

# Technical Report Supporting a Minor Modification of a Licensed FM Translator

Pursuant to 47 C.F.R. Section 74:

*for*

*K255CJ.L – Briggs, NE  
(Facility ID: 138732)*

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*Change in Site Location,  
Decrease in COR AMSL Height  
& Increase in Power*

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*as a  
Non-Commercial,  
Regular (non-fill-in)  
FM Translator for  
KHLW(FM) – Tabor, IA*

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**EXPLANATION OF PROPOSAL:** This LMS filing and accompanying technical report supports a Minor Modification of a Licensed Facility (Construction Permit Application) for FM Translator K255CJ.L – Briggs, NE (Facility ID: 138732). A change in site location, decrease in COR AMSL height and increase in power is proposed. Continued operation on the present frequency of CH255D (98.9 MHz) with a non-directional power of 0.075 kW ERP circular polarization (H&V) is requested. The FM Translator will operate from a COR of 484.0 meters AMSL at the new site location. This filing specifies continued rebroadcast of existing FM Primary Station KHLW(FM) – Tabor, IA (CH207C2); Facility ID No. 174613. The Translator will specify continued service to the community of Briggs, NE.

**FACILITY COMPLIANCE SHOWINGS:** The proposed Translator remains in compliance with 47 C.F.R. Section 74.1232 as noted herein. A map of the proposed 60 dBμ service contour in relation to the present 60 dBμ service contour has been included in **Exhibit 1**. The minor change proposed service area will overlap a portion of the presently licensed service area as noted in the exhibit. The proposed Translator 60 dBμ contour lies wholly outside the FM primary 60 dBμ contour; therefore, this facility qualifies as a regular (non-fill-in) Translator. The primary station service contour relationship has been plotted in **Exhibit 2**. Regarding permission to retransmit the Primary Station, KHLW(FM) and K255CJ.P are not under common control of the same licensee. However, prior permission to retransmit KHLW(FM) (FAC ID: 174613) on K255CJ (FAC ID: 138732) was sought and received under current K255CJ License BLFT-20190606AAA (*as notified under an October 6, 2020 Resumption of Operations filing*). No change to the current Primary Station relationship is proposed herein.

The proposed facility will be located on the tower bearing Antenna Structure Registration Number 1223431. In support of this filing, a copy of the ASRN has been included in **Exhibit 3**. A depiction of the tower and antenna configuration has been included in **Exhibit 4**. Further notification to the FAA or ASR governing authorities is not required as this proposal will not increase the overall tower height.

The applicant would like to note use of the NED 03 second terrain database for all allocation, contour and HAAT showings contained herein. A copy of the proposed HAAT calculation, demonstrating compliance with 47 C.F.R. Section 74.1235, has been included in **Exhibit 5**.

The applicant certifies compliance with 47 C.F.R. Section 74.1234 regarding access to the transmitter site, at all hours and in all seasons; and/or providing means to turn on and off, at will, the transmitting apparatus from a point which is readily accessible at all hours and in all seasons. In addition, the transmitter is equipped with suitable automatic circuits which will place it in a non-radiating condition in the absence of a signal on the input channel; with the transmitting apparatus adequately protected against tampering by unauthorized persons.

**ALLOCATION COMPLIANCE SHOWINGS:** The proposed Translator remains in compliance with 47 C.F.R. Section 74.1204 & 74.1205 toward all allocation protection concerns with the exception of KQKQ-FM – Council Bluffs, IA (CH253C0) and K258DC – Omaha, NE (CH258D). A general allocation study for this proposal is found in **Exhibit 6**. There are four (4) additional facilities, existing or proposed, close enough to merit further study. Therefore, a supplemental contour protection study has been provided toward each facility as included in **Exhibit(s) 7(a-d)**.

The applicant would like to note the existence of a 47 C.F.R. Section 74.1204(d) Second/Third Adjacent Channel Given Interference Waiver Request toward KQKQ-FM – Council Bluffs, IA (CH253C0) and K258DC – Omaha, NE (CH258D) as included in **Exhibit 8**. Protection of the worst case calculated 139.3 dBμ F(50:10) Interference Contour, corresponding to the worst case calculated 99.3 dBμ F(50:50) Protected Contour, has been demonstrated through a downward radiation study. Full protection will be afforded all concerns as this area will not reach the ground nor a five meter artificial plane representing a standard two story house when taking into account the downward radiation characteristics of the antenna as supplied by the antenna manufacturer. A copy of the manufacturer's antenna specifications has been included in **Exhibit 9**.

Regarding protection of international concerns, the facility is, and will remain, more than 320 km from the common border between the United States and Canada or Mexico. As a result, no further international protection showings are believed required.

**ENVIRONMENTAL COMPLIANCE SHOWINGS:** The proposed facility complies with the maximum permissible radiofrequency electromagnetic exposure limits for controlled and uncontrolled environments as set forth under §1.1310 and/or §1.1307(b)(3) of the Commission's rules and the RF radiation protection guidelines as set forth in OET Bulletin No. 65 (Edition 97-01), and the accompanying Supplement A, (Edition 97-01). Compliance has been demonstrated in the attached **RF Appendix 1** of this filing. The facility is, or will be, properly marked with signs. Entry is, or will be, restricted by means of fencing, locked doors or gates. In addition, coordination with other users of the site will be secured to reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency electromagnetic fields in excess of FCC guidelines.

Regarding compliance with the NEPA, Nationwide Programmatic Agreement and NHPA Section 106 for tower co-location, compliance with the Agreement is not required where no new tower construction is being proposed and the tower is not being substantially altered. Specifically, compliance is not necessary where only an antenna and feed-line are being added to an existing structure, as here. However, should the Commission determine compliance is necessary, upon notification to the applicant, the applicant will file FCC Form 621.

**CERTIFICATION OF TECHNICAL CONSULTANT:** *I declare, under penalty of perjury, that the contents of this report are true and accurate to the best of my knowledge and belief. I further certify I have over twenty-three years of experience as a broadcast technical consultant before the Federal Communications Commission ("the FCC"); and am familiar with the Code of Federal Regulations Title 47 ("the Rules") as pertaining to this report and its contents herein. The underlying data utilized in this report was taken directly from FCC databases or indirectly through third party software vendors securing data directly from FCC databases. This firm cannot be held liable for errors or omissions resulting from the underlying data. The information contained herein is believed accurate to the date reported below.*



Justin W. Asher  
Technical Consultant  
August 10, 2022

**Exhibit 1**  
**Service Contour Study:**  
**Present vs Proposed Operations**

**K255CJ.L**  
Briggs, NE  
BLFT20190606AAA  
Facility ID: 138732  
Latitude: 41-15-26 N  
Longitude: 095-57-52.10 W  
ERP: 0.062 kW  
Channel: 255D (98.9 MHz)  
AMSL Height: 492.0 m  
Horiz. Pattern: Omni

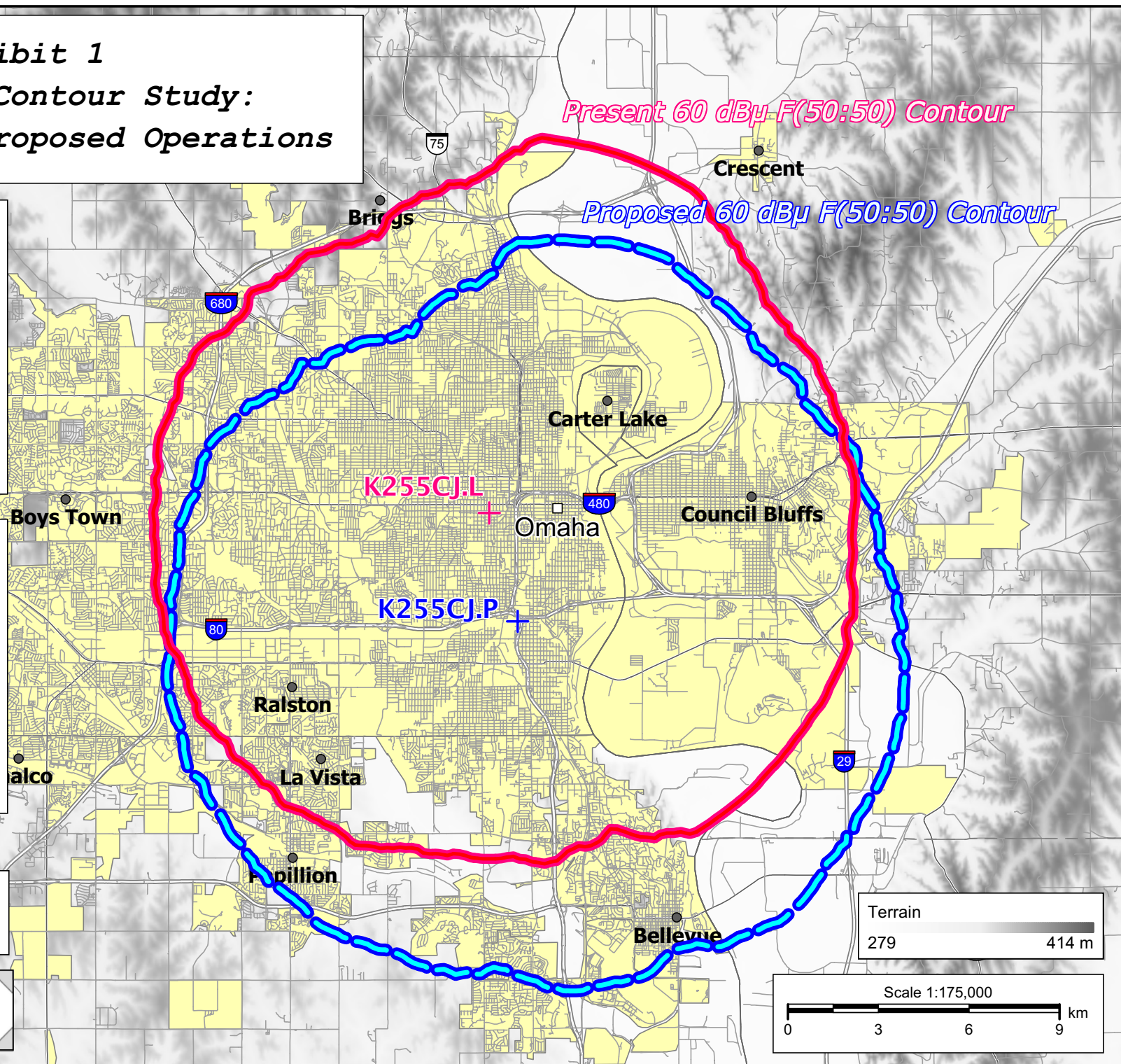
60 dBμ F(50:50) Contour  
Total Population: 430,836  
Total Area: 426.0 sq. km

**K255CJ.P**  
Briggs, NE  
Proposed Operation  
Facility ID: 138732  
Latitude: 41-13-29.60 N  
Longitude: 095-57-11.60 W  
ERP: 0.075 kW  
Channel: 255D (98.9 MHz)  
AMSL Height: 484.0 m  
Horiz. Pattern: Omni

60 dBμ F(50:50) Contour  
Total Population: 443,047  
Total Area: 456.5 sq. km

NED 03 SEC Terrain Database  
US Census 2020 PL Database  
NED 1983 Coordinate Datum

**Asher Broadcast Consulting LLC**  
justinasher@consultant.com  
1 (202) 875-2986





Washington

## Exhibit 2

### Service Contour Study: Proposed vs Primary Operations

*Proposed 60 dBμ F(50:50) Contour*

Douglas

K255CJ.P

Pottawattamie

*Primary 43.5 dBμ F(50:50) Contour*

Sarpy

K255CJ.P  
Briggs, NE  
Proposed Operation  
Facility ID: 138732  
Latitude: 41-13-29.60 N  
Longitude: 095-57-11.60 W  
ERP: 0.075 kW  
Channel: 255D (98.9 MHz)  
AMSL Height: 484.0 m  
Horiz. Pattern: Omni

Cass

Mills

*Primary 60 dBμ F(50:50) Contour*

Fremont

KHLW(FM).L  
Tabor, IA  
BLED20120301ABG  
Facility ID: 174613  
Latitude: 40-34-33 N  
Longitude: 095-34-25 W  
ERP: 50.00 kW  
Channel: 207C2 (89.3 MHz)  
AMSL Height: 422.0 m  
Pattern: Directional

NED 03 SEC Terrain Database  
US Census 2020 PL Database  
NAD 1983 Coordinate Datum

Terrain

265 446 m

Asher Broadcast Consulting LLC  
justinasher@consultant.com  
1 (202) 875-2986



**KHLW(FM).L**

Scale 1:450,000

0 10 20 30 km

# *Exhibit 3*

## *Copy of Existing Antenna Structure Registration*

*(public record copy)*

### Registration Detail

|             |          |             |             |
|-------------|----------|-------------|-------------|
| Reg Number  | 1223431  | Status      | Constructed |
| File Number | A0920777 | Constructed | 03/14/2001  |
| EMI         | No       | Dismantled  |             |
| NEPA        | No       |             |             |

### Antenna Structure

Structure Type TOWER - Free standing or Guyed Structure used for Commu

#### Location (in NAD83 Coordinates)

|             |                            |         |                 |
|-------------|----------------------------|---------|-----------------|
| Lat/Long    | 41-13-29.6 N 095-57-11.6 W | Address | 2808 "B" Street |
| City, State | Omaha , NE                 |         |                 |
| Zip         | 68107                      | County  | DOUGLAS         |

Center of AM Array

Position of Tower in Array

#### Heights (meters)

Elevation of Site Above Mean Sea Level

Overall Height Above Ground (AGL)

363.0

131.0

Overall Height Above Mean Sea Level

Overall Height Above Ground w/o Appurtenances

494.0

121.9

#### Painting and Lighting Specifications

FAA Chapters 4, 8, 12

Paint and Light in Accordance with FAA Circular Number 70/7460-1K

#### FAA Notification

|           |                |                |            |
|-----------|----------------|----------------|------------|
| FAA Study | 01-ACE-2153-OE | FAA Issue Date | 10/05/2001 |
|-----------|----------------|----------------|------------|

#### Owner & Contact Information

|              |            |                   |                           |
|--------------|------------|-------------------|---------------------------|
| FRN          | 0011498342 | Owner Entity Type | Limited Liability Company |
| Assignor FRN | 0009764150 | Assignor ID       | L00759842                 |

#### Owner

Global Tower, LLC. through American Towers, LLC  
Attention To: FAA/FCC Regulatory  
10 Presidential Way  
Woburn , MA 01801

P: (678)564-3236  
F:  
E: faa-fcc@americantower.com

#### Contact

Attention To: FAA/FCC Regulatory  
10 Presidential Way  
Woburn , MA 01801

P: (678)564-3236  
F:  
E: faa-fcc@americantower.com

#### Last Action Status

|         |              |          |            |
|---------|--------------|----------|------------|
| Status  | Constructed  | Received | 09/02/2014 |
| Purpose | Change Owner | Entered  | 09/02/2014 |
| Mode    | Interactive  |          |            |

#### Related Applications

|            |                              |
|------------|------------------------------|
| 09/02/2014 | A0920777 - Change Owner (OC) |
| 08/29/2014 | A0918075 - Change Owner (OC) |
| 05/18/2009 | A0637703 - Admin Update (AU) |

Related applications (8)

#### Comments

##### Comments

None

#### History

##### Date

09/03/2014  
09/03/2014  
09/02/2014  
All History (16)

##### Event

Registration Printed  
Change of Ownership Letter Sent  
Change of Ownership Received

#### Pleadings

| Pleading Type | Filer Name | Description | Date Entered |
|---------------|------------|-------------|--------------|
| None          |            |             |              |

#### Automated Letters

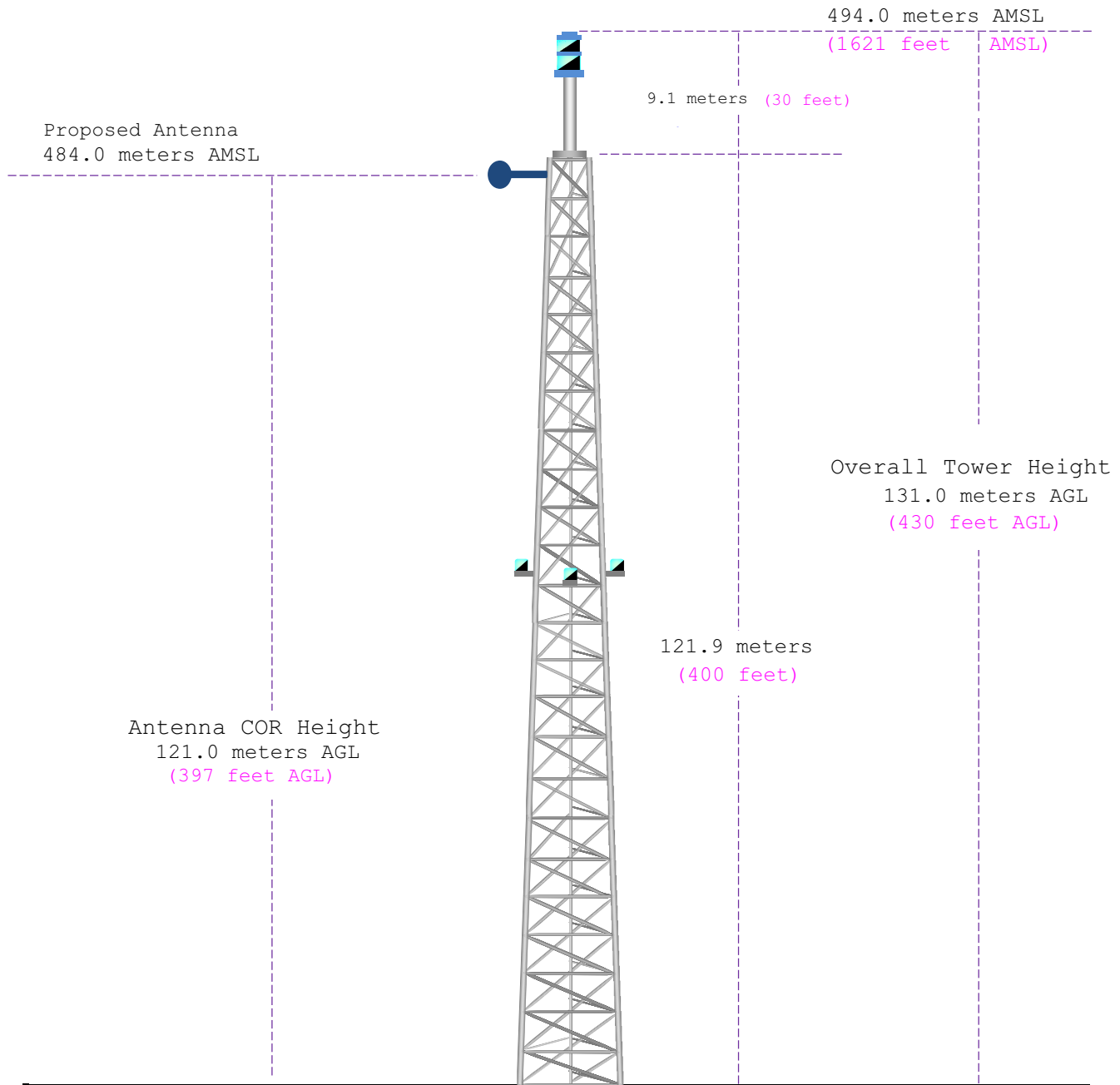
|            |                                    |
|------------|------------------------------------|
| 09/03/2014 | Ownership Change, Reference 822044 |
| 03/29/2005 | Authorization, Reference 415814    |
| 09/15/2004 | Ownership Change, Reference 358754 |

All letters (5)



# Exhibit 4

## Vertical Plan of Antenna System and Support Tower



| Ground Elevation: 363.0 meters AMSL (1191 feet AMSL) |   |   |
|--|---|---|
| Address: 2808 "B" Street                             |   |   |
| City: Omaha  | Latitude (D M S) Longitude (D M S)              |   |
| County: Douglas                                      | ----- (NAD 1927)                                |   |
| State: Nebraska                                      | Lat/Long: 41-13-29.6 N 095-57-11.6 W (NAD 1983) |   |
| Antenna Structure Registration<br>1223431            | Drawing<br>Is Not<br>To Scale                   | Asher Broadcast Consulting, LLC<br>justinasher@consultant.com<br>1(202)875-2986 |

## ***Exhibit 5***

### **HAAT and Miscellaneous Coordinate Information**

#### **HAAT Calculation (NAD 1983):**

N. Lat. = 411329.6    W. Lng. = 955711.6  
 HAAT and Distance to Contour,  
 FCC, FM 2-10 Mi, 51 pts Method - NED 03 SEC

| Azi. | AV EL | HAAT  | ERP kW | dBk    | Field | 60-F5 |
|------|-------|-------|--------|--------|-------|-------|
| 000  | 314.3 | 169.7 | 0.0750 | -11.25 | 1.000 | 12.53 |
| 030  | 313.9 | 170.1 | 0.0750 | -11.25 | 1.000 | 12.55 |
| 060  | 320.6 | 163.4 | 0.0750 | -11.25 | 1.000 | 12.29 |
| 090  | 309.7 | 174.3 | 0.0750 | -11.25 | 1.000 | 12.70 |
| 120  | 302.4 | 181.6 | 0.0750 | -11.25 | 1.000 | 12.95 |
| 150  | 318.8 | 165.2 | 0.0750 | -11.25 | 1.000 | 12.36 |
| 180  | 334.3 | 149.7 | 0.0750 | -11.25 | 1.000 | 11.71 |
| 210  | 329.5 | 154.5 | 0.0750 | -11.25 | 1.000 | 11.92 |
| 240  | 332.2 | 151.8 | 0.0750 | -11.25 | 1.000 | 11.80 |
| 270  | 340.2 | 143.8 | 0.0750 | -11.25 | 1.000 | 11.46 |
| 300  | 333.5 | 150.5 | 0.0750 | -11.25 | 1.000 | 11.75 |
| 330  | 360.6 | 123.4 | 0.0750 | -11.25 | 1.000 | 10.62 |

Ave El= 325.83 M    HAAT= 158.17 M    AMSL= 484.0

#### **NAD 1983 to NAD 1927 Conversion:**

#### **Various Coordinate Conversion Calculations (NAD 1983):**

| Position Type                  | Lat Lon                          |
|--------------------------------|----------------------------------|
| <b>Degrees Lat Long</b>        | 41.2248889°, -095.9532222°       |
| <b>Degrees Minutes</b>         | 41°13.49333', -095°57.19333'     |
| <b>Degrees Minutes Seconds</b> | 41°13'29.6000", -095°57'11.6000" |
| <b>UTM</b>                     | 15T 252461mE 4567928mN           |
| <b>UTM centimeter</b>          | 15T 252461.00mE 4567928.54mN     |
| <b>MGRS</b>                    | 15TTF5246167928                  |
| <b>Grid North</b>              | -1.9°                            |
| <b>GARS</b>                    | 169LY31                          |
| <b>Maidenhead</b>              | EN21AF53OX73                     |
| <b>GEOREF</b>                  | FJKM02801349                     |
| <b>Plus Code</b>               | 86H662FW+XP                      |
| <b>Plus Code Extended</b>      | 86H662FW+XP2HPRH                 |
| <b>what3words</b>              | noise.rates.sushi                |

## ***Exhibit 6***

### ***Tabulation of Proposed Allocation***

Grey Text indicates Allotment (ALO), Reservation (RSV), Deleted (DEL) or the facility to be modified herein. These concerns need not be protected.

Blue Text indicates contour protection studies toward select stations as included in ***Exhibit(s) 7(a-d)***.

Yellow Text denotes the existence of a 47 C.F.R. Section 74.1204(d) Second/Third Adjacent Channel Given Interference Waiver Request as included in ***Exhibit 8***.

|                                      |                |   |     |       |                 |             |         |          |                            |                 |        |
|--------------------------------------|----------------|---|-----|-------|-----------------|-------------|---------|----------|----------------------------|-----------------|--------|
| 397 ft (121.0 m) AGL on ASRN 1223431 |                |   |     |       |                 |             |         |          |                            |                 |        |
| CSN International                    |                |   |     |       |                 |             |         |          |                            |                 |        |
| REFERENCE                            | CH#            | 255D - 98.9 MHz, Pwr= 0.075 kW, HAAT= 0.0 M, COR= 484 M |     |       |                 |             |         |          | DISPLAY DATES              |                 |        |
| 41 13 29.60 N.                       |                | Average Protected F(50-50)= 5.24 km                     |     |       |                 |             |         |          | DATA 08-09-22              |                 |        |
| 95 57 11.60 W.                       |                | Omni-directional  |     |       |                 |             |         |          | SEARCH 08-09-22            |                 |        |
| CH                                   | CALL           | TYPE  | ANT | AZI   | DIST            | LAT         | PWR(kW) | INT (km) | PRO (km)                   | *IN*            | *OUT*  |
| CITY                                 |                | STATE   |     | <--   | FILE #          | LNG         | HAAT(M) | COR (M)  | LICENSEE                   | (Overlap in km) |        |
| 253C0                                | KQKQ-FM        | LIC   | CN  | 325.9 | 11.02           | 41 18 25.00 | 100.000 | 10.6     | 74.7                       | -10.8           | -64.2* |
|                                      | Council Bluffs | IA  |     | 145.8 | BLH20021211AAA  | 96 01 38.10 | 336     | 680      | Nrg License Sub, LLC       |                 |        |
| 255D                                 | K255CJ         | LIC   | CN  | 345.3 | 3.71            | 41 15 26.00 | 0.062   |          | ---Reference---            |                 |        |
|                                      | Briggs         | NE  |     | 165.3 | BLFT20190606AAA | 95 57 52.10 |         | 492      | CSN International          |                 |        |
| 256C1                                | KMA-FM         | LIC   | ZCN | 117.8 | 99.99           | 40 48 04.00 | 100.000 | 106.4    | 73.4                       | -19.4*          | 7.2    |
|                                      | Clarinda       | IA  |     | 298.5 | BLH20100303ACL  | 94 54 06.90 | 299     | 647      | Kmaland Broadcasting, LLC  |                 |        |
| 258D                                 | K258DC         | LIC   | DCN | 0.0   | 0.00            | 41 13 29.60 | 0.250   | 0.2      | 6.3                        | -12.7*          | -6.9*  |
|                                      | Omaha          | NE  |     | 0.0   | BLFT20170306AIV | 95 57 11.60 |         | 461      | Nrg License Sub, LLC       |                 |        |
| 255D                                 | K255DF         | LIC   | DCN | 293.4 | 52.63           | 41 24 40.00 | 0.250   | 44.1     | 11.5                       | 1.3             | 0.3    |
|                                      | Fremont        | NE  |     | 113.0 | BLFT20180116AAF | 96 31 58.10 |         | 487      | Walnut Radio, LLC          |                 |        |
| 257D                                 | K257GW         | CP  | DCN | 222.4 | 20.25           | 41 05 24.80 | 0.250   | 0.6      | 7.9                        | 7.7             | 11.7   |
|                                      | Springfield    | NE  |     | 42.3  | 0000153764      | 96 06 58.00 |         | 403      | My Bridge Radio            |                 |        |
| 257D                                 | K257GW         | CP  | CN  | 231.8 | 20.77           | 41 06 33.00 | 0.250   | 1.1      | 7.5                        | 7.9             | 12.5   |
|                                      | Nebraska City  | NE  |     | 51.7  | BPFT20190829AAK | 96 08 53.10 |         | 368      | My Bridge Radio            |                 |        |
| 257D                                 | K257GW         | LIC   | CN  | 194.8 | 30.10           | 40 57 47.00 | 0.250   | 1.1      | 10.3                       | 17.1            | 19.0   |
|                                      | Nebraska City  | NE  |     | 14.8  | BLFT20190820AAH | 96 02 42.00 |         | 395      | My Bridge Radio            |                 |        |
| 255C3                                | KGRA           | LIC   | CN  | 54.3  | 145.84          | 41 58 53.90 | 11.000  | 103.7    | 38.5                       | 29.8            | 67.2   |
|                                      | Jefferson      | IA  |     | 235.2 | BLH19960111KT   | 94 31 12.90 | 152     | 499      | M&m Broadcasting, Inc.     |                 |        |
| 255D                                 | K255CS         | LIC   | CN  | 232.7 | 81.82           | 40 46 33.00 | 0.180   | 31.3     | 9.2                        | 38.9            | 32.4   |
|                                      | Lincoln        | NE  |     | 52.1  | BLFT20180716ABA | 96 43 33.10 |         | 426      | CSN International          |                 |        |
| 255C1                                | KKPR-FM        | LIC   | CN  | 260.0 | 240.65          | 40 48 53.00 | 100.000 | 163.2    | 64.9                       | 65.7            | 136.3  |
|                                      | Kearney        | NE  |     | 78.2  | BLH19870106KA   | 98 46 13.30 | 191     | 817      | Flood Communications Tri-C |                 |        |
| 257D                                 | K257GN         | LIC   | DCN | 234.1 | 77.89           | 40 48 41.00 | 0.250   | 0.2      | 4.5                        | 65.9            | 71.0   |
|                                      | Lincoln        | NE  |     | 53.6  | 0000150684      | 96 42 10.10 |         | 430      | Nrg License Sub, LLC       |                 |        |
| 258C1                                | KKMA           | LIC   | CN  | 349.8 | 142.05          | 42 28 55.90 | 100.000 | 9.7      | 70.2                       | 120.1           | 71.0   |
|                                      | Le Mars        | IA  |     | 169.6 | BLH19781206AE   | 96 15 31.00 | 241     | 613      | Powell Broadcasting Compan |                 |        |
| 258C1                                | KUTT           | LIC   | CN  | 217.0 | 144.14          | 40 11 05.50 | 100.000 | 8.5      | 65.0                       | 123.7           | 78.5   |
|                                      | Fairbury       | NE  |     | 36.3  | BLH20170214AAC  | 96 58 28.20 | 209     | 633      | Flood Communications Of Be |                 |        |

Terrain database is NED 03 SEC , R= 73.215 qualifying spacings or FCC minimum Spacings in KM, M= Margin in KM  
In & Out distances between contours are shown at closest points. Reference zone= West Zone, Co to 3rd adjacent.  
All separation margins (if shown) include rounding.  
Ant Column: (D= DA Standard, Z= DA 73.215, N= Not DA 73.215, \_= Omni), Polarization (C,H,V,E), Beamtilt(Y,N,X)  
\*\*\*affixed to 'IN' or 'OUT' values = site inside restricted contour.

## Exhibit 7a

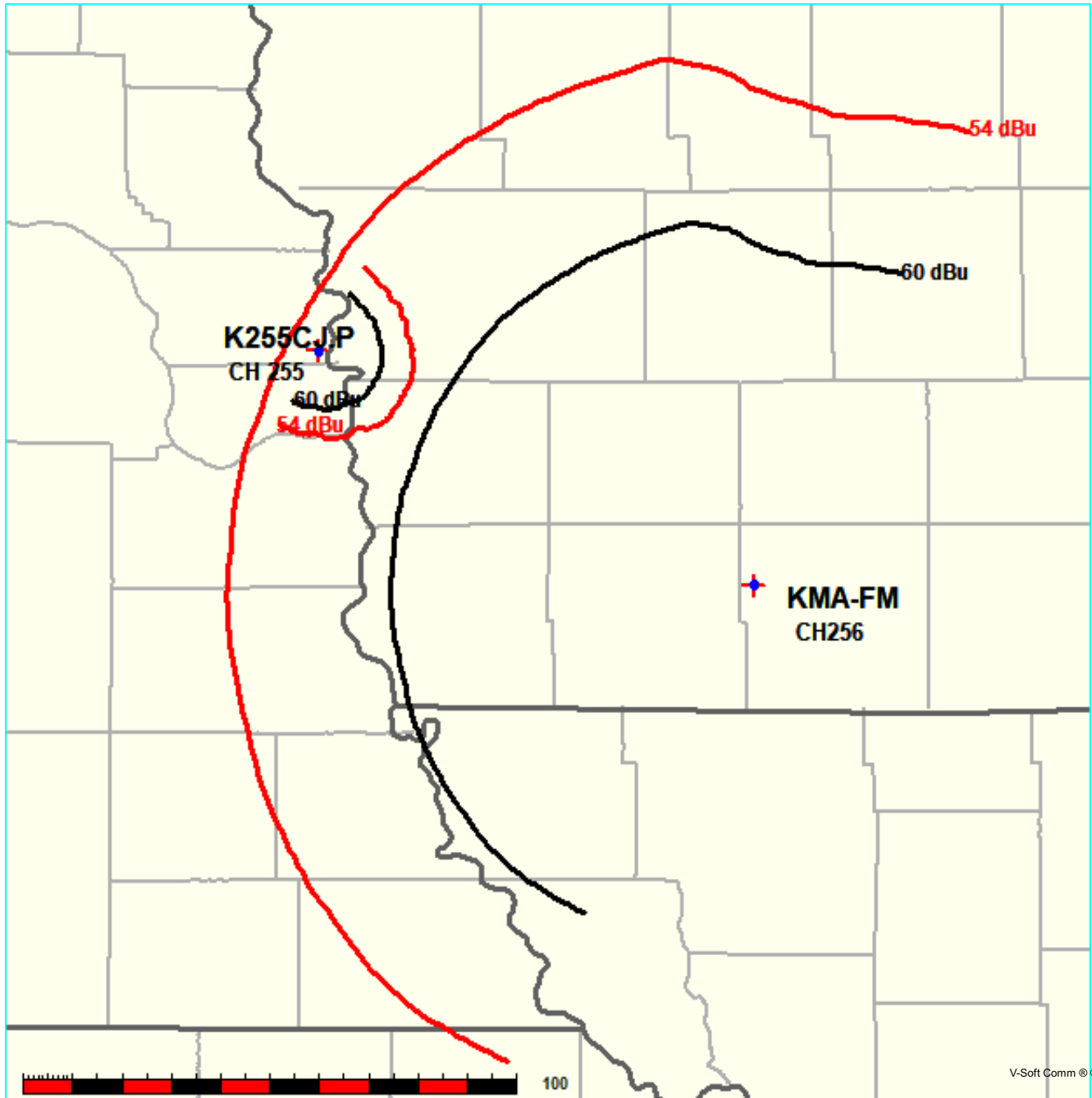
### Contour Protection Studies Toward Select Allocation Concern(s)

397 ft (121.0 m) AGL on ASRN 1223431  
CSN International

FMCommander Single Allocation Study - 08-09-2022 - NED 03 SEC  
K255CJ.P's Overlaps (In= -19.42 km, Out= 7.21 km)

K255CJ.P CH 255 D  
Lat= 41 13 29.60, Lng= 95 57 11.60  
0.075 kW 0 m HAAT, 484 m COR  
Prot.= 60 dBu, Intef.= 54 dBu

KMA-FM CH 256 C1 73.215 Z BLH20100303ACL  
Lat= 40 48 04.00, Lng= 94 54 06.90  
100.0 kW 299 m HAAT, 647 m COR  
Prot.= 60 dBu, Intef.= 54 dBu



# ***Exhibit 7a***

## **Contour Protection Studies Toward Select Allocation Concern(s)**

08-09-2022

Terrain Data: NED 03 SEC

FMOver Analysis

K255CJ.P

KMA-FM BLH20100303ACL

Channel = 255D  
 Max ERP = 0.075 kW  
 RCAMSL = 484 m  
 N. Lat. 41 13 29.60  
 W. Lng. 95 57 11.60  
 Protected  
 60 dBu

Channel = 256C1  
 Max ERP = 100 kW  
 RCAMSL = 647 m  
 N. Lat. 40 48 04.00  
 W. Lng. 94 54 06.90  
 Interfering  
 54 dBu

| Azimuth<br>(degrees) | ERP<br>(kW) | HAAT<br>(m) | Dist<br>(km) | Azimuth<br>(degrees) | ERP<br>(kW) | HAAT<br>(m) | Dist<br>(km) | Actual<br>(dBu) | IX<br>(km) |
|----------------------|-------------|-------------|--------------|----------------------|-------------|-------------|--------------|-----------------|------------|
| 076.0                | 000.0750    | 0164.6      | 012.3        | 303.6                | 100.0000    | 0310.3      | 091.2        | 58.66*          | 14.93      |
| 077.0                | 000.0750    | 0163.5      | 012.3        | 303.5                | 100.0000    | 0310.2      | 091.0        | 58.69*          | 15.04      |
| 078.0                | 000.0750    | 0162.6      | 012.3        | 303.4                | 100.0000    | 0310.1      | 090.9        | 58.73*          | 15.16      |
| 079.0                | 000.0750    | 0161.4      | 012.2        | 303.3                | 100.0000    | 0309.9      | 090.8        | 58.76*          | 15.25      |
| 080.0                | 000.0750    | 0160.1      | 012.2        | 303.2                | 100.0000    | 0309.7      | 090.7        | 58.79*          | 15.34      |
| 081.0                | 000.0750    | 0161.4      | 012.2        | 303.1                | 100.0000    | 0309.7      | 090.5        | 58.84*          | 15.52      |
| 082.0                | 000.0750    | 0165.5      | 012.4        | 303.1                | 100.0000    | 0309.7      | 090.2        | 58.93*          | 15.78      |
| 083.0                | 000.0750    | 0166.0      | 012.4        | 303.0                | 100.0000    | 0309.7      | 090.1        | 58.97*          | 15.93      |
| 084.0                | 000.0750    | 0167.0      | 012.4        | 302.9                | 100.0000    | 0309.7      | 089.9        | 59.03*          | 16.10      |
| 085.0                | 000.0750    | 0169.3      | 012.5        | 302.8                | 100.0000    | 0309.7      | 089.7        | 59.09*          | 16.31      |
| 086.0                | 000.0750    | 0170.7      | 012.6        | 302.7                | 100.0000    | 0309.7      | 089.5        | 59.15*          | 16.48      |
| 087.0                | 000.0750    | 0170.9      | 012.6        | 302.6                | 100.0000    | 0309.6      | 089.4        | 59.18*          | 16.60      |
| 088.0                | 000.0750    | 0169.9      | 012.5        | 302.5                | 100.0000    | 0309.5      | 089.3        | 59.21*          | 16.69      |
| 089.0                | 000.0750    | 0171.8      | 012.6        | 302.4                | 100.0000    | 0309.5      | 089.1        | 59.27*          | 16.86      |
| 090.0                | 000.0750    | 0174.3      | 012.7        | 302.3                | 100.0000    | 0309.4      | 088.9        | 59.33*          | 17.05      |
| 091.0                | 000.0750    | 0175.2      | 012.7        | 302.2                | 100.0000    | 0309.3      | 088.8        | 59.37*          | 17.18      |
| 092.0                | 000.0750    | 0173.7      | 012.7        | 302.0                | 100.0000    | 0309.4      | 088.7        | 59.39*          | 17.25      |
| 093.0                | 000.0750    | 0171.3      | 012.6        | 301.9                | 100.0000    | 0309.5      | 088.7        | 59.40*          | 17.29      |
| 094.0                | 000.0750    | 0173.2      | 012.7        | 301.8                | 100.0000    | 0309.6      | 088.5        | 59.46*          | 17.47      |
| 095.0                | 000.0750    | 0177.5      | 012.8        | 301.7                | 100.0000    | 0309.7      | 088.3        | 59.54*          | 17.71      |
| 096.0                | 000.0750    | 0179.6      | 012.9        | 301.6                | 100.0000    | 0309.7      | 088.1        | 59.59*          | 17.88      |
| 097.0                | 000.0750    | 0179.5      | 012.9        | 301.4                | 100.0000    | 0309.7      | 088.1        | 59.62*          | 17.97      |
| 098.0                | 000.0750    | 0180.6      | 012.9        | 301.3                | 100.0000    | 0309.6      | 087.9        | 59.65*          | 18.08      |
| 099.0                | 000.0750    | 0181.1      | 012.9        | 301.2                | 100.0000    | 0309.6      | 087.8        | 59.68*          | 18.18      |
| 100.0                | 000.0750    | 0181.5      | 013.0        | 301.0                | 100.0000    | 0309.6      | 087.7        | 59.71*          | 18.28      |
| 101.0                | 000.0750    | 0183.0      | 013.0        | 300.9                | 100.0000    | 0309.9      | 087.6        | 59.76*          | 18.42      |
| 102.0                | 000.0750    | 0184.1      | 013.0        | 300.8                | 100.0000    | 0310.2      | 087.5        | 59.80*          | 18.56      |
| 103.0                | 000.0750    | 0185.3      | 013.1        | 300.6                | 100.0000    | 0310.5      | 087.4        | 59.85*          | 18.70      |
| 104.0                | 000.0750    | 0185.5      | 013.1        | 300.5                | 100.0000    | 0310.8      | 087.3        | 59.88*          | 18.80      |
| 105.0                | 000.0750    | 0184.1      | 013.0        | 300.3                | 100.0000    | 0311.2      | 087.3        | 59.90*          | 18.86      |
| 106.0                | 000.0750    | 0184.7      | 013.1        | 300.2                | 100.0000    | 0311.5      | 087.3        | 59.93*          | 18.96      |
| 107.0                | 000.0750    | 0186.2      | 013.1        | 300.1                | 100.0000    | 0311.7      | 087.2        | 59.96*          | 19.08      |
| 108.0                | 000.0750    | 0185.9      | 013.1        | 299.9                | 100.0000    | 0311.8      | 087.1        | 59.98*          | 19.13      |

***Exhibit 7a***  
**Contour Protection Studies Toward Select Allocation Concern(s)**

| Azimuth<br>(degrees) | ERP<br>(kW) | HAAT<br>(m) | Dist<br>(km) | Azimuth<br>(degrees) | ERP<br>(kW) | HAAT<br>(m) | Dist<br>(km) | Actual<br>(dBu) |
|----------------------|-------------|-------------|--------------|----------------------|-------------|-------------|--------------|-----------------|
| 109.0                | 000.0750    | 0187.2      | 013.1        | 299.8                | 100.0000    | 0311.8      | 087.0        | 60.01* 19.22    |
| 110.0                | 000.0750    | 0185.7      | 013.1        | 299.6                | 100.0000    | 0311.8      | 087.0        | 60.00* 19.20    |
| 111.0                | 000.0750    | 0185.6      | 013.1        | 299.5                | 100.0000    | 0311.8      | 087.0        | 60.02* 19.24    |
| 112.0                | 000.0750    | 0186.5      | 013.1        | 299.3                | 100.0000    | 0311.9      | 087.0        | 60.04* 19.31    |
| 113.0                | 000.0750    | 0185.9      | 013.1        | 299.2                | 100.0000    | 0312.1      | 087.0        | 60.04* 19.33    |
| 114.0                | 000.0750    | 0185.9      | 013.1        | 299.0                | 100.0000    | 0312.3      | 086.9        | 60.06* 19.37    |
| 115.0                | 000.0750    | 0185.4      | 013.1        | 298.9                | 100.0000    | 0312.6      | 086.9        | 60.07* 19.40    |
| 116.0                | 000.0750    | 0184.1      | 013.0        | 298.7                | 100.0000    | 0312.8      | 087.0        | 60.06* 19.40    |
| 117.0                | 000.0750    | 0183.2      | 013.0        | 298.6                | 100.0000    | 0312.9      | 087.0        | 60.06* 19.38    |
| 118.0                | 000.0750    | 0183.9      | 013.0        | 298.4                | 100.0000    | 0313.0      | 087.0        | 60.07* 19.42    |
| 119.0                | 000.0750    | 0182.7      | 013.0        | 298.3                | 100.0000    | 0312.9      | 087.0        | 60.05* 19.37    |
| 120.0                | 000.0750    | 0181.6      | 013.0        | 298.1                | 100.0000    | 0312.7      | 087.0        | 60.03* 19.30    |
| 121.0                | 000.0750    | 0183.3      | 013.0        | 298.0                | 100.0000    | 0312.5      | 087.0        | 60.04* 19.32    |
| 122.0                | 000.0750    | 0185.6      | 013.1        | 297.8                | 100.0000    | 0312.4      | 087.0        | 60.05* 19.36    |
| 123.0                | 000.0750    | 0181.9      | 013.0        | 297.7                | 100.0000    | 0312.3      | 087.1        | 60.01* 19.21    |
| 124.0                | 000.0750    | 0186.0      | 013.1        | 297.5                | 100.0000    | 0312.2      | 087.0        | 60.03* 19.30    |
| 125.0                | 000.0750    | 0183.8      | 013.0        | 297.4                | 100.0000    | 0312.1      | 087.1        | 60.00* 19.19    |
| 126.0                | 000.0750    | 0184.8      | 013.1        | 297.2                | 100.0000    | 0311.9      | 087.1        | 60.00* 19.18    |
| 127.0                | 000.0750    | 0183.7      | 013.0        | 297.1                | 100.0000    | 0311.9      | 087.2        | 59.97* 19.09    |
| 128.0                | 000.0750    | 0182.1      | 013.0        | 296.9                | 100.0000    | 0311.7      | 087.3        | 59.93* 18.98    |
| 129.0                | 000.0750    | 0183.7      | 013.0        | 296.8                | 100.0000    | 0311.5      | 087.3        | 59.93* 18.96    |
| 130.0                | 000.0750    | 0185.7      | 013.1        | 296.6                | 100.0000    | 0311.3      | 087.2        | 59.93* 18.95    |
| 131.0                | 000.0750    | 0185.9      | 013.1        | 296.5                | 100.0000    | 0311.3      | 087.3        | 59.91* 18.89    |
| 132.0                | 000.0750    | 0187.4      | 013.1        | 296.3                | 100.0000    | 0311.2      | 087.3        | 59.90* 18.88    |
| 133.0                | 000.0750    | 0188.1      | 013.2        | 296.2                | 100.0000    | 0311.3      | 087.4        | 59.89* 18.83    |
| 134.0                | 000.0750    | 0188.8      | 013.2        | 296.0                | 100.0000    | 0311.4      | 087.4        | 59.88* 18.80    |
| 135.0                | 000.0750    | 0189.1      | 013.2        | 295.9                | 100.0000    | 0311.6      | 087.5        | 59.86* 18.75    |
| 136.0                | 000.0750    | 0188.9      | 013.2        | 295.8                | 100.0000    | 0311.7      | 087.6        | 59.84* 18.67    |
| 137.0                | 000.0750    | 0189.0      | 013.2        | 295.6                | 100.0000    | 0312.0      | 087.6        | 59.82* 18.63    |
| 138.0                | 000.0750    | 0189.1      | 013.2        | 295.5                | 100.0000    | 0312.4      | 087.7        | 59.81* 18.58    |
| 139.0                | 000.0750    | 0188.4      | 013.2        | 295.3                | 100.0000    | 0312.8      | 087.8        | 59.78* 18.51    |
| 140.0                | 000.0750    | 0185.0      | 013.1        | 295.2                | 100.0000    | 0313.0      | 088.0        | 59.73* 18.35    |
| 141.0                | 000.0750    | 0182.5      | 013.0        | 295.1                | 100.0000    | 0313.3      | 088.2        | 59.68* 18.20    |
| 142.0                | 000.0750    | 0181.3      | 012.9        | 295.0                | 100.0000    | 0313.6      | 088.3        | 59.65* 18.09    |
| 143.0                | 000.0750    | 0179.0      | 012.9        | 294.9                | 100.0000    | 0313.8      | 088.5        | 59.60* 17.95    |
| 144.0                | 000.0750    | 0177.5      | 012.8        | 294.8                | 100.0000    | 0314.0      | 088.7        | 59.56* 17.81    |
| 145.0                | 000.0750    | 0175.4      | 012.7        | 294.7                | 100.0000    | 0314.1      | 088.9        | 59.50* 17.65    |
| 146.0                | 000.0750    | 0175.0      | 012.7        | 294.6                | 100.0000    | 0313.9      | 089.0        | 59.46* 17.50    |
| 147.0                | 000.0750    | 0174.8      | 012.7        | 294.5                | 100.0000    | 0313.5      | 089.1        | 59.40* 17.32    |
| 148.0                | 000.0750    | 0173.7      | 012.7        | 294.4                | 100.0000    | 0312.9      | 089.3        | 59.34* 17.10    |
| 149.0                | 000.0750    | 0170.9      | 012.6        | 294.3                | 100.0000    | 0312.4      | 089.5        | 59.25* 16.84    |
| 150.0                | 000.0750    | 0165.2      | 012.4        | 294.2                | 100.0000    | 0312.2      | 089.8        | 59.15* 16.51    |
| 151.0                | 000.0750    | 0161.0      | 012.2        | 294.2                | 100.0000    | 0311.9      | 090.0        | 59.06* 16.22    |
| 152.0                | 000.0750    | 0160.5      | 012.2        | 294.1                | 100.0000    | 0311.5      | 090.2        | 59.00* 16.03    |
| 153.0                | 000.0750    | 0158.7      | 012.1        | 294.0                | 100.0000    | 0311.2      | 090.4        | 58.93* 15.80    |



# ***Exhibit 7a***

## **Contour Protection Studies Toward Select Allocation Concern(s)**

08-09-2022      Terrain Data: NED 03 SEC      FMOver Analysis

KMA-FM    BLH20100303ACL

K255CJ.P

Channel = 256C1  
 Max ERP = 100 kW  
 RCAMSL = 647 m  
 N. Lat. 40 48 04.00  
 W. Lng. 94 54 06.90  
 Protected  
     60 dBu

Channel = 255D  
 Max ERP = 0.075 kW  
 RCAMSL = 484 m  
 N. Lat. 41 13 29.60  
 W. Lng. 95 57 11.60  
 Interfering  
     54 dBu

| Azimuth<br>(degrees) | ERP<br>(kW) | HAAT<br>(m) | Dist<br>(km) | Azimuth<br>(degrees) | ERP<br>(kW) | HAAT<br>(m) | Dist<br>(km) | Actual<br>(dBu) | IX<br>(km) |
|----------------------|-------------|-------------|--------------|----------------------|-------------|-------------|--------------|-----------------|------------|
| 253.0                | 100.0000    | 0319.1      | 073.8        | 165.3                | 000.0750    | 0164.8      | 071.4        | 28.60           |            |
| 254.0                | 100.0000    | 0317.3      | 073.7        | 165.2                | 000.0750    | 0164.8      | 070.1        | 29.03           |            |
| 255.0                | 100.0000    | 0315.8      | 073.6        | 165.1                | 000.0750    | 0164.7      | 068.8        | 29.45           |            |
| 256.0                | 100.0000    | 0316.0      | 073.6        | 165.1                | 000.0750    | 0164.7      | 067.5        | 29.87           |            |
| 257.0                | 100.0000    | 0316.4      | 073.6        | 165.2                | 000.0750    | 0164.8      | 066.2        | 30.30           |            |
| 258.0                | 100.0000    | 0315.5      | 073.5        | 165.1                | 000.0750    | 0164.7      | 064.9        | 30.73           |            |
| 259.0                | 100.0000    | 0315.3      | 073.5        | 165.0                | 000.0750    | 0164.7      | 063.6        | 31.16           |            |
| 260.0                | 100.0000    | 0316.1      | 073.6        | 165.0                | 000.0750    | 0164.7      | 062.4        | 31.60           |            |
| 261.0                | 100.0000    | 0316.6      | 073.6        | 164.9                | 000.0750    | 0164.7      | 061.1        | 32.05           |            |
| 262.0                | 100.0000    | 0317.8      | 073.7        | 164.9                | 000.0750    | 0164.7      | 059.8        | 32.51           |            |
| 263.0                | 100.0000    | 0317.0      | 073.7        | 164.7                | 000.0750    | 0164.8      | 058.5        | 32.98           |            |
| 264.0                | 100.0000    | 0318.0      | 073.7        | 164.5                | 000.0750    | 0164.9      | 057.2        | 33.47           |            |
| 265.0                | 100.0000    | 0317.4      | 073.7        | 164.3                | 000.0750    | 0165.6      | 056.0        | 33.97           |            |
| 266.0                | 100.0000    | 0317.6      | 073.7        | 164.1                | 000.0750    | 0166.3      | 054.7        | 34.48           |            |
| 267.0                | 100.0000    | 0317.6      | 073.7        | 163.8                | 000.0750    | 0166.5      | 053.5        | 34.98           |            |
| 268.0                | 100.0000    | 0317.3      | 073.7        | 163.4                | 000.0750    | 0166.7      | 052.2        | 35.46           |            |
| 269.0                | 100.0000    | 0317.8      | 073.7        | 163.1                | 000.0750    | 0166.6      | 051.0        | 35.94           |            |
| 270.0                | 100.0000    | 0316.5      | 073.6        | 162.6                | 000.0750    | 0166.2      | 049.7        | 36.39           |            |
| 271.0                | 100.0000    | 0316.2      | 073.6        | 162.1                | 000.0750    | 0166.8      | 048.5        | 36.89           |            |
| 272.0                | 100.0000    | 0314.7      | 073.5        | 161.5                | 000.0750    | 0167.7      | 047.3        | 37.40           |            |
| 273.0                | 100.0000    | 0313.5      | 073.4        | 160.9                | 000.0750    | 0167.5      | 046.2        | 37.86           |            |
| 274.0                | 100.0000    | 0312.7      | 073.3        | 160.2                | 000.0750    | 0167.2      | 045.0        | 38.33           |            |
| 275.0                | 100.0000    | 0313.5      | 073.4        | 159.6                | 000.0750    | 0167.1      | 043.8        | 38.83           |            |
| 276.0                | 100.0000    | 0313.0      | 073.4        | 158.8                | 000.0750    | 0165.8      | 042.7        | 39.27           |            |
| 277.0                | 100.0000    | 0314.0      | 073.4        | 158.1                | 000.0750    | 0164.2      | 041.5        | 39.71           |            |
| 278.0                | 100.0000    | 0314.2      | 073.4        | 157.2                | 000.0750    | 0161.5      | 040.4        | 40.10           |            |
| 279.0                | 100.0000    | 0313.9      | 073.4        | 156.3                | 000.0750    | 0159.5      | 039.3        | 40.50           |            |
| 280.0                | 100.0000    | 0313.9      | 073.4        | 155.2                | 000.0750    | 0158.1      | 038.2        | 40.95           |            |
| 281.0                | 100.0000    | 0314.6      | 073.5        | 154.2                | 000.0750    | 0157.3      | 037.1        | 41.43           |            |

***Exhibit 7a***  
**Contour Protection Studies Toward Select Allocation Concern(s)**

| Azimuth<br>(degrees) | ERP<br>(kW) | HAAT<br>(m) | Dist<br>(km) | Azimuth<br>(degrees) | ERP<br>(kW) | HAAT<br>(m) | Dist<br>(km) | Actual<br>(dBu) |
|----------------------|-------------|-------------|--------------|----------------------|-------------|-------------|--------------|-----------------|
| 282.0                | 100.0000    | 0314.5      | 073.5        | 152.9                | 000.0750    | 0158.9      | 036.1        | 42.01           |
| 283.0                | 100.0000    | 0314.9      | 073.5        | 151.7                | 000.0750    | 0161.1      | 035.1        | 42.64           |
| 284.0                | 100.0000    | 0315.6      | 073.5        | 150.3                | 000.0750    | 0163.6      | 034.1        | 43.28           |
| 285.0                | 100.0000    | 0315.3      | 073.5        | 148.8                | 000.0750    | 0171.8      | 033.2        | 44.17           |
| 286.0                | 100.0000    | 0313.2      | 073.4        | 146.9                | 000.0750    | 0174.8      | 032.5        | 44.73           |
| 287.0                | 100.0000    | 0311.0      | 073.2        | 145.0                | 000.0750    | 0175.4      | 031.8        | 45.13           |
| 288.0                | 100.0000    | 0309.7      | 073.1        | 143.0                | 000.0750    | 0178.9      | 031.1        | 45.69           |
| 289.0                | 100.0000    | 0308.4      | 073.0        | 141.0                | 000.0750    | 0182.6      | 030.4        | 46.22           |
| 290.0                | 100.0000    | 0307.9      | 073.0        | 138.9                | 000.0750    | 0188.7      | 029.8        | 46.86           |
| 291.0                | 100.0000    | 0310.7      | 073.2        | 136.9                | 000.0750    | 0188.9      | 029.0        | 47.35           |
| 292.0                | 100.0000    | 0310.7      | 073.2        | 134.6                | 000.0750    | 0189.2      | 028.5        | 47.70           |
| 293.0                | 100.0000    | 0310.6      | 073.2        | 132.1                | 000.0750    | 0187.4      | 028.0        | 47.91           |
| 294.0                | 100.0000    | 0311.1      | 073.2        | 129.7                | 000.0750    | 0185.4      | 027.6        | 48.11           |
| 295.0                | 100.0000    | 0313.6      | 073.4        | 127.2                | 000.0750    | 0183.4      | 027.1        | 48.35           |
| 296.0                | 100.0000    | 0311.5      | 073.2        | 124.4                | 000.0750    | 0185.4      | 027.0        | 48.50           |
| 297.0                | 100.0000    | 0311.8      | 073.3        | 121.7                | 000.0750    | 0185.0      | 026.8        | 48.61           |
| 298.0                | 100.0000    | 0312.5      | 073.3        | 119.0                | 000.0750    | 0182.6      | 026.7        | 48.59           |
| 299.0                | 100.0000    | 0312.4      | 073.3        | 116.3                | 000.0750    | 0183.7      | 026.7        | 48.63           |
| 300.0                | 100.0000    | 0311.7      | 073.3        | 113.5                | 000.0750    | 0185.5      | 026.8        | 48.61           |
| 301.0                | 100.0000    | 0309.7      | 073.1        | 110.9                | 000.0750    | 0185.5      | 027.1        | 48.41           |
| 302.0                | 100.0000    | 0309.4      | 073.1        | 108.3                | 000.0750    | 0185.7      | 027.4        | 48.23           |
| 303.0                | 100.0000    | 0309.7      | 073.1        | 105.7                | 000.0750    | 0184.3      | 027.7        | 47.97           |
| 304.0                | 100.0000    | 0310.5      | 073.2        | 103.2                | 000.0750    | 0185.3      | 028.1        | 47.79           |
| 305.0                | 100.0000    | 0310.7      | 073.2        | 100.8                | 000.0750    | 0182.8      | 028.5        | 47.39           |
| 306.0                | 100.0000    | 0310.6      | 073.2        | 098.5                | 000.0750    | 0181.0      | 029.1        | 46.96           |
| 307.0                | 100.0000    | 0311.3      | 073.2        | 096.2                | 000.0750    | 0179.7      | 029.6        | 46.56           |
| 308.0                | 100.0000    | 0311.5      | 073.2        | 094.1                | 000.0750    | 0173.8      | 030.3        | 45.88           |
| 309.0                | 100.0000    | 0313.9      | 073.4        | 092.0                | 000.0750    | 0173.7      | 030.9        | 45.54           |
| 310.0                | 100.0000    | 0315.2      | 073.5        | 090.0                | 000.0750    | 0174.3      | 031.6        | 45.17           |
| 311.0                | 100.0000    | 0314.9      | 073.5        | 088.3                | 000.0750    | 0170.4      | 032.4        | 44.52           |
| 312.0                | 100.0000    | 0314.3      | 073.5        | 086.7                | 000.0750    | 0171.0      | 033.4        | 44.06           |
| 313.0                | 100.0000    | 0314.9      | 073.5        | 085.2                | 000.0750    | 0169.6      | 034.2        | 43.53           |
| 314.0                | 100.0000    | 0315.6      | 073.5        | 083.7                | 000.0750    | 0166.6      | 035.2        | 42.90           |
| 315.0                | 100.0000    | 0315.4      | 073.5        | 082.4                | 000.0750    | 0166.1      | 036.2        | 42.37           |
| 316.0                | 100.0000    | 0317.2      | 073.7        | 081.0                | 000.0750    | 0161.5      | 037.1        | 41.66           |
| 317.0                | 100.0000    | 0316.4      | 073.6        | 080.0                | 000.0750    | 0160.1      | 038.2        | 41.05           |
| 318.0                | 100.0000    | 0315.3      | 073.5        | 079.1                | 000.0750    | 0161.2      | 039.3        | 40.57           |
| 319.0                | 100.0000    | 0314.5      | 073.5        | 078.2                | 000.0750    | 0162.4      | 040.5        | 40.11           |
| 320.0                | 100.0000    | 0313.5      | 073.4        | 077.4                | 000.0750    | 0163.2      | 041.6        | 39.61           |
| 321.0                | 100.0000    | 0312.1      | 073.3        | 076.7                | 000.0750    | 0163.7      | 042.8        | 39.11           |
| 322.0                | 100.0000    | 0310.7      | 073.2        | 076.1                | 000.0750    | 0164.5      | 044.0        | 38.62           |
| 323.0                | 100.0000    | 0311.4      | 073.2        | 075.4                | 000.0750    | 0163.8      | 045.2        | 38.10           |
| 324.0                | 100.0000    | 0311.2      | 073.2        | 074.8                | 000.0750    | 0163.6      | 046.3        | 37.60           |
| 325.0                | 100.0000    | 0311.0      | 073.2        | 074.3                | 000.0750    | 0163.7      | 047.5        | 37.12           |
| 326.0                | 100.0000    | 0310.2      | 073.1        | 073.9                | 000.0750    | 0164.5      | 048.8        | 36.68           |

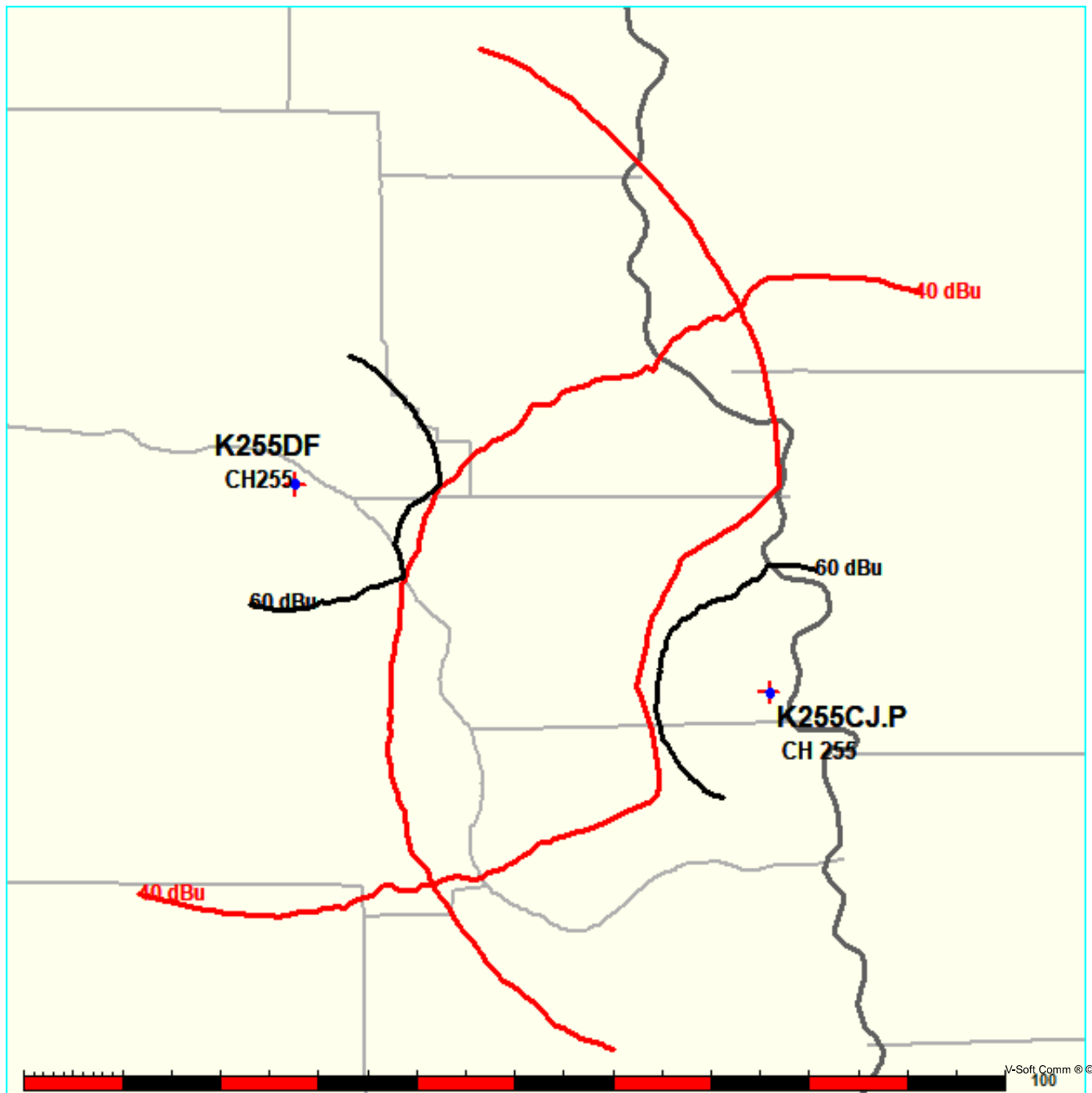
***Exhibit 7b***  
**Contour Protection Studies Toward Select Allocation Concern(s)**

397 ft (121.0 m) AGL on ASRN 1223431  
CSN International

FMCommander Single Allocation Study - 08-09-2022 - NED 03 SEC  
K255CJ.P's Overlaps (In= 1.35 km, Out= 0.27 km)

K255CJ.P CH 255 D  
Lat= 41 13 29.60, Lng= 95 57 11.60  
0.075 kW 0 m HAAT, 484 m COR  
Prot.= 60 dBu, Intef.= 40 dBu

K255DF CH 255 D DA BLFT20180116AAF  
Lat= 41 24 40.00, Lng= 96 31 58.10  
0.25 kW 0 m HAAT, 487 m COR  
Prot.= 60 dBu, Intef.= 40 dBu



# ***Exhibit 7b***

## **Contour Protection Studies Toward Select Allocation Concern(s)**

08-09-2022

Terrain Data: NED 03 SEC

FMOVer Analysis

K255CJ.P

K255DF BLFT20180116AAF

Channel = 255D  
 Max ERP = 0.075 kW  
 RCAMSL = 484 m  
 N. Lat. 41 13 29.60  
 W. Lng. 95 57 11.60  
 Protected  
 60 dBu

Channel = 255D  
 Max ERP = 0.25 kW  
 RCAMSL = 487 m  
 N. Lat. 41 24 40.00  
 W. Lng. 96 31 58.10  
 Interfering  
 40 dBu

| Azimuth<br>(degrees) | ERP<br>(kW) | HAAT<br>(m) | Dist<br>(km) | Azimuth<br>(degrees) | ERP<br>(kW) | HAAT<br>(m) | Dist<br>(km) | Actual<br>(dBu) | IX<br>(km) |
|----------------------|-------------|-------------|--------------|----------------------|-------------|-------------|--------------|-----------------|------------|
| 251.0                | 000.0750    | 0150.2      | 011.7        | 123.2                | 000.1447    | 0130.0      | 044.7        | 39.39           |            |
| 252.0                | 000.0750    | 0149.2      | 011.7        | 123.0                | 000.1420    | 0130.1      | 044.5        | 39.37           |            |
| 253.0                | 000.0750    | 0149.3      | 011.7        | 122.8                | 000.1398    | 0130.3      | 044.4        | 39.38           |            |
| 254.0                | 000.0750    | 0150.6      | 011.8        | 122.7                | 000.1383    | 0130.5      | 044.2        | 39.42           |            |
| 255.0                | 000.0750    | 0150.3      | 011.7        | 122.5                | 000.1359    | 0130.6      | 044.0        | 39.41           |            |
| 256.0                | 000.0750    | 0151.0      | 011.8        | 122.3                | 000.1339    | 0130.7      | 043.9        | 39.42           |            |
| 257.0                | 000.0750    | 0151.3      | 011.8        | 122.2                | 000.1317    | 0130.7      | 043.7        | 39.42           |            |
| 258.0                | 000.0750    | 0151.2      | 011.8        | 122.0                | 000.1292    | 0130.7      | 043.6        | 39.40           |            |
| 259.0                | 000.0750    | 0150.9      | 011.8        | 121.8                | 000.1266    | 0130.7      | 043.4        | 39.37           |            |
| 260.0                | 000.0750    | 0151.1      | 011.8        | 121.6                | 000.1242    | 0130.8      | 043.3        | 39.35           |            |
| 261.0                | 000.0750    | 0150.7      | 011.8        | 121.3                | 000.1215    | 0130.8      | 043.2        | 39.31           |            |
| 262.0                | 000.0750    | 0149.8      | 011.7        | 121.1                | 000.1186    | 0130.8      | 043.1        | 39.25           |            |
| 263.0                | 000.0750    | 0148.5      | 011.7        | 120.9                | 000.1155    | 0130.8      | 043.0        | 39.17           |            |
| 264.0                | 000.0750    | 0146.5      | 011.6        | 120.6                | 000.1122    | 0130.8      | 042.9        | 39.06           |            |
| 265.0                | 000.0750    | 0146.2      | 011.6        | 120.3                | 000.1095    | 0130.8      | 042.8        | 39.00           |            |
| 266.0                | 000.0750    | 0145.5      | 011.5        | 120.1                | 000.1067    | 0130.7      | 042.7        | 38.93           |            |
| 267.0                | 000.0750    | 0145.3      | 011.5        | 119.9                | 000.1054    | 0130.7      | 042.6        | 38.92           |            |
| 268.0                | 000.0750    | 0144.9      | 011.5        | 119.6                | 000.1050    | 0130.7      | 042.5        | 38.94           |            |
| 269.0                | 000.0750    | 0144.1      | 011.5        | 119.4                | 000.1046    | 0130.7      | 042.5        | 38.96           |            |
| 270.0                | 000.0750    | 0143.8      | 011.5        | 119.1                | 000.1042    | 0130.6      | 042.4        | 38.98           |            |
| 271.0                | 000.0750    | 0143.8      | 011.5        | 118.9                | 000.1038    | 0130.6      | 042.3        | 39.00           |            |
| 272.0                | 000.0750    | 0143.6      | 011.5        | 118.6                | 000.1034    | 0130.6      | 042.2        | 39.02           |            |
| 273.0                | 000.0750    | 0144.9      | 011.5        | 118.4                | 000.1031    | 0130.5      | 042.0        | 39.06           |            |
| 274.0                | 000.0750    | 0145.4      | 011.5        | 118.2                | 000.1027    | 0130.4      | 041.9        | 39.09           |            |
| 275.0                | 000.0750    | 0143.6      | 011.5        | 117.9                | 000.1022    | 0130.3      | 041.9        | 39.07           |            |
| 276.0                | 000.0750    | 0143.0      | 011.4        | 117.6                | 000.1018    | 0130.4      | 041.9        | 39.08           |            |
| 277.0                | 000.0750    | 0143.0      | 011.4        | 117.4                | 000.1014    | 0130.3      | 041.8        | 39.09           |            |
| 278.0                | 000.0750    | 0141.9      | 011.4        | 117.1                | 000.1010    | 0130.3      | 041.8        | 39.08           |            |
| 279.0                | 000.0750    | 0142.2      | 011.4        | 116.9                | 000.1006    | 0130.3      | 041.7        | 39.09           |            |
| 280.0                | 000.0750    | 0141.5      | 011.4        | 116.6                | 000.1001    | 0130.2      | 041.7        | 39.08           |            |
| 281.0                | 000.0750    | 0142.5      | 011.4        | 116.3                | 000.0998    | 0130.2      | 041.6        | 39.11           |            |
| 282.0                | 000.0750    | 0143.3      | 011.4        | 116.1                | 000.0994    | 0130.2      | 041.5        | 39.13           |            |
| 283.0                | 000.0750    | 0143.8      | 011.5        | 115.8                | 000.0989    | 0130.2      | 041.4        | 39.14           |            |

## ***Exhibit 7b***

### **Contour Protection Studies Toward Select Allocation Concern(s)**

| Azimuth<br>(degrees) | ERP<br>(kW) | HAAT<br>(m) | Dist<br>(km) | Azimuth<br>(degrees) | ERP<br>(kW) | HAAT<br>(m) | Dist<br>(km) | Actual<br>(dBu) |
|----------------------|-------------|-------------|--------------|----------------------|-------------|-------------|--------------|-----------------|
| 284.0                | 000.0750    | 0145.2      | 011.5        | 115.6                | 000.0985    | 0130.2      | 041.3        | 39.17           |
| 285.0                | 000.0750    | 0146.0      | 011.6        | 115.3                | 000.0981    | 0130.2      | 041.2        | 39.18           |
| 286.0                | 000.0750    | 0147.6      | 011.6        | 115.0                | 000.0977    | 0130.2      | 041.1        | 39.21           |
| 287.0                | 000.0750    | 0146.5      | 011.6        | 114.8                | 000.0973    | 0130.2      | 041.2        | 39.18           |
| 288.0                | 000.0750    | 0146.2      | 011.6        | 114.5                | 000.0968    | 0130.3      | 041.1        | 39.17           |
| 289.0                | 000.0750    | 0146.2      | 011.6        | 114.2                | 000.0964    | 0130.3      | 041.1        | 39.17           |
| 290.0                | 000.0750    | 0146.0      | 011.6        | 113.9                | 000.0960    | 0130.4      | 041.1        | 39.15           |
| 291.0                | 000.0750    | 0144.3      | 011.5        | 113.6                | 000.0955    | 0130.4      | 041.2        | 39.11           |
| 292.0                | 000.0750    | 0143.7      | 011.5        | 113.3                | 000.0951    | 0130.4      | 041.2        | 39.08           |
| 293.0                | 000.0750    | 0145.8      | 011.5        | 113.1                | 000.0947    | 0130.4      | 041.1        | 39.10           |
| 294.0                | 000.0750    | 0145.9      | 011.6        | 112.8                | 000.0942    | 0130.5      | 041.1        | 39.09           |
| 295.0                | 000.0750    | 0146.9      | 011.6        | 112.5                | 000.0938    | 0130.6      | 041.1        | 39.09           |
| 296.0                | 000.0750    | 0148.4      | 011.7        | 112.2                | 000.0934    | 0130.6      | 041.0        | 39.10           |
| 297.0                | 000.0750    | 0149.8      | 011.7        | 111.9                | 000.0929    | 0130.6      | 040.9        | 39.10           |
| 298.0                | 000.0750    | 0148.9      | 011.7        | 111.6                | 000.0925    | 0130.7      | 041.0        | 39.05           |
| 299.0                | 000.0750    | 0149.9      | 011.7        | 111.4                | 000.0920    | 0130.7      | 041.0        | 39.04           |
| 300.0                | 000.0750    | 0150.5      | 011.8        | 111.1                | 000.0916    | 0130.7      | 041.0        | 39.02           |
| 301.0                | 000.0750    | 0149.7      | 011.7        | 110.8                | 000.0912    | 0130.8      | 041.1        | 38.98           |
| 302.0                | 000.0750    | 0148.8      | 011.7        | 110.5                | 000.0908    | 0130.9      | 041.1        | 38.93           |
| 303.0                | 000.0750    | 0146.7      | 011.6        | 110.3                | 000.0904    | 0131.0      | 041.3        | 38.86           |
| 304.0                | 000.0750    | 0144.0      | 011.5        | 110.0                | 000.0901    | 0131.0      | 041.4        | 38.77           |
| 305.0                | 000.0750    | 0144.3      | 011.5        | 109.8                | 000.0904    | 0131.1      | 041.5        | 38.78           |
| 306.0                | 000.0750    | 0144.2      | 011.5        | 109.5                | 000.0908    | 0131.0      | 041.5        | 38.77           |
| 307.0                | 000.0750    | 0143.2      | 011.4        | 109.3                | 000.0911    | 0131.1      | 041.6        | 38.74           |
| 308.0                | 000.0750    | 0142.5      | 011.4        | 109.0                | 000.0915    | 0131.1      | 041.7        | 38.72           |
| 309.0                | 000.0750    | 0143.1      | 011.4        | 108.7                | 000.0919    | 0131.1      | 041.7        | 38.72           |
| 310.0                | 000.0750    | 0138.9      | 011.3        | 108.6                | 000.0922    | 0131.1      | 042.0        | 38.63           |
| 311.0                | 000.0750    | 0137.2      | 011.2        | 108.4                | 000.0925    | 0131.0      | 042.1        | 38.59           |
| 312.0                | 000.0750    | 0136.5      | 011.2        | 108.1                | 000.0928    | 0131.0      | 042.2        | 38.56           |
| 313.0                | 000.0750    | 0133.7      | 011.0        | 107.9                | 000.0931    | 0130.9      | 042.4        | 38.48           |
| 314.0                | 000.0750    | 0132.5      | 011.0        | 107.7                | 000.0934    | 0130.9      | 042.5        | 38.44           |
| 315.0                | 000.0750    | 0130.9      | 010.9        | 107.6                | 000.0937    | 0130.9      | 042.7        | 38.39           |
| 316.0                | 000.0750    | 0129.5      | 010.9        | 107.4                | 000.0940    | 0130.9      | 042.8        | 38.35           |
| 317.0                | 000.0750    | 0131.4      | 010.9        | 107.1                | 000.0944    | 0130.8      | 042.8        | 38.35           |
| 318.0                | 000.0750    | 0132.1      | 011.0        | 106.8                | 000.0948    | 0130.8      | 042.9        | 38.34           |
| 319.0                | 000.0750    | 0134.1      | 011.1        | 106.6                | 000.0952    | 0130.8      | 042.9        | 38.34           |
| 320.0                | 000.0750    | 0136.4      | 011.2        | 106.3                | 000.0957    | 0130.8      | 043.0        | 38.35           |
| 321.0                | 000.0750    | 0132.6      | 011.0        | 106.2                | 000.0958    | 0130.8      | 043.2        | 38.26           |
| 322.0                | 000.0750    | 0128.5      | 010.8        | 106.1                | 000.0959    | 0130.7      | 043.5        | 38.16           |
| 323.0                | 000.0750    | 0125.5      | 010.7        | 106.0                | 000.0961    | 0130.7      | 043.7        | 38.07           |
| 324.0                | 000.0750    | 0127.8      | 010.8        | 105.7                | 000.0965    | 0130.7      | 043.7        | 38.08           |
| 325.0                | 000.0750    | 0128.5      | 010.8        | 105.5                | 000.0968    | 0130.7      | 043.8        | 38.05           |
| 326.0                | 000.0750    | 0127.1      | 010.8        | 105.4                | 000.0971    | 0130.7      | 044.0        | 37.99           |
| 327.0                | 000.0750    | 0126.2      | 010.7        | 105.2                | 000.0973    | 0130.7      | 044.1        | 37.94           |
| 328.0                | 000.0750    | 0124.6      | 010.7        | 105.1                | 000.0975    | 0130.7      | 044.3        | 37.88           |

# ***Exhibit 7b***

## **Contour Protection Studies Toward Select Allocation Concern(s)**

08-09-2022

Terrain Data: NED 03 SEC

FMOver Analysis

K255DF BLFT20180116AAF

K255CJ.P

Channel = 255D

Max ERP = 0.25 kW

RCAMSL = 487 m

N. Lat. 41 24 40.00

W. Lng. 96 31 58.10

Protected

60 dBu

Channel = 255D

Max ERP = 0.075 kW

RCAMSL = 484 m

N. Lat. 41 13 29.60

W. Lng. 95 57 11.60

Interfering

40 dBu

| Azimuth<br>(degrees) | ERP<br>(kW) | HAAT<br>(m) | Dist<br>(km) | Azimuth<br>(degrees) | ERP<br>(kW) | HAAT<br>(m) | Dist<br>(km) | Actual<br>(dBu) | IX<br>(km) |
|----------------------|-------------|-------------|--------------|----------------------|-------------|-------------|--------------|-----------------|------------|
| 068.0                | 000.2500    | 0127.2      | 014.5        | 306.9                | 000.0750    | 0143.4      | 043.6        | 37.70           |            |
| 069.0                | 000.2500    | 0127.5      | 014.5        | 306.8                | 000.0750    | 0143.7      | 043.4        | 37.81           |            |
| 070.0                | 000.2500    | 0127.6      | 014.5        | 306.6                | 000.0750    | 0144.0      | 043.2        | 37.93           |            |
| 071.0                | 000.2500    | 0128.7      | 014.6        | 306.5                | 000.0750    | 0144.2      | 042.9        | 38.04           |            |
| 072.0                | 000.2500    | 0129.4      | 014.6        | 306.3                | 000.0750    | 0144.3      | 042.7        | 38.15           |            |
| 073.0                | 000.2500    | 0129.8      | 014.6        | 306.1                | 000.0750    | 0144.3      | 042.5        | 38.24           |            |
| 074.0                | 000.2500    | 0130.2      | 014.7        | 305.9                | 000.0750    | 0144.2      | 042.3        | 38.34           |            |
| 075.0                | 000.2500    | 0130.2      | 014.7        | 305.7                | 000.0750    | 0144.2      | 042.1        | 38.42           |            |
| 076.0                | 000.2500    | 0130.5      | 014.7        | 305.5                | 000.0750    | 0144.1      | 041.9        | 38.51           |            |
| 077.0                | 000.2500    | 0130.6      | 014.7        | 305.3                | 000.0750    | 0144.2      | 041.7        | 38.60           |            |
| 078.0                | 000.2500    | 0130.8      | 014.7        | 305.1                | 000.0750    | 0144.3      | 041.5        | 38.69           |            |
| 079.0                | 000.2500    | 0130.9      | 014.7        | 304.8                | 000.0750    | 0144.2      | 041.3        | 38.78           |            |
| 080.0                | 000.2500    | 0130.9      | 014.7        | 304.6                | 000.0750    | 0144.2      | 041.1        | 38.86           |            |
| 081.0                | 000.2500    | 0131.0      | 014.7        | 304.3                | 000.0750    | 0144.0      | 040.9        | 38.93           |            |
| 082.0                | 000.2500    | 0131.2      | 014.7        | 304.1                | 000.0750    | 0143.9      | 040.7        | 39.00           |            |
| 083.0                | 000.2500    | 0131.3      | 014.7        | 303.8                | 000.0750    | 0144.1      | 040.6        | 39.09           |            |
| 084.0                | 000.2500    | 0131.4      | 014.7        | 303.5                | 000.0750    | 0144.7      | 040.4        | 39.20           |            |
| 085.0                | 000.2500    | 0131.6      | 014.7        | 303.2                | 000.0750    | 0145.7      | 040.2        | 39.33           |            |
| 086.0                | 000.2500    | 0131.6      | 014.7        | 303.0                | 000.0750    | 0146.9      | 040.1        | 39.47           |            |
| 087.0                | 000.2500    | 0131.6      | 014.7        | 302.7                | 000.0750    | 0148.4      | 039.9        | 39.62           |            |
| 088.0                | 000.2500    | 0131.6      | 014.7        | 302.4                | 000.0750    | 0148.9      | 039.8        | 39.72           |            |
| 089.0                | 000.2500    | 0131.6      | 014.7        | 302.0                | 000.0750    | 0148.8      | 039.6        | 39.78           |            |
| 090.0                | 000.2500    | 0131.6      | 014.7        | 301.7                | 000.0750    | 0148.8      | 039.5        | 39.84           |            |
| 091.0                | 000.2328    | 0131.6      | 014.5        | 301.2                | 000.0750    | 0149.4      | 039.6        | 39.82           |            |
| 092.0                | 000.2162    | 0131.6      | 014.2        | 300.7                | 000.0750    | 0149.9      | 039.7        | 39.80           |            |
| 093.0                | 000.2003    | 0131.6      | 013.9        | 300.2                | 000.0750    | 0150.3      | 039.8        | 39.76           |            |
| 094.0                | 000.1849    | 0131.4      | 013.6        | 299.7                | 000.0750    | 0150.9      | 040.0        | 39.72           |            |
| 095.0                | 000.1702    | 0131.4      | 013.3        | 299.2                | 000.0750    | 0150.5      | 040.2        | 39.63           |            |
| 096.0                | 000.1560    | 0131.3      | 013.1        | 298.8                | 000.0750    | 0149.4      | 040.3        | 39.49           |            |
| 097.0                | 000.1425    | 0131.0      | 012.8        | 298.3                | 000.0750    | 0148.9      | 040.5        | 39.37           |            |
| 098.0                | 000.1296    | 0130.9      | 012.5        | 297.9                | 000.0750    | 0148.9      | 040.7        | 39.28           |            |
| 099.0                | 000.1173    | 0130.9      | 012.2        | 297.5                | 000.0750    | 0149.4      | 040.9        | 39.21           |            |
| 100.0                | 000.1056    | 0131.1      | 011.9        | 297.1                | 000.0750    | 0149.8      | 041.2        | 39.13           |            |



## ***Exhibit 7b***

### ***Contour Protection Studies Toward Select Allocation Concern(s)***

| Azimuth<br>(degrees) | ERP<br>(kW) | HAAT<br>(m) | Dist<br>(km) | Azimuth<br>(degrees) | ERP<br>(kW) | HAAT<br>(m) | Dist<br>(km) | Actual<br>(dBu) |
|----------------------|-------------|-------------|--------------|----------------------|-------------|-------------|--------------|-----------------|
| 101.0                | 000.1040    | 0131.1      | 011.8        | 296.8                | 000.0750    | 0149.7      | 041.1        | 39.13           |
| 102.0                | 000.1024    | 0131.1      | 011.8        | 296.5                | 000.0750    | 0149.6      | 041.1        | 39.13           |
| 103.0                | 000.1008    | 0131.0      | 011.7        | 296.2                | 000.0750    | 0149.0      | 041.1        | 39.10           |
| 104.0                | 000.0992    | 0130.9      | 011.7        | 295.9                | 000.0750    | 0148.0      | 041.1        | 39.04           |
| 105.0                | 000.0977    | 0130.8      | 011.6        | 295.6                | 000.0750    | 0147.2      | 041.2        | 38.99           |
| 106.0                | 000.0961    | 0130.7      | 011.6        | 295.3                | 000.0750    | 0146.8      | 041.2        | 38.97           |
| 107.0                | 000.0946    | 0130.8      | 011.5        | 295.0                | 000.0750    | 0146.9      | 041.2        | 38.96           |
| 108.0                | 000.0930    | 0130.9      | 011.5        | 294.7                | 000.0750    | 0146.8      | 041.2        | 38.95           |
| 109.0                | 000.0915    | 0131.1      | 011.5        | 294.5                | 000.0750    | 0146.4      | 041.2        | 38.92           |
| 110.0                | 000.0900    | 0131.0      | 011.4        | 294.2                | 000.0750    | 0146.0      | 041.2        | 38.89           |
| 111.0                | 000.0915    | 0130.7      | 011.4        | 293.9                | 000.0750    | 0145.9      | 041.2        | 38.90           |
| 112.0                | 000.0930    | 0130.6      | 011.5        | 293.6                | 000.0750    | 0145.8      | 041.2        | 38.92           |
| 113.0                | 000.0946    | 0130.4      | 011.5        | 293.3                | 000.0750    | 0145.8      | 041.1        | 38.93           |
| 114.0                | 000.0961    | 0130.4      | 011.6        | 293.1                | 000.0750    | 0145.8      | 041.1        | 38.95           |
| 115.0                | 000.0977    | 0130.2      | 011.6        | 292.8                | 000.0750    | 0145.4      | 041.0        | 38.95           |
| 116.0                | 000.0992    | 0130.2      | 011.7        | 292.5                | 000.0750    | 0144.6      | 041.0        | 38.92           |
| 117.0                | 000.1008    | 0130.3      | 011.7        | 292.2                | 000.0750    | 0143.9      | 041.0        | 38.89           |
| 118.0                | 000.1024    | 0130.3      | 011.7        | 291.9                | 000.0750    | 0143.7      | 040.9        | 38.90           |
| 119.0                | 000.1040    | 0130.6      | 011.8        | 291.6                | 000.0750    | 0143.8      | 040.9        | 38.91           |
| 120.0                | 000.1056    | 0130.7      | 011.9        | 291.3                | 000.0750    | 0143.8      | 040.9        | 38.92           |
| 121.0                | 000.1173    | 0130.8      | 012.2        | 291.0                | 000.0750    | 0144.4      | 040.6        | 39.07           |
| 122.0                | 000.1296    | 0130.7      | 012.5        | 290.6                | 000.0750    | 0145.2      | 040.4        | 39.23           |
| 123.0                | 000.1425    | 0130.1      | 012.7        | 290.2                | 000.0750    | 0145.9      | 040.2        | 39.37           |
| 124.0                | 000.1560    | 0129.6      | 013.0        | 289.8                | 000.0750    | 0146.1      | 040.0        | 39.47           |
| 125.0                | 000.1702    | 0129.3      | 013.2        | 289.4                | 000.0750    | 0146.2      | 039.8        | 39.56           |
| 126.0                | 000.1849    | 0129.0      | 013.5        | 288.9                | 000.0750    | 0146.1      | 039.6        | 39.64           |
| 127.0                | 000.2003    | 0128.3      | 013.7        | 288.5                | 000.0750    | 0146.4      | 039.5        | 39.73           |
| 128.0                | 000.2162    | 0127.8      | 014.0        | 288.1                | 000.0750    | 0146.2      | 039.3        | 39.79           |
| 129.0                | 000.2328    | 0127.1      | 014.2        | 287.6                | 000.0750    | 0146.0      | 039.2        | 39.83           |
| 130.0                | 000.2500    | 0125.0      | 014.4        | 287.2                | 000.0750    | 0146.4      | 039.1        | 39.87           |
| 131.0                | 000.2500    | 0124.4      | 014.3        | 286.9                | 000.0750    | 0146.5      | 039.3        | 39.81           |
| 132.0                | 000.2500    | 0121.5      | 014.2        | 286.6                | 000.0750    | 0146.6      | 039.5        | 39.71           |
| 133.0                | 000.2500    | 0118.6      | 014.0        | 286.4                | 000.0750    | 0147.0      | 039.8        | 39.61           |
| 134.0                | 000.2500    | 0116.5      | 013.9        | 286.2                | 000.0750    | 0147.4      | 040.0        | 39.53           |
| 135.0                | 000.2500    | 0114.1      | 013.7        | 286.0                | 000.0750    | 0147.6      | 040.2        | 39.43           |
| 136.0                | 000.2500    | 0112.9      | 013.7        | 285.8                | 000.0750    | 0147.5      | 040.4        | 39.34           |
| 137.0                | 000.2500    | 0111.6      | 013.6        | 285.5                | 000.0750    | 0147.2      | 040.6        | 39.23           |
| 138.0                | 000.2500    | 0109.6      | 013.5        | 285.3                | 000.0750    | 0146.9      | 040.8        | 39.11           |
| 139.0                | 000.2500    | 0108.1      | 013.4        | 285.1                | 000.0750    | 0146.4      | 041.1        | 38.99           |
| 140.0                | 000.2500    | 0106.0      | 013.2        | 285.0                | 000.0750    | 0145.9      | 041.3        | 38.86           |
| 141.0                | 000.2500    | 0104.1      | 013.1        | 284.8                | 000.0750    | 0145.7      | 041.5        | 38.75           |
| 142.0                | 000.2500    | 0102.3      | 013.0        | 284.7                | 000.0750    | 0145.6      | 041.7        | 38.64           |
| 143.0                | 000.2500    | 0100.4      | 012.9        | 284.5                | 000.0750    | 0145.5      | 042.0        | 38.53           |
| 144.0                | 000.2500    | 0099.9      | 012.9        | 284.3                | 000.0750    | 0145.5      | 042.1        | 38.46           |
| 145.0                | 000.2500    | 0097.9      | 012.7        | 284.2                | 000.0750    | 0145.4      | 042.4        | 38.34           |
| 146.0                | 000.2500    | 0098.5      | 012.8        | 283.9                | 000.0750    | 0145.1      | 042.5        | 38.27           |

## Exhibit 7c

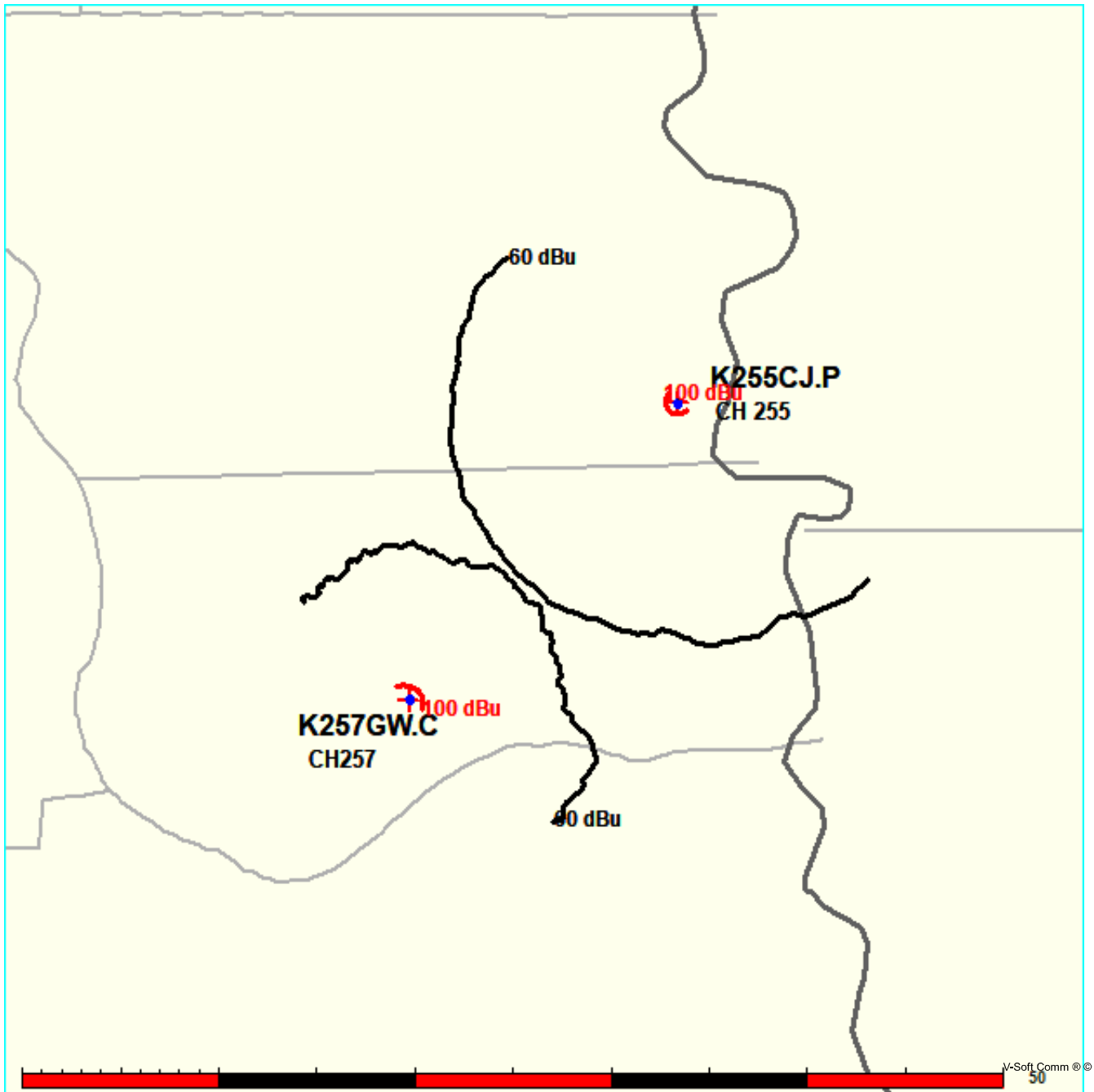
### Contour Protection Studies Toward Select Allocation Concern(s)

397 ft (121.0 m) AGL on ASRN 1223431  
CSN International

FMCommander Single Allocation Study - 08-09-2022 - NED 03 SEC  
K255CJ.P's Overlaps (In= 7.75 km, Out= 11.72 km)

K255CJ.P CH 255 D  
Lat= 41 13 29.60, Lng= 95 57 11.60  
0.075 kW 0 m HAAT, 484 m COR  
Prot.= 60 dBu, Intef.= 100 dBu

K257GW CH 257 D DA 0000153764  
Lat= 41 05 24.80, Lng= 96 06 58.00  
0.25 kW 0 m HAAT, 403 m COR  
Prot.= 60 dBu, Intef.= 100 dBu



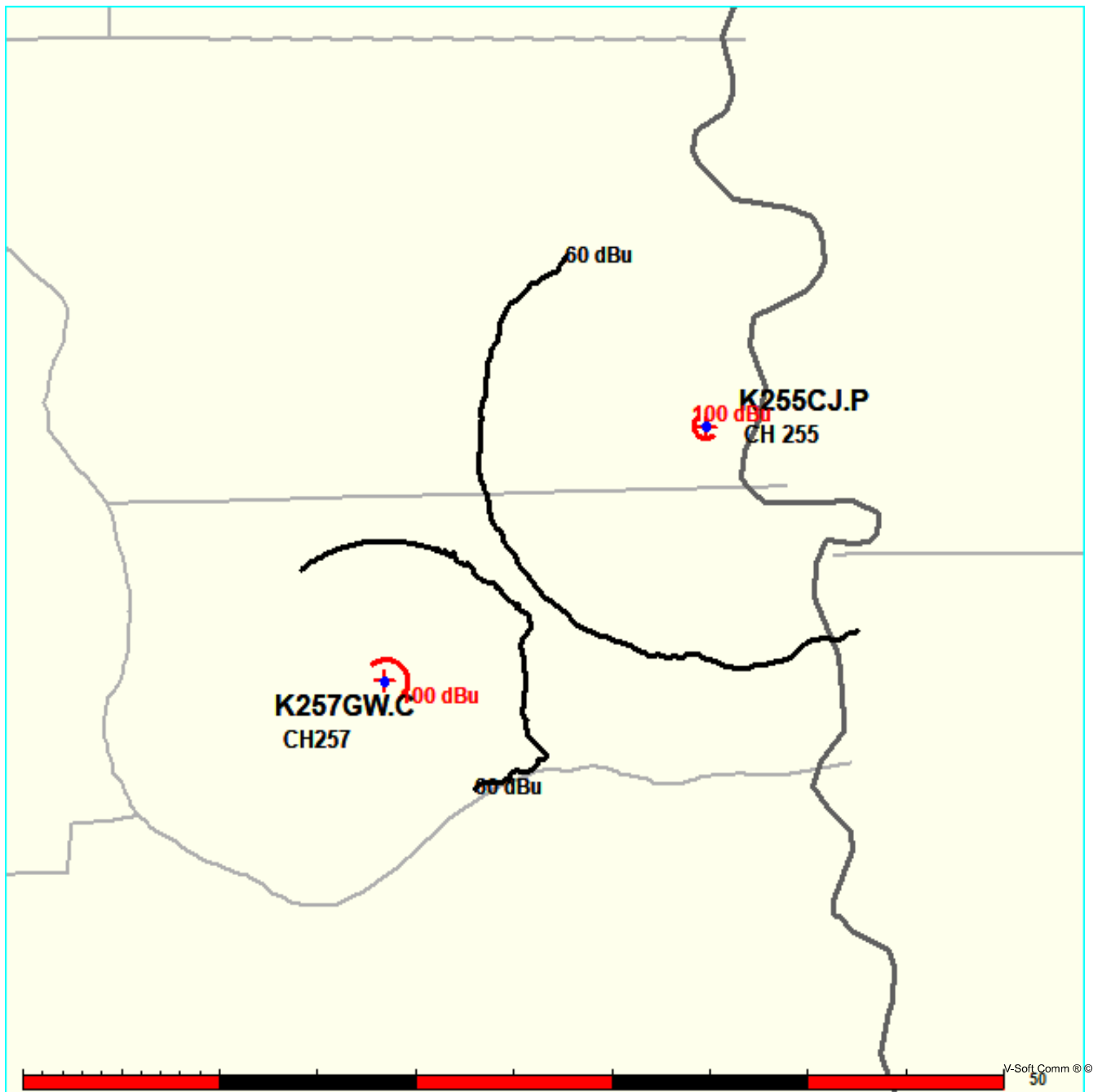
***Exhibit 7d***  
**Contour Protection Studies Toward Select Allocation Concern(s)**

397 ft (121.0 m) AGL on ASRN 1223431  
CSN International

FMCommander Single Allocation Study - 08-09-2022 - NED 03 SEC  
K255CJ.P's Overlaps (In= 7.86 km, Out= 12.46 km)

K255CJ.P CH 255 D  
Lat= 41 13 29.60, Lng= 95 57 11.60  
0.075 kW 0 m HAAT, 484 m COR  
Prot.= 60 dBu, Intef.= 100 dBu

K257GW CH 257 D BPFT20190829AAK  
Lat= 41 06 33.00, Lng= 96 08 53.10  
0.25 kW 0 m HAAT, 368 m COR  
Prot.= 60 dBu, Intef.= 100 dBu



## Exhibit 8

### 47 C.F.R. Section 74.1204(d) Second / Third Adjacent Given Interference Waiver Request

The applicant would like to note the existence of a 47 C.F.R. Section 74.1204(d) Second/Third Adjacent Channel Given Interference Waiver Request toward KQKQ-FM – Council Bluffs, IA (CH253C0) and K258DC – Omaha, NE (CH258D) as included in **Exhibit 8**. Protection of the worst case calculated 139.3 dBμ F(50:10) Interference Contour, corresponding to the worst case calculated 99.3 dBμ F(50:50) Protected Contour, has been demonstrated through a downward radiation study. Full protection will be afforded all concerns as this area will not reach the ground nor a five meter artificial plane representing a standard two story house when taking into account the downward radiation characteristics of the antenna as supplied by the antenna manufacturer. A copy of the manufacturer's antenna specifications has been included in **Exhibit 9**.

Signal Report

KQKQ-FM Signal value at Reference site = 99.3 dBu. Distance to K255CJ.P interference signal contour = 6.6 m

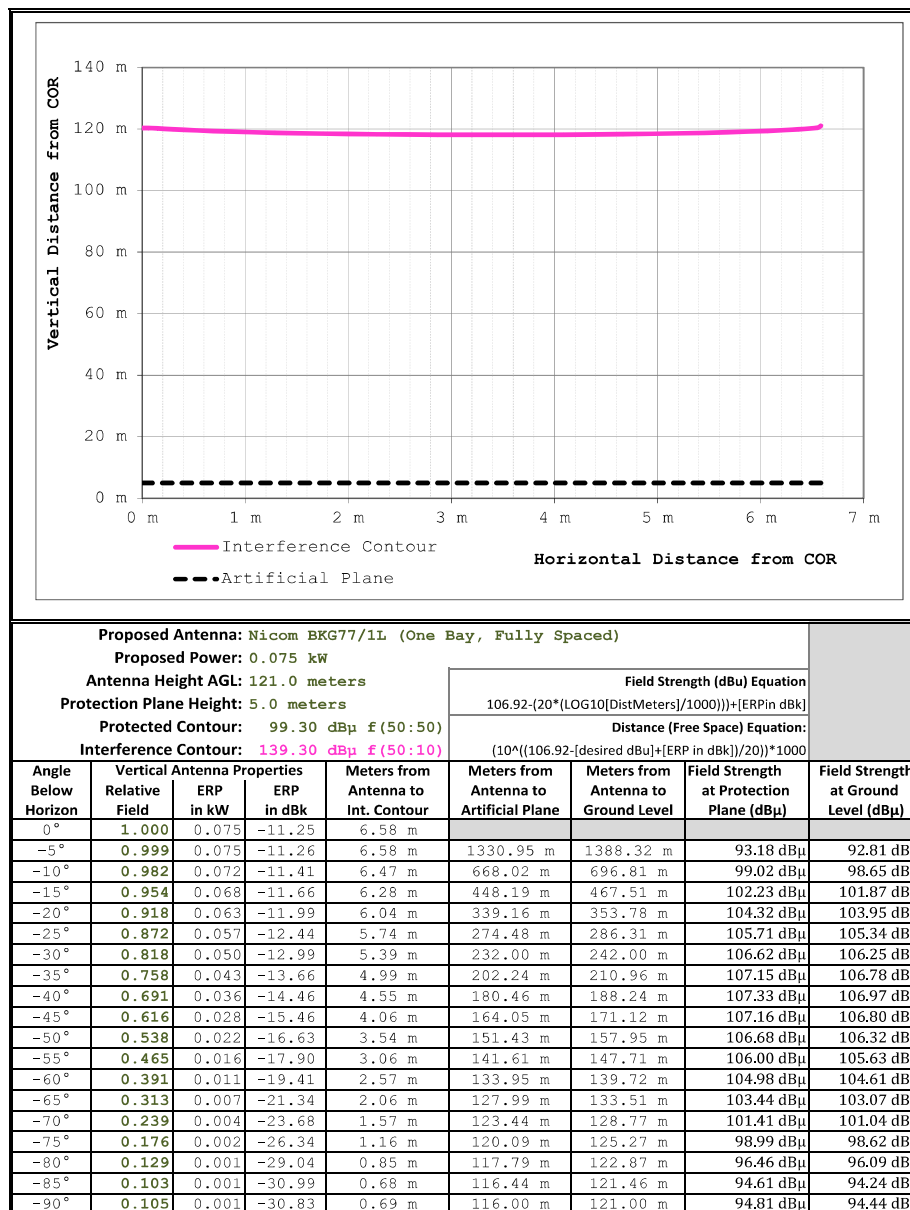
OK

Signal Report

K258DC Signal value at Reference site = 0.0 dBu. Distance to K255CJ.P interference signal contour = 36833.7 m

K258DC & K225CJ.P are co-located on the same tower

OK



***Exhibit 9***  
***Copy of Manufacturer's Antenna Documentation***  
***(public record copy)***



Your Number 1 Source For Radio And Digital TV Gear

**BKG 77**

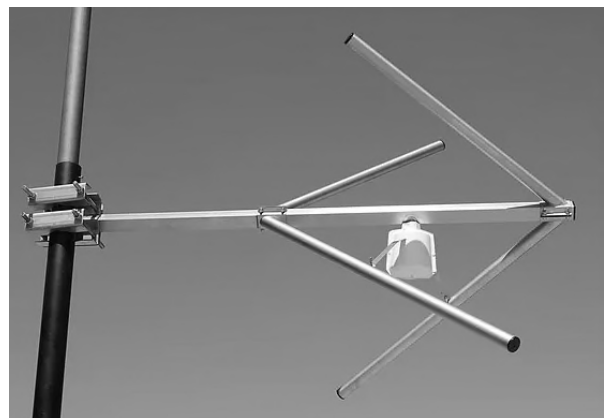
Medium Power Broadband FM Circular Polarization Antenna

**TECHNICAL SPECIFICATIONS**

**Antenna type:** circular  
**polarization:** dipole  
**Front-to-back ratio:** 3 dB  
**Frequency range:** 87.5 - 108 MHz  
**Lightening protection:** all parts grounded  
**Bandwidth:** 20 MHz  
**Max wind velocity:** 120 mph (190 km/h)  
**Impedance:** 50 ohms  
**Wind load:** 53 Lbs (24 kg)  
**Connectors:** N type (1 kw) -7/8 type / 7/16DIN(2 kw)  
**Wind surface:** 1.1 ft<sup>2</sup> (0.10 m<sup>2</sup>)  
**Power rating:** 2000 Watts max  
**Materials (external):** stainless steel  
**VSWR:** < 1.3  
**Mounting:** from 2" to 4"  
**Polarization:** vertical and horizontal  
**Weight:** 25 Lbs (11.3 kg)  
**Gain:** -3 dBd (referred to half-wave dipole)  
**Dimensions:** 58"x32"x32" (1450×800×800mm)  
**H plane:** omnidirectional ±1.5 dB (with a 4" mast)  
**V plane:** omnidirectional ±3 dB (with a 4" mast)  
**Packing:** 68"×10"×10"



**Optional Mini-Radome**



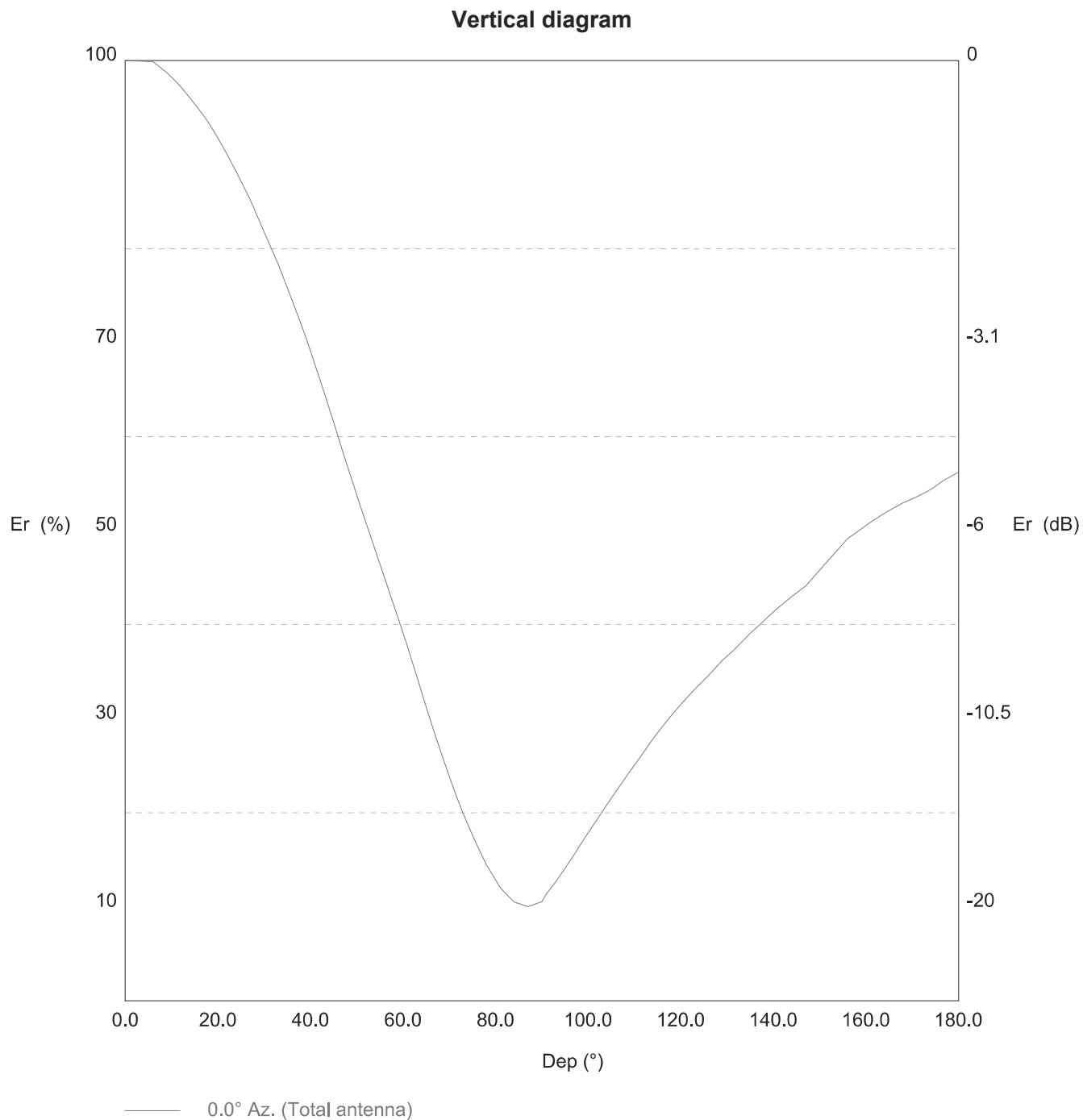
***Exhibit 9***  
***Copy of Manufacturer's Antenna Documentation***  
***(public record copy)***

BKG77SINGLE.PRJ

TX station: BKG77-1

Site name:

Frequency: 100.00 MHz





# Exhibit 9

## Copy of Manufacturer's Antenna Documentation

(public record copy)

BKG77SINGLE.PRJ

TX station: BKG77-1

Site name:

Frequency: 100.00 MHz

### Vertical diagram at an azimuth of 0° degrees

| Dep (°) | Er (%) | ERP (W) | Dep (°) | Er (%) | ERP (W) | Dep (°) | Er (%) | ERP (W) |
|---------|--------|---------|---------|--------|---------|---------|--------|---------|
| 0.0     | 100.0  | 373.6   | 60.0    | 39.1   | 57.2    | 120.0   | 31.5   | 37.0    |
| 1.0     | 100.0  | 373.5   | 61.0    | 37.6   | 52.8    | 121.0   | 32.0   | 38.3    |
| 2.0     | 100.0  | 373.4   | 62.0    | 36.1   | 48.6    | 122.0   | 32.6   | 39.6    |
| 3.0     | 99.9   | 373.3   | 63.0    | 34.5   | 44.6    | 123.0   | 33.1   | 41.0    |
| 4.0     | 99.9   | 373.1   | 64.0    | 32.9   | 40.5    | 124.0   | 33.6   | 42.2    |
| 5.0     | 99.9   | 372.9   | 65.0    | 31.3   | 36.6    | 125.0   | 34.1   | 43.5    |
| 6.0     | 99.9   | 372.8   | 66.0    | 29.7   | 33.0    | 126.0   | 34.6   | 44.7    |
| 7.0     | 99.5   | 369.9   | 67.0    | 28.2   | 29.8    | 127.0   | 35.2   | 46.2    |
| 8.0     | 99.1   | 367.0   | 68.0    | 26.8   | 26.8    | 128.0   | 35.7   | 47.6    |
| 9.0     | 98.7   | 364.1   | 69.0    | 25.3   | 23.9    | 129.0   | 36.2   | 49.1    |
| 10.0    | 98.2   | 360.5   | 70.0    | 23.9   | 21.3    | 130.0   | 36.7   | 50.3    |
| 11.0    | 97.7   | 356.9   | 71.0    | 22.5   | 18.9    | 131.0   | 37.1   | 51.5    |
| 12.0    | 97.2   | 353.3   | 72.0    | 21.1   | 16.6    | 132.0   | 37.6   | 52.7    |
| 13.0    | 96.6   | 348.9   | 73.0    | 19.9   | 14.8    | 133.0   | 38.1   | 54.1    |
| 14.0    | 96.0   | 344.5   | 74.0    | 18.8   | 13.2    | 134.0   | 38.6   | 55.6    |
| 15.0    | 95.4   | 340.1   | 75.0    | 17.6   | 11.6    | 135.0   | 39.1   | 57.0    |
| 16.0    | 94.7   | 335.4   | 76.0    | 16.6   | 10.2    | 136.0   | 39.5   | 58.4    |
| 17.0    | 94.1   | 330.8   | 77.0    | 15.5   | 9.0     | 137.0   | 40.0   | 59.7    |
| 18.0    | 93.4   | 326.1   | 78.0    | 14.5   | 7.8     | 138.0   | 40.4   | 61.1    |
| 19.0    | 92.6   | 320.4   | 79.0    | 13.7   | 7.0     | 139.0   | 40.9   | 62.5    |
| 20.0    | 91.8   | 314.7   | 80.0    | 12.9   | 6.2     | 140.0   | 41.4   | 63.9    |
| 21.0    | 91.0   | 309.1   | 81.0    | 12.0   | 5.4     | 141.0   | 41.8   | 65.3    |
| 22.0    | 90.0   | 302.7   | 82.0    | 11.5   | 5.0     | 142.0   | 42.2   | 66.5    |
| 23.0    | 89.1   | 296.5   | 83.0    | 11.0   | 4.5     | 143.0   | 42.6   | 67.8    |
| 24.0    | 88.1   | 290.3   | 84.0    | 10.5   | 4.1     | 144.0   | 43.0   | 69.0    |
| 25.0    | 87.2   | 283.8   | 85.0    | 10.3   | 4.0     | 145.0   | 43.4   | 70.3    |
| 26.0    | 86.2   | 277.4   | 86.0    | 10.2   | 3.9     | 146.0   | 43.8   | 71.6    |
| 27.0    | 85.2   | 271.1   | 87.0    | 10.0   | 3.7     | 147.0   | 44.1   | 72.8    |
| 28.0    | 84.0   | 263.9   | 88.0    | 10.2   | 3.9     | 148.0   | 44.7   | 74.7    |
| 29.0    | 82.9   | 256.8   | 89.0    | 10.4   | 4.0     | 149.0   | 45.3   | 76.5    |
| 30.0    | 81.8   | 249.8   | 90.0    | 10.5   | 4.1     | 150.0   | 45.8   | 78.4    |
| 31.0    | 80.6   | 242.9   | 91.0    | 11.4   | 4.8     | 151.0   | 46.4   | 80.3    |
| 32.0    | 79.5   | 236.1   | 92.0    | 12.0   | 5.4     | 152.0   | 46.9   | 82.3    |
| 33.0    | 78.3   | 229.3   | 93.0    | 12.7   | 6.0     | 153.0   | 47.5   | 84.3    |
| 34.0    | 77.1   | 222.0   | 94.0    | 13.4   | 6.7     | 154.0   | 48.0   | 86.2    |
| 35.0    | 75.8   | 214.7   | 95.0    | 14.1   | 7.4     | 155.0   | 48.6   | 88.2    |
| 36.0    | 74.5   | 207.6   | 96.0    | 14.8   | 8.2     | 156.0   | 49.1   | 90.2    |
| 37.0    | 73.2   | 200.4   | 97.0    | 15.6   | 9.1     | 157.0   | 49.5   | 91.5    |
| 38.0    | 71.9   | 193.3   | 98.0    | 16.4   | 10.0    | 158.0   | 49.8   | 92.8    |
| 39.0    | 70.6   | 186.3   | 99.0    | 17.1   | 11.0    | 159.0   | 50.2   | 94.1    |
| 40.0    | 69.1   | 178.6   | 100.0   | 17.9   | 11.9    | 160.0   | 50.5   | 95.4    |
| 41.0    | 67.6   | 170.9   | 101.0   | 18.6   | 12.9    | 161.0   | 50.9   | 96.8    |
| 42.0    | 66.1   | 163.5   | 102.0   | 19.3   | 13.9    | 162.0   | 51.2   | 98.1    |
| 43.0    | 64.6   | 156.0   | 103.0   | 20.1   | 15.0    | 163.0   | 51.5   | 99.2    |
| 44.0    | 63.1   | 148.7   | 104.0   | 20.8   | 16.2    | 164.0   | 51.8   | 100.4   |
| 45.0    | 61.6   | 141.6   | 105.0   | 21.5   | 17.3    | 165.0   | 52.1   | 101.6   |
| 46.0    | 60.0   | 134.4   | 106.0   | 22.3   | 18.5    | 166.0   | 52.4   | 102.7   |
| 47.0    | 58.4   | 127.5   | 107.0   | 23.0   | 19.7    | 167.0   | 52.7   | 103.7   |
| 48.0    | 56.8   | 120.7   | 108.0   | 23.7   | 21.0    | 168.0   | 53.0   | 104.8   |
| 49.0    | 55.3   | 114.4   | 109.0   | 24.4   | 22.2    | 169.0   | 53.2   | 105.7   |
| 50.0    | 53.8   | 108.2   | 110.0   | 25.1   | 23.5    | 170.0   | 53.4   | 106.5   |
| 51.0    | 52.3   | 102.2   | 111.0   | 25.7   | 24.8    | 171.0   | 53.6   | 107.4   |
| 52.0    | 50.8   | 96.6    | 112.0   | 26.5   | 26.2    | 172.0   | 53.9   | 108.4   |
| 53.0    | 49.4   | 91.1    | 113.0   | 27.2   | 27.6    | 173.0   | 54.1   | 109.4   |
| 54.0    | 47.9   | 85.8    | 114.0   | 27.9   | 29.0    | 174.0   | 54.4   | 110.5   |
| 55.0    | 46.5   | 80.7    | 115.0   | 28.5   | 30.4    | 175.0   | 54.7   | 111.9   |
| 56.0    | 45.0   | 75.7    | 116.0   | 29.2   | 31.8    | 176.0   | 55.1   | 113.3   |
| 57.0    | 43.6   | 71.0    | 117.0   | 29.8   | 33.1    | 177.0   | 55.4   | 114.7   |
| 58.0    | 42.1   | 66.2    | 118.0   | 30.4   | 34.4    | 178.0   | 55.7   | 115.9   |
| 59.0    | 40.6   | 61.6    | 119.0   | 30.9   | 35.7    | 179.0   | 56.0   | 117.0   |