  |                   | Unique IX, after   |                   |
| KNWA-TV D33 DT BL  |           | 116.5   |           | 682    | 96.1              | 575                | 66.0 1,004        |
| KUVN-DT D33 DT BL  |           | 218.9   |           | 3,347  | 209.1             | 3,345              | 96.1 575          |
| KMYT-TV D34 DT LIC |           | 40.3    |           | 530    | 29.6              | 425                | 204.4 3,338       |
|                    |           |         |           |        |                   |                    | 29.6 425          |

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Interference to BLANK0000068523 LIC scenario 1

| Desired:           | Call    | Chan   | Svc | Status | City, State       | File Number        | Distance      |
|--------------------|---------|--------|-----|--------|-------------------|--------------------|---------------|
|                    | KCYH-LD | D34    | LD  | LIC    | ARDMORE, OK       | BLANK0000068523    |               |
| Undesireds:        | KWRW-LP | D34    | LD  | APP    | ARDMORE, OK       | BDFCDTL20111205AKH | 65.1 km       |
|                    | KMYT-TV | D34    | DT  | LIC    | TULSA, OK         | BLANK0000067647    | 246.9         |
|                    | KJBO-LP | D35    | LD  | CP     | WICHITA FALLS, TX | BLANK0000054871    | 127.5         |
| Service area       |         |        |     |        | Terrain-limited   | IX-free, before    |               |
| 6224.1             | 81,658  | 5830.2 |     | 78,016 | 5787.8            | 76,951             | 5621.7 75,725 |
| Undesired          |         |        |     |        | Total IX          | Unique IX, before  |               |
| KWRW-LP D34 LD APP |         | 181.4  |     | 1,866  |                   | Unique IX, after   |               |
| KMYT-TV D34 DT LIC |         | 42.4   |     | 1,065  | 42.4              | 1,065              | 166.1 1,226   |
|                    |         |        |     |        |                   |                    | 27.1 425      |

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Interference to proposal scenario 1

| Desired:    | Call    | Chan | Svc | Status | City, State | File Number        | Distance |
|-------------|---------|------|-----|--------|-------------|--------------------|----------|
|             | KWRW-LP | D34  | LD  | APP    | ARDMORE, OK | BDFCDTL20111205AKH |          |
| Undesireds: | KCYH-LD | D34  | LD  | LIC    | ARDMORE, OK | BLANK0000068523    | 65.1 km  |
|             | KMYT-TV | D34  | DT  | LIC    | TULSA, OK   | BLANK0000067647    | 202.3    |

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## Exhibit E-2 - TVStudy Interference Study

| Service area       | Terrain-limited |        | IX-free |           | Percent IX |           |      |
|--------------------|-----------------|--------|---------|-----------|------------|-----------|------|
| 1040.9             | 24,140          | 1039.6 | 24,140  | 1037.6    | 24,137     | 0.19      | 0.01 |
| Undesired          | Total           | IX     |         | Unique IX | Prcnt      | Unique IX |      |
| KCYH-LD D34 LD LIC | 1.8             | 3      |         | 1.0       | 0          | 0.10      | 0.00 |
| KMYT-TV D34 DT LIC | 1.0             | 3      |         | 0.3       | 0          | 0.02      | 0.00 |

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