

***AMENDMENT TO APPLICATION
FOR CONSTRUCTION PERMIT***

PROPOSED NEW FM TRANSLATOR STATION
TEXARKANA, TEXAS
FACILITY ID: 156971
98.9 MHz / 0.250 kW ERP / ND

E-STRING WIRELESS, LTD.

JULY, 2013

AMENDMENT TO APPLICATION FOR CONSTRUCTION PERMIT

The following engineering statement and attached exhibits have been prepared for **E-String Wireless, Ltd.** ("E-String"), applicant for a new FM translator station to serve Texarkana, Texas, and are in support of their amendment to application for construction permit.¹

This amendment is being submitted as part of the Commission's Translator Auction 83 settlement process. The original application submitted by E-String was assigned FCC File No. BNFT-20030317JOQ. Upon initial review by the Staff it was determined that the application was mutually exclusive with two other applications. The three members of the MX Group, group 461, are as follows:

| Applicant | Chan. | File No. | Fac. ID | App. ID |
|-------------------------------|--------------|-------------------|----------------|----------------|
| E-String Wireless, Ltd. | 257 | BNPFT-20030317JOQ | 156971 | 650265 |
| Juan Alberto Ayala | 257 | BNPFT-20030317ISP | 156828 | 650122 |
| Millennium Broadcasting Corp. | 257 | BNPFT-20030317IUC | 156882 | 650176 |

The technical parameters proposed under this amendment will eliminate the mutual exclusivity between the proposed facility and all other members of the MX group. In order to accomplish the extrication from the MX group, E-String proposes a relocation of the original transmitter site, and a change in the channel of operation. In addition, a change from a directional to non-directional antenna is proposed. These changes, when considered under Section 74.1204(d), will eliminate the mutual exclusivity.

The proposed facility would operate on channel 255 with an effective radiated power of 250 Watts at a center of radiation of 181.7 meters AMSL.² The change in the channel is a change of

¹ The Facility ID for the proposed translator facility is 156971.

JEREMY RUCK & ASSOCIATES, INC.

P.O. Box 415
221 S. 1st Avenue
Canton, IL 61520

Tel: 309.647.1200
Fax: 855.332.9537
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two from the originally specified 257. Exhibit E-1 illustrates the originally proposed 60 dBu service contour along with the 60 dBu service contour proposed under this application. As this map demonstrates, there would be overlap between the two contours. The proposed changes to the technical parameters would be a minor change to those originally specified.

The primary station for the facility was originally specified as KNRB(FM) at Atlanta, Texas.³ This remains unchanged for this application. Exhibit E-2 illustrates the predicted 60 dBu service contour of the proposed translator as well as the contour from KNRB(FM).

The proposed facility would not impact LPFM licensing opportunities within any of the Appendix A markets. The closest Appendix A market to the proposed facility is the Shreveport market. Exhibit E-3 illustrates the proposed site location along with the grid and buffer of this market. As this exhibit demonstrates, the proposed site location is outside the buffer of the Shreveport market.

The proposed facility complies with the provisions of Section 74.1204 of the Commission's Rules. Exhibit E-4 is a tabular allocation study for the proposed facility. This study demonstrates that the proposed facility would meet all of the contour overlap provisions of Section 74.1204 to all facilities in the region with the exception of the two other facilities within the MX group. The application of Section 74.1204(d), however, is relevant to the situation between the proposed facility and the other two applications. Exhibit E-5 illustrates this tabular study in a graphical contour format.

² The average terrain for the proposed facility is determined by the 180 degree true radial on which the average elevation is 74.7 meters AMSL. Terrain was sampled from the FCC 30-second terrain database.

³ The Facility ID for KNRB(FM) at Atlanta, Texas is 2765.

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Although normally prohibited contour overlap between the proposed facility and both of the other applications in the MX Group would occur, no populated areas would be affected by the predicted interference regions. The first situation involves the proposed facility and the Millennium application. The proposed E-String facility would be co-located with the Millennium facility. These two facilities would share the same registered tower, and would operate with the same effective radiated power. As a result of this, conditions could not exist where the field strength of the E-String application is more than 40 dB above the Millennium facility, nor could the converse situation occur.⁴ Therefore no interference would be created between the two facilities, and there is in fact no longer any mutual exclusivity between them.

The proposed Ayala facility is located at a different site than the proposed facility would utilize. As a result, a more detailed analysis of the situation to and from that facility is required. Exhibit E-6 illustrates both the Ayala and the E-String site. In addition, this map also depicts the field strength from each at the site of the other. As this exhibit demonstrates, the Ayala field strength at the E-String site is 83.5 dBu, while the E-String field strength at the Ayala site is 83.8 dBu. Therefore, interference to E-String could potentially occur in regions where the Ayala field strength is at least 123.8 dBu. Similarly, interference to Ayala could potentially occur where the E-String field strength is at least 123.5 dBu.

⁴ The 40 dB ratio is predicated on the two facilities being second adjacent to each other.

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In each case, the power density at the interfering field strength is determined by the following equation:

$$S = \frac{E^2}{Z_0}$$

In this equation, S represents the calculated power density in Watts per square meter, E is the electric field intensity, and Z_0 is the characteristic impedance of free space of 377 ohms.

The power density is also given by:

$$S = \frac{P}{4\pi R^2}$$

Where S is the same units, P is the power in Watts (250 Watts for both facilities), and R is the distance from the antenna at which this field strength occurs.⁵ Rearranging the terms in the equation, it can be solved for the distance to the desired power density as follows:

$$R^2 = \frac{P}{4\pi S}$$

The results of these calculations for depression angles of 0 degrees to 90 degrees are tabulated in Exhibits E-7 and E-8, as are the related variables from the above equations. In the case of the E-String application, the actual proposed antenna was utilized with the relative field values specified coming from published manufacturer data. For the Ayala application, the vertical pattern could not be accurately determined. As a result, Exhibit E-8, the exhibit for that situation, is

⁵ It should be noted that this distance is the distance from the antenna, which will not necessarily be equivalent to the distance from the supporting structure.

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221 S. 1st Avenue
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Fax: 855.332.9537
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based on a Scala FMO antenna, which is specified as having relative field values of 1.0 at all depression angles in the vertical plane.

Exhibit E-7 illustrates the situation in the vicinity of the E-String site, where it is considered the undesired signal. For interference to the Ayala signal to occur, the E-String facility must have a field strength of at least 123.5 dBu. The calculations in this exhibit demonstrate that this region is confined to elevations of at least 67.4 meters or 221 feet above ground level. The image below illustrates the tower on which the E-String facility would be located. It can be reasonably inferred from this image that there are no populated areas or regions at or above this elevation.



For the converse situation at the Ayala site, interference to E-String would be predicted to occur when the field strength from Ayala is at least 123.5 dBu. Exhibit E-8 illustrates the

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P.O. Box 415
221 S. 1st Avenue
Canton, IL 61520

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7.13.2013

calculations for this situation based on the FMO antenna as discussed above. As the tabulation indicates, the interference area would be confined to elevations of 19.1 meters, or 62.7 feet above ground level. The next image illustrates the Ayala tower. From this image it can be reasonably inferred that there would be no interference to E-String from Ayala.



As a result of this 74.1204(d) analysis, performed bi-directionally to and from the other facilities, no interference to either Ayala or Millennium would be caused by E-String in populated areas. Similarly E-String would not receive interference from Ayala or Millennium in any populated area.

The proposed facility would not create a significant environmental impact, and is exempt from environmental processing. The facility would utilize an existing tower that is registered with

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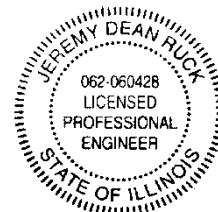
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the Commission. In addition, the facility would not constitute an RF exposure hazard to the general public.

The Commission's *FM Model* software package predicts a maximum power density at ground level of $0.397 \mu\text{W}/\text{cm}^2$ at a distance of 100 meters from the tower base. This value is low enough the proposed facility categorically excluded. E-String certifies that it will coordinate with all other users of the site to ensure that workers and other personnel having access to the site are not exposed to levels of radiofrequency radiation in excess of the applicable safety standards. Such coordination will include, but is not necessarily limited to, a reduction in transmitter power or cessation of operation.

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, 2013

Jeremy D. Ruck, PE
July 13, 2013

JEREMY RUCK & ASSOCIATES, INC.

P.O. Box 415
221 S. 1st Avenue
Canton, IL 61520

Tel: 309.647.1200
Fax: 855.332.9537
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650265.X

BNPFT20030317JOQ
Latitude: 33-25-08.60 N
Longitude: 094-04-10.30 W
ERP: 0.25 kW
Channel: 255
Frequency: 98.9 MHz
AMSL Height: 181.7 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

650265.A

BNPFT20030317JOQ
Latitude: 33-28-46 N
Longitude: 094-06-28 W
ERP: 0.25 kW
Channel: 257
Frequency: 99.3 MHz
AMSL Height: 165.0 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: None

Exhibit E-1

Service Contour Comparison
NEW - Texarkana, Texas
E-String Wireless, Ltd.
July, 2013

Jeremy Ruck & Associates, Inc.

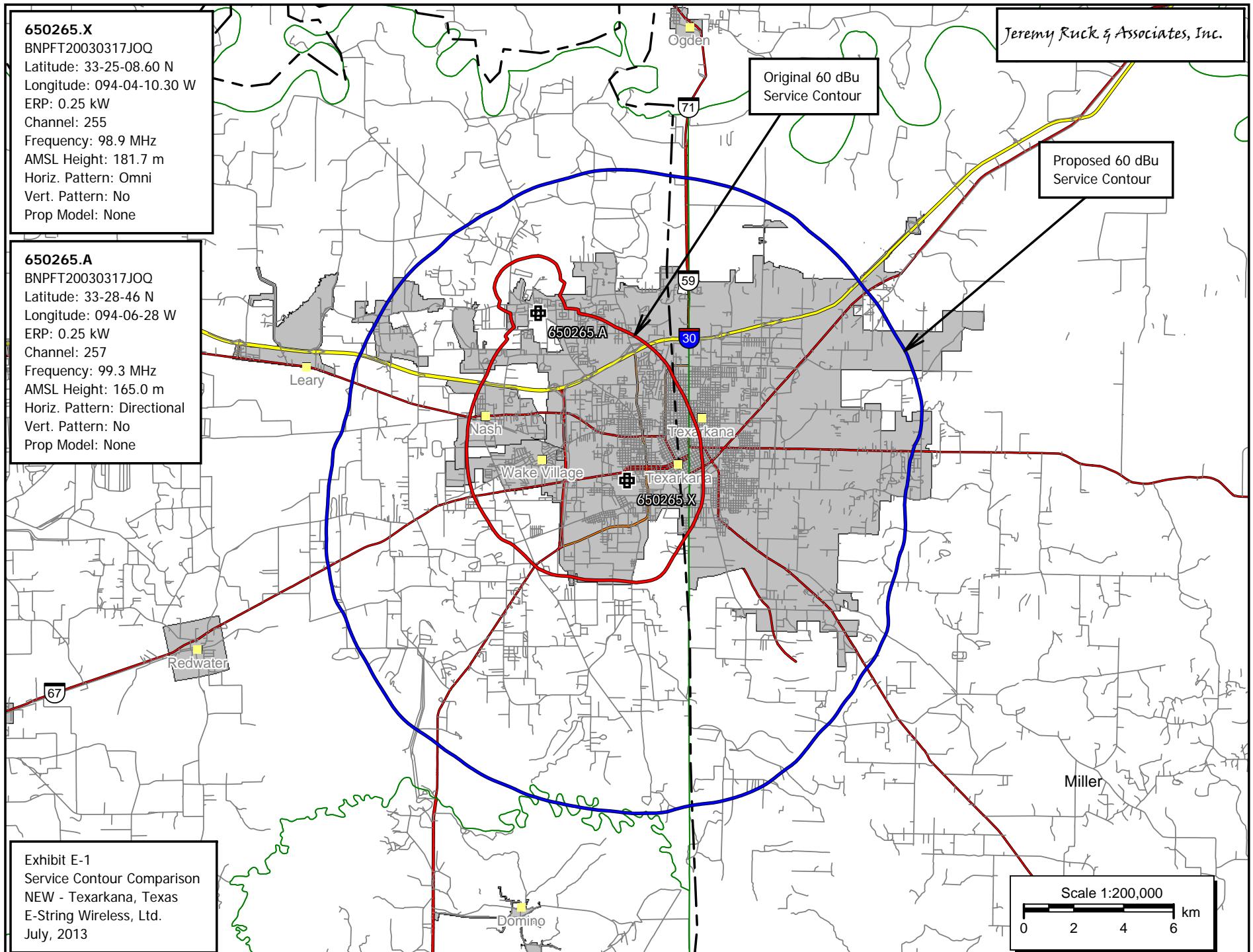
Original 60 dBu
Service Contour

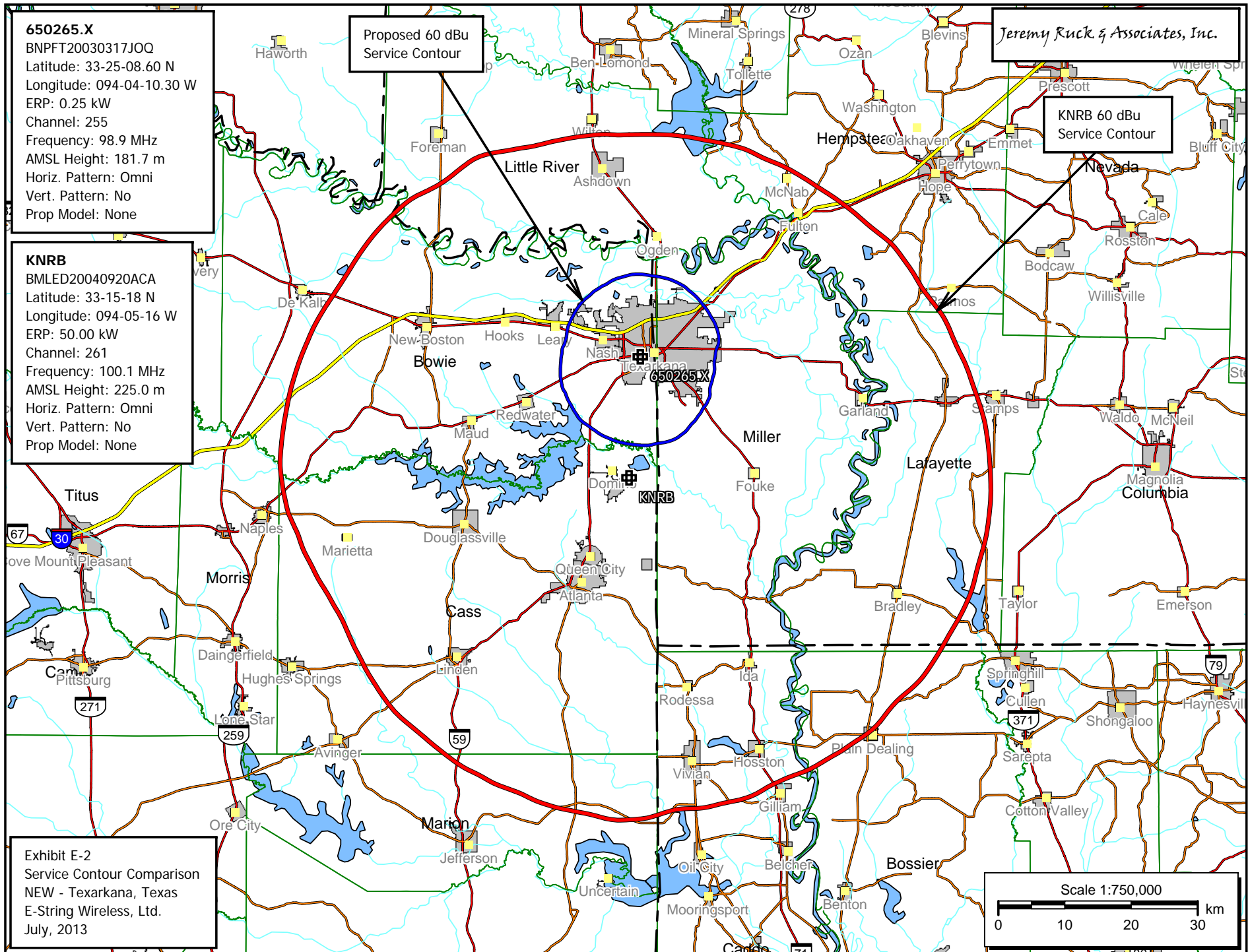
Proposed 60 dBu
Service Contour

Miller

Scale 1:200,000

0 2 4 6 km





650265.X
BNPFT20030317J0Q
Latitude: 33-25-08.60 N
Longitude: 094-04-10.30 W
ERP: 0.25 kW
Channel: 255
Frequency: 98.9 MHz
AMSL Height: 181.7 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

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Proposed Site Location

Shreveport Market
Grid and Buffer

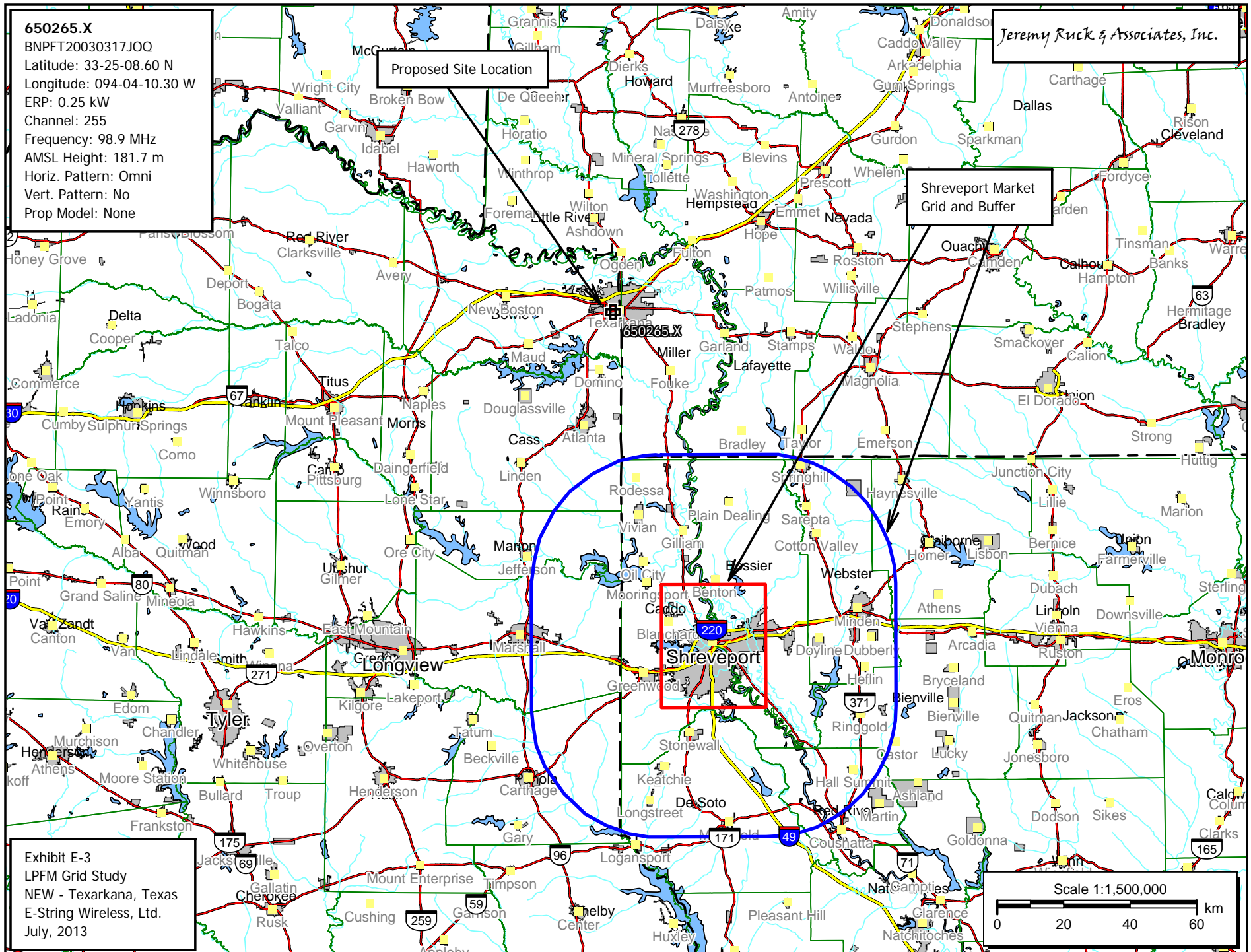


Exhibit E-3
LPFM Grid Study
NEW - Texarkana, Texas
E-String Wireless, Ltd.
July, 2013

Jeremy Ruck & Associates, Inc.
Consulting Engineers - Canton, Illinois

Exhibit E-4 - Tabular Allocation Study

REFERENCE 33 25 08.6 N. CH# 255D - 98.9 MHz, Pwr= 0.25 kW DA, HAAT= 92.2 M, COR= 181.7 M DISPLAY DATES
94 04 10.3 W. Average Protected F(50-50)= 12.37 km DATA 07-12-13
Standard Directional SEARCH 07-13-13

| CH CITY | CALL | TYPE ANT STATE | AZI <-- | DIST FILE # | LAT LNG | PWR(kW) HAAT(M) | INT(km) COR(M) | PRO(km) LICENSEE | *IN* (Overlap in km) | *OUT* |
|-----------------------|--------|-------------------|----------------|---------------------------|--------------------------|--------------------|-------------------|------------------------------------|-------------------------|-------------------|
| 255C1 Carthage | KTUX | LIC_CN TX | 177.6 357.7 | 114.66 BLH19850412KC | 32 23 19.0 94 01 10.0 | 100.000 219 | 165.4 304 | 66.7 Townsquare Media | -63.6* | 4.1 Shreveport |
| 257D Texarkana | 650176 | APP_C_ TX | 0.0 0.0 | 0.00 BNPFT20030317IUC | 33 25 08.5 94 04 10.3 | 0.250 100 | 1.1 190 | 13.0 Millennium Broadcasting Co | -3.5* | -13.0* |
| 257D Texarkana | 650122 | APP_C_ TX | 348.1 168.1 | 3.07 BNPFT20030317ISP | 33 26 46.0 94 04 35.0 | 0.250 75 | 1.1 166 | 12.0 Juan Alberto Ayala | -0.4 | -9.0* |
| 257D Texarkana | 650265 | APP_DH_ TX | 332.2 152.1 | 7.59 BNPFT20030317JQQ | 33 28 46.0 94 06 28.0 | 0.250 74 | 1.1 165 | 11.3 E-string Wireless, Ltd | 4.2 | -3.7* |
| 254D Nashville | K254AS | CP_C_ AR | 25.8 205.9 | 41.42 BPFT20130116AAD | 33 45 16.0 93 52 29.0 | 0.250 | 26.7 263 | 18.0 First Ventures Capital Par | 12.5 | 20.5 |
| 256A Waldo | KVMZ | LIC_ZCX AR | 99.5 279.9 | 78.77 BLH20080207AOD | 33 17 59.0 93 14 00.0 | 4.100 122 | 43.5 214 | 28.4 Noalmark Broadcasting Corp | 26.9 | 44.8 |
| 258C3 Murfreesboro | KMTB | LIC_CX AR | 15.8 195.9 | 68.45 BLH20060811AXJ | 34 00 41.0 93 52 03.0 | 25.000 80 | 4.2 227 | 40.5 Arklatex Radio, Inc. | 61.9 | 27.7 |
| 253D Nashville | K254AS | APP_DC_ AR | 14.3 194.4 | 51.88 BMPFT20130701ABZ | 33 52 16.0 93 55 49.0 | 0.250 | 1.0 120 | 6.9 First Ventures Capital Par | 48.5 | 44.9 |
| 253C2 Clarksville | KGAP | LIC_NCN TX | 284.1 103.5 | 90.47 BLH19960111KM | 33 36 47.0 95 01 03.0 | 50.000 94 | 4.8 216 | 44.2 American Media Investments | 83.6 | 46.4 |

Terrain database is FCC NGDC 30 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 protected contour.

BNPFT20030317JOQ
Latitude: 33-25-08.60 N
Longitude: 094-04-10.30 W
ERP: 0.25 kW
Channel: 255
Frequency: 98.9 MHz
AMSL Height: 181.7 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None





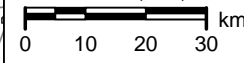
-  60 dBu F(50,50) Service Contour
-  40 dBu F(50,10) Interference Contour
-  54 dBu F(50,10) Interference Contour
-  100 dBu F(50,10) Interference Contour

Exhibit E-5
Contour Allocation Study
NEW - Texarkana, Texas
E-String Wireless, Ltd.
July, 2013

Scale 1:1,250,000



650265.X

BNPFT20030317JQQ
Latitude: 33-25-08.60 N
Longitude: 094-04-10.30 W
ERP: 0.25 kW
Channel: 255
Frequency: 98.9 MHz
AMSL Height: 181.7 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

650122.A

BNPFT20030317ISP
Latitude: 33-26-46 N
Longitude: 094-04-35 W
ERP: 0.25 kW
Channel: 257
Frequency: 99.3 MHz
AMSL Height: 166.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

Jeremy Ruck & Associates, Inc.

Ayala 83.5 dBu
Service Contour

FCC F(50-50) 83.50 dBu (FCC HAAT)

FCC F(50-50) 83.80 dBu (FCC HAAT)

Proposed 83.8 dBu
Service Contour

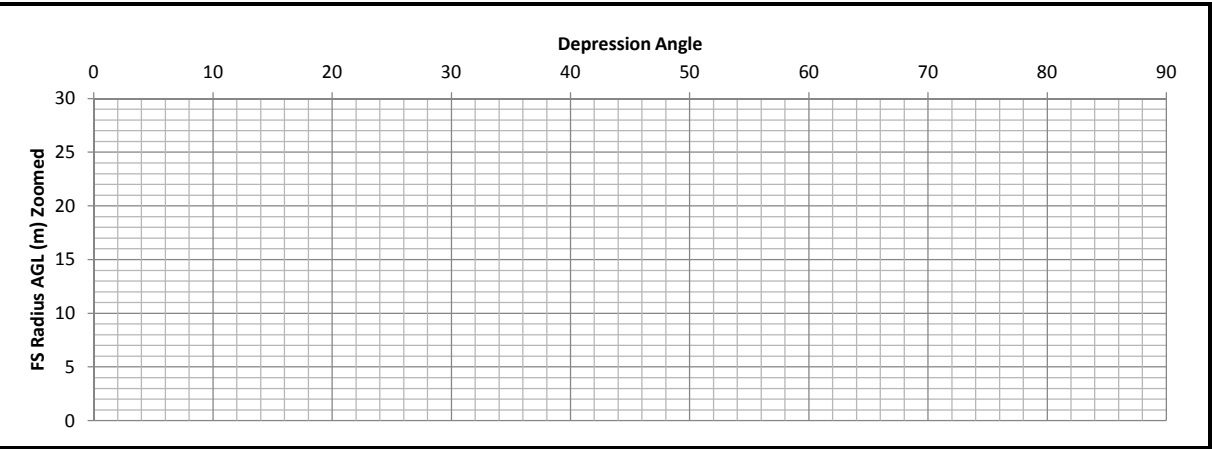
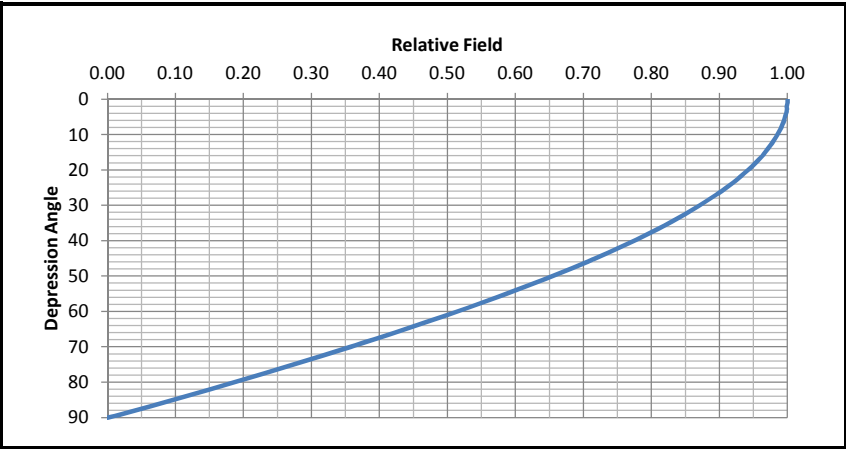
Exhibit E-6
Interference Study
NEW - Texarkana, Texas
E-String Wireless, Ltd.
July, 2013

Scale 1:75,000

0 1 2 3 km

Exhibit E-7
Translator Proximity Interference Analysis
NEW - Texarkana, TX (E-String to Ayala Calculations)

| | | | | | |
|-----------------|---------|-----|---|---------------------------|-------------------|
| Antenna No: | 1 | ↕ | ↕ | Center of Radiation: | 96.7 m AGL |
| Manufacturer: | Shively | ↕↕↕ | | Effective Radiated Power: | 250 Watts |
| Model: | 6812B-1 | | | FS Contour: | 123.5 dBu |
| Number of Bays: | 1 | | | E Field Strength: | 1.49624 V/m |
| Bay Spacing: | Lambda | | | Z0 (Ohms): | 377 Ohms |
| | | | | Power Density: | 0.005938252 W/m^2 |



| Depression Angle | Relative Field | Relative Power | ERP Watts | Radii in meters | | | |
|------------------|----------------|----------------|-----------|-----------------|------------|----------|-------|
| | | | | Field Strength | Horizontal | Vertical | AGL |
| 0 | 1.0000 | 1.0000 | 250.00 | 57.88 | 57.88 | 0.00 | 96.70 |
| 1 | 1.0000 | 1.0000 | 250.00 | 57.88 | 57.87 | 1.01 | 95.69 |
| 2 | 0.9990 | 0.9980 | 249.50 | 57.82 | 57.79 | 2.02 | 94.68 |
| 3 | 0.9990 | 0.9980 | 249.50 | 57.82 | 57.74 | 3.03 | 93.67 |
| 4 | 0.9980 | 0.9960 | 249.00 | 57.77 | 57.62 | 4.03 | 92.67 |
| 5 | 0.9960 | 0.9920 | 248.00 | 57.65 | 57.43 | 5.02 | 91.68 |
| 6 | 0.9950 | 0.9900 | 247.51 | 57.59 | 57.28 | 6.02 | 90.68 |
| 7 | 0.9930 | 0.9860 | 246.51 | 57.48 | 57.05 | 7.00 | 89.70 |
| 8 | 0.9910 | 0.9821 | 245.52 | 57.36 | 56.80 | 7.98 | 88.72 |
| 9 | 0.9880 | 0.9761 | 244.04 | 57.19 | 56.48 | 8.95 | 87.75 |
| 10 | 0.9850 | 0.9702 | 242.56 | 57.01 | 56.15 | 9.90 | 86.80 |
| 11 | 0.9820 | 0.9643 | 241.08 | 56.84 | 55.79 | 10.85 | 85.85 |
| 12 | 0.9790 | 0.9584 | 239.61 | 56.67 | 55.43 | 11.78 | 84.92 |
| 13 | 0.9750 | 0.9506 | 237.66 | 56.43 | 54.99 | 12.69 | 84.01 |
| 14 | 0.9710 | 0.9428 | 235.71 | 56.20 | 54.53 | 13.60 | 83.10 |
| 15 | 0.9670 | 0.9351 | 233.77 | 55.97 | 54.06 | 14.49 | 82.21 |
| 16 | 0.9630 | 0.9274 | 231.84 | 55.74 | 53.58 | 15.36 | 81.34 |
| 17 | 0.9580 | 0.9178 | 229.44 | 55.45 | 53.03 | 16.21 | 80.49 |
| 18 | 0.9530 | 0.9082 | 227.05 | 55.16 | 52.46 | 17.05 | 79.65 |
| 19 | 0.9480 | 0.8987 | 224.68 | 54.87 | 51.88 | 17.86 | 78.84 |
| 20 | 0.9420 | 0.8874 | 221.84 | 54.52 | 51.24 | 18.65 | 78.05 |
| 21 | 0.9360 | 0.8761 | 219.02 | 54.18 | 50.58 | 19.42 | 77.28 |
| 22 | 0.9300 | 0.8649 | 216.23 | 53.83 | 49.91 | 20.16 | 76.54 |
| 23 | 0.9240 | 0.8538 | 213.44 | 53.48 | 49.23 | 20.90 | 75.80 |
| 24 | 0.9170 | 0.8409 | 210.22 | 53.08 | 48.49 | 21.59 | 75.11 |
| 25 | 0.9100 | 0.8281 | 207.03 | 52.67 | 47.74 | 22.26 | 74.44 |
| 26 | 0.9030 | 0.8154 | 203.85 | 52.27 | 46.98 | 22.91 | 73.79 |
| 27 | 0.8950 | 0.8010 | 200.26 | 51.80 | 46.16 | 23.52 | 73.18 |
| 28 | 0.8870 | 0.7868 | 196.69 | 51.34 | 45.33 | 24.10 | 72.60 |
| 29 | 0.8790 | 0.7726 | 193.16 | 50.88 | 44.50 | 24.67 | 72.03 |
| 30 | 0.8710 | 0.7586 | 189.66 | 50.41 | 43.66 | 25.21 | 71.49 |
| 31 | 0.8620 | 0.7430 | 185.76 | 49.89 | 42.77 | 25.70 | 71.00 |
| 32 | 0.8540 | 0.7293 | 182.33 | 49.43 | 41.92 | 26.19 | 70.51 |
| 33 | 0.8450 | 0.7140 | 178.51 | 48.91 | 41.02 | 26.64 | 70.06 |
| 34 | 0.8350 | 0.6972 | 174.31 | 48.33 | 40.07 | 27.03 | 69.67 |
| 35 | 0.8260 | 0.6823 | 170.57 | 47.81 | 39.16 | 27.42 | 69.28 |
| 36 | 0.8160 | 0.6659 | 166.46 | 47.23 | 38.21 | 27.76 | 68.94 |
| 37 | 0.8060 | 0.6496 | 162.41 | 46.65 | 37.26 | 28.08 | 68.62 |
| 38 | 0.7960 | 0.6336 | 158.40 | 46.07 | 36.31 | 28.37 | 68.33 |
| 39 | 0.7850 | 0.6162 | 154.06 | 45.44 | 35.31 | 28.59 | 68.11 |
| 40 | 0.7740 | 0.5991 | 149.77 | 44.80 | 34.32 | 28.80 | 67.90 |
| 41 | 0.7630 | 0.5822 | 145.54 | 44.16 | 33.33 | 28.97 | 67.73 |
| 42 | 0.7520 | 0.5655 | 141.38 | 43.53 | 32.35 | 29.12 | 67.58 |
| 43 | 0.7410 | 0.5491 | 137.27 | 42.89 | 31.37 | 29.25 | 67.45 |
| 44 | 0.7290 | 0.5314 | 132.86 | 42.20 | 30.35 | 29.31 | 67.39 |
| 45 | 0.7170 | 0.5141 | 128.52 | 41.50 | 29.35 | 29.35 | 67.35 |

| Depression Angle | Relative Field | Relative Power | ERP Watts | Radii in meters | | | |
|------------------|----------------|----------------|-----------|-----------------|------------|----------|-------|
| | | | | Field Strength | Horizontal | Vertical | AGL |
| 45 | 0.7170 | 0.5141 | 128.52 | 41.50 | 29.35 | 29.35 | 67.35 |
| 46 | 0.7050 | 0.4970 | 124.26 | 40.81 | 28.35 | 29.35 | 67.35 |
| 47 | 0.6930 | 0.4802 | 120.06 | 40.11 | 27.36 | 29.34 | 67.36 |
| 48 | 0.6800 | 0.4624 | 115.60 | 39.36 | 26.34 | 29.25 | 67.45 |
| 49 | 0.6670 | 0.4449 | 111.22 | 38.61 | 25.33 | 29.14 | 67.56 |
| 50 | 0.6540 | 0.4277 | 106.93 | 37.85 | 24.33 | 29.00 | 67.70 |
| 51 | 0.6410 | 0.4109 | 102.72 | 37.10 | 23.35 | 28.83 | 67.87 |
| 52 | 0.6280 | 0.3944 | 98.60 | 36.35 | 22.38 | 28.64 | 68.06 |
| 53 | 0.6140 | 0.3770 | 94.25 | 35.54 | 21.39 | 28.38 | 68.32 |
| 54 | 0.6000 | 0.3600 | 90.00 | 34.73 | 20.41 | 28.10 | 68.60 |
| 55 | 0.5860 | 0.3434 | 85.85 | 33.92 | 19.45 | 27.78 | 68.92 |
| 56 | 0.5720 | 0.3272 | 81.80 | 33.11 | 18.51 | 27.45 | 69.25 |
| 57 | 0.5580 | 0.3114 | 77.84 | 32.30 | 17.59 | 27.09 | 69.61 |
| 58 | 0.5440 | 0.2959 | 73.98 | 31.49 | 16.69 | 26.70 | 70.00 |
| 59 | 0.5290 | 0.2798 | 69.96 | 30.62 | 15.77 | 26.25 | 70.45 |
| 60 | 0.5140 | 0.2642 | 66.05 | 29.75 | 14.88 | 25.76 | 70.94 |
| 61 | 0.4990 | 0.2490 | 62.25 | 28.88 | 14.00 | 25.26 | 71.44 |
| 62 | 0.4840 | 0.2343 | 58.56 | 28.01 | 13.15 | 24.74 | 71.96 |
| 63 | 0.4690 | 0.2200 | 54.99 | 27.15 | 12.32 | 24.19 | 72.51 |
| 64 | 0.4530 | 0.2052 | 51.30 | 26.22 | 11.49 | 23.57 | 73.13 |
| 65 | 0.4370 | 0.1910 | 47.74 | 25.29 | 10.69 | 22.92 | 73.78 |
| 66 | 0.4220 | 0.1781 | 44.52 | 24.43 | 9.93 | 22.31 | 74.39 |
| 67 | 0.4060 | 0.1648 | 41.21 | 23.50 | 9.18 | 21.63 | 75.07 |
| 68 | 0.3900 | 0.1521 | 38.03 | 22.57 | 8.46 | 20.93 | 75.77 |
| 69 | 0.3730 | 0.1391 | 34.78 | 21.59 | 7.74 | 20.16 | 76.54 |
| 70 | 0.3570 | 0.1274 | 31.86 | 20.66 | 7.07 | 19.42 | 77.28 |
| 71 | 0.3410 | 0.1163 | 29.07 | 19.74 | 6.43 | 18.66 | 78.04 |
| 72 | 0.3240 | 0.1050 | 26.24 | 18.75 | 5.80 | 17.84 | 78.86 |
| 73 | 0.3070 | 0.0942 | 23.56 | 17.77 | 5.20 | 16.99 | 79.71 |
| 74 | 0.2900 | 0.0841 | 21.03 | 16.79 | 4.63 | 16.14 | 80.56 |
| 75 | 0.2730 | 0.0745 | 18.63 | 15.80 | 4.09 | 15.26 | 81.44 |
| 76 | 0.2560 | 0.0655 | 16.38 | 14.82 | 3.58 | 14.38 | 82.32 |
| 77 | 0.2390 | 0.0571 | 14.28 | 13.83 | 3.11 | 13.48 | 83.22 |
| 78 | 0.2210 | 0.0488 | 12.21 | 12.79 | 2.66 | 12.51 | 84.19 |
| 79 | 0.2040 | 0.0416 | 10.40 | 11.81 | 2.25 | 11.59 | 85.11 |
| 80 | 0.1860 | 0.0346 | 8.65 | 10.77 | 1.87 | 10.60 | 86.10 |
| 81 | 0.1680 | 0.0282 | 7.06 | 9.72 | 1.52 | 9.60 | 87.10 |
| 82 | 0.1510 | 0.0228 | 5.70 | 8.74 | 1.22 | 8.65 | 88.05 |
| 83 | 0.1330 | 0.0177 | 4.42 | 7.70 | 0.94 | 7.64 | 89.06 |
| 84 | 0.1140 | 0.0130 | 3.25 | 6.60 | 0.69 | 6.56 | 90.14 |
| 85 | 0.0960 | 0.0092 | 2.30 | 5.56 | 0.48 | 5.54 | 91.16 |
| 86 | 0.0780 | 0.0061 | 1.52 | 4.51 | 0.31 | 4.50 | 92.20 |
| 87 | 0.0590 | 0.0035 | 0.87 | 3.41 | 0.18 | 3.41 | 93.29 |
| 88 | 0.0400 | 0.0016 | 0.40 | 2.32 | 0.08 | 2.31 | 94.39 |
| 89 | 0.0210 | 0.0004 | 0.11 | 1.22 | 0.02 | 1.22 | 95.48 |
| 90 | 0.0000 | 0.0000 | 0.00 | 0.00 | 0.00 | 0.00 | 96.70 |

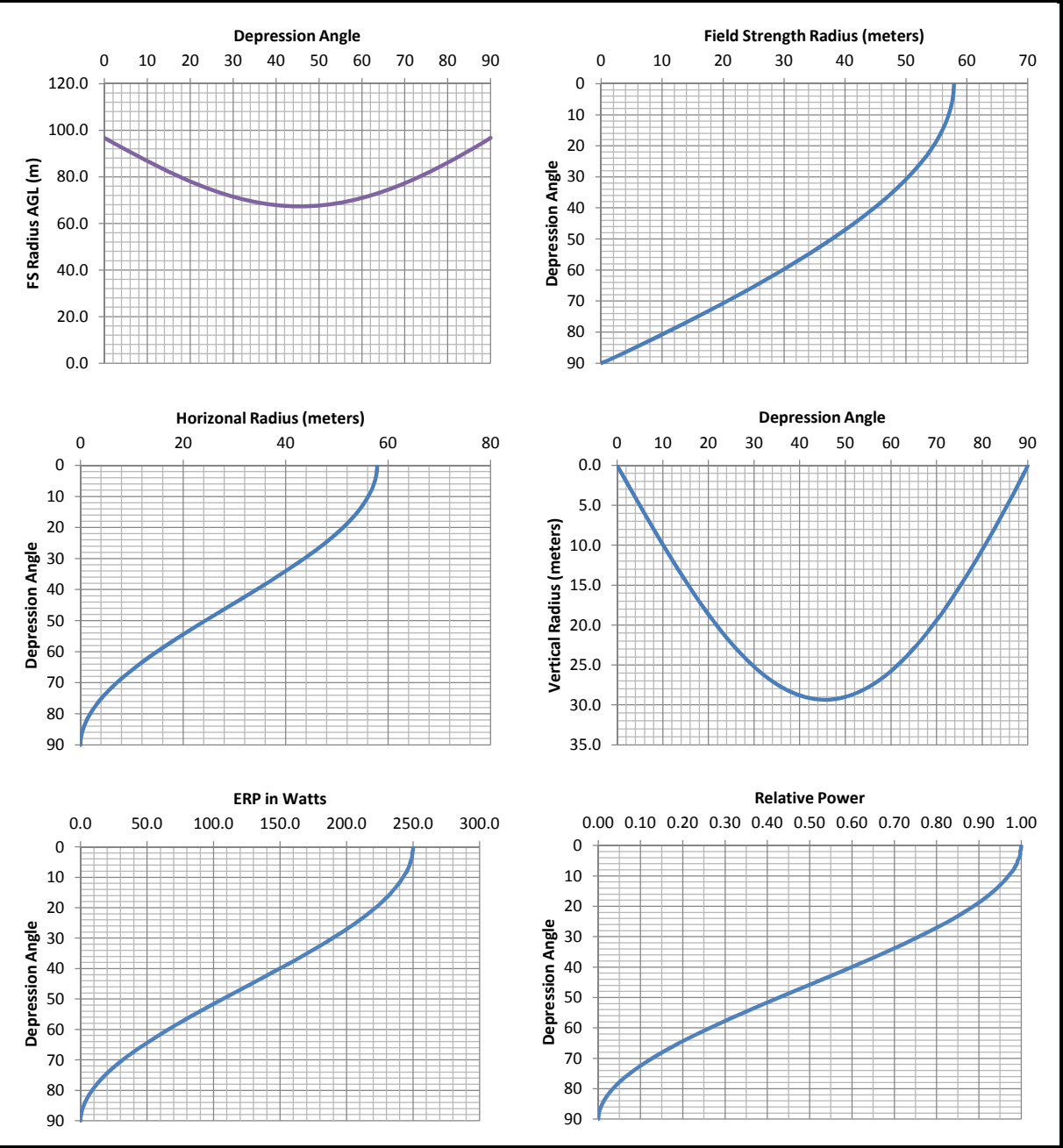
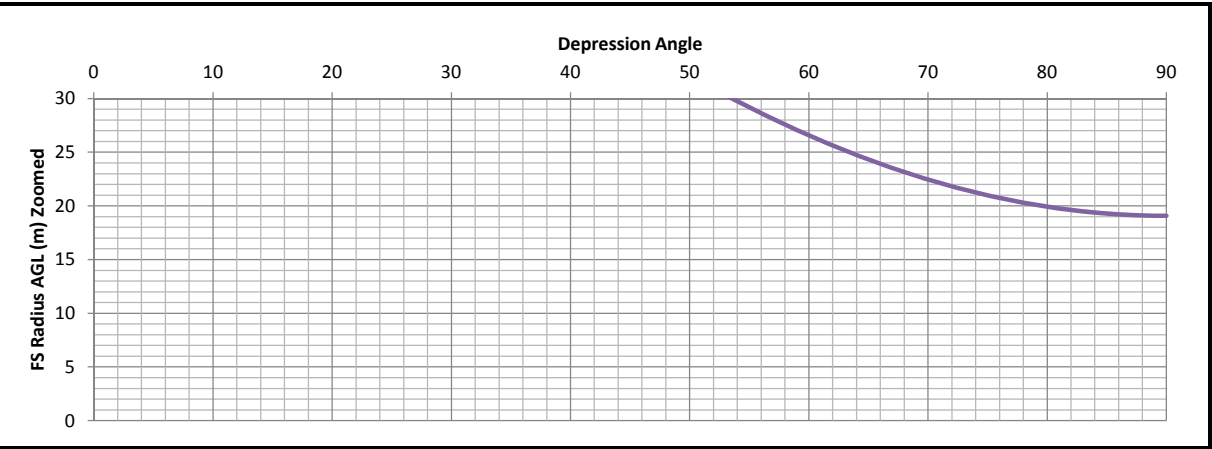
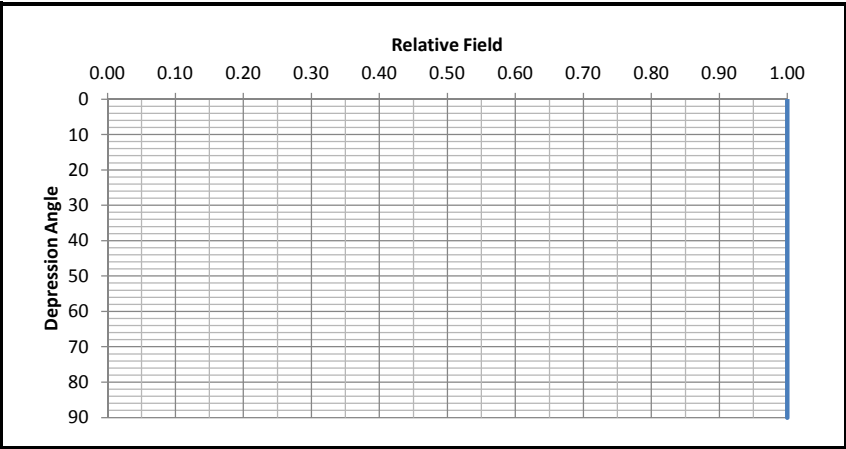


Exhibit E-8

Translator Proximity Interference Analysis

NEW - Texarkana, TX (Ayala to E-String Calculations)

| | | | | | |
|-----------------|-------|---|---|---------------------------|-------------------|
| Antenna No: | 54 | ⋮ | ⋮ | Center of Radiation: | 75 m AGL |
| Manufacturer: | Scala | ⋮ | ⋮ | Effective Radiated Power: | 250 Watts |
| Model: | FMO | | | FS Contour: | 123.8 dBu |
| Number of Bays: | 1 | | | E Field Strength: | 1.54882 V/m |
| Bay Spacing: | N/A | | | Z0 (Ohms): | 377 Ohms |
| | | | | Power Density: | 0.006362952 W/m^2 |



| Depression Angle | Relative Field | Relative Power | ERP Watts | Radii in meters | | | |
|------------------|----------------|----------------|-----------|-----------------|------------|----------|-------|
| | | | | Field Strength | Horizontal | Vertical | AGL |
| 0 | 1.0000 | 1.0000 | 250.00 | 55.92 | 55.92 | 0.00 | 75.00 |
| 1 | 1.0000 | 1.0000 | 250.00 | 55.92 | 55.91 | 0.98 | 74.02 |
| 2 | 1.0000 | 1.0000 | 250.00 | 55.92 | 55.88 | 1.95 | 73.05 |
| 3 | 1.0000 | 1.0000 | 250.00 | 55.92 | 55.84 | 2.93 | 72.07 |
| 4 | 1.0000 | 1.0000 | 250.00 | 55.92 | 55.78 | 3.90 | 71.10 |
| 5 | 1.0000 | 1.0000 | 250.00 | 55.92 | 55.70 | 4.87 | 70.13 |
| 6 | 1.0000 | 1.0000 | 250.00 | 55.92 | 55.61 | 5.84 | 69.16 |
| 7 | 1.0000 | 1.0000 | 250.00 | 55.92 | 55.50 | 6.81 | 68.19 |
| 8 | 1.0000 | 1.0000 | 250.00 | 55.92 | 55.37 | 7.78 | 67.22 |
| 9 | 1.0000 | 1.0000 | 250.00 | 55.92 | 55.23 | 8.75 | 66.25 |
| 10 | 1.0000 | 1.0000 | 250.00 | 55.92 | 55.07 | 9.71 | 65.29 |
| 11 | 1.0000 | 1.0000 | 250.00 | 55.92 | 54.89 | 10.67 | 64.33 |
| 12 | 1.0000 | 1.0000 | 250.00 | 55.92 | 54.69 | 11.63 | 63.37 |
| 13 | 1.0000 | 1.0000 | 250.00 | 55.92 | 54.48 | 12.58 | 62.42 |
| 14 | 1.0000 | 1.0000 | 250.00 | 55.92 | 54.26 | 13.53 | 61.47 |
| 15 | 1.0000 | 1.0000 | 250.00 | 55.92 | 54.01 | 14.47 | 60.53 |
| 16 | 1.0000 | 1.0000 | 250.00 | 55.92 | 53.75 | 15.41 | 59.59 |
| 17 | 1.0000 | 1.0000 | 250.00 | 55.92 | 53.47 | 16.35 | 58.65 |
| 18 | 1.0000 | 1.0000 | 250.00 | 55.92 | 53.18 | 17.28 | 57.72 |
| 19 | 1.0000 | 1.0000 | 250.00 | 55.92 | 52.87 | 18.20 | 56.80 |
| 20 | 1.0000 | 1.0000 | 250.00 | 55.92 | 52.54 | 19.12 | 55.88 |
| 21 | 1.0000 | 1.0000 | 250.00 | 55.92 | 52.20 | 20.04 | 54.96 |
| 22 | 1.0000 | 1.0000 | 250.00 | 55.92 | 51.84 | 20.95 | 54.05 |
| 23 | 1.0000 | 1.0000 | 250.00 | 55.92 | 51.47 | 21.85 | 53.15 |
| 24 | 1.0000 | 1.0000 | 250.00 | 55.92 | 51.08 | 22.74 | 52.26 |
| 25 | 1.0000 | 1.0000 | 250.00 | 55.92 | 50.68 | 23.63 | 51.37 |
| 26 | 1.0000 | 1.0000 | 250.00 | 55.92 | 50.26 | 24.51 | 50.49 |
| 27 | 1.0000 | 1.0000 | 250.00 | 55.92 | 49.82 | 25.39 | 49.61 |
| 28 | 1.0000 | 1.0000 | 250.00 | 55.92 | 49.37 | 26.25 | 48.75 |
| 29 | 1.0000 | 1.0000 | 250.00 | 55.92 | 48.91 | 27.11 | 47.89 |
| 30 | 1.0000 | 1.0000 | 250.00 | 55.92 | 48.42 | 27.96 | 47.04 |
| 31 | 1.0000 | 1.0000 | 250.00 | 55.92 | 47.93 | 28.80 | 46.20 |
| 32 | 1.0000 | 1.0000 | 250.00 | 55.92 | 47.42 | 29.63 | 45.37 |
| 33 | 1.0000 | 1.0000 | 250.00 | 55.92 | 46.90 | 30.45 | 44.55 |
| 34 | 1.0000 | 1.0000 | 250.00 | 55.92 | 46.36 | 31.27 | 43.73 |
| 35 | 1.0000 | 1.0000 | 250.00 | 55.92 | 45.80 | 32.07 | 42.93 |
| 36 | 1.0000 | 1.0000 | 250.00 | 55.92 | 45.24 | 32.87 | 42.13 |
| 37 | 1.0000 | 1.0000 | 250.00 | 55.92 | 44.66 | 33.65 | 41.35 |
| 38 | 1.0000 | 1.0000 | 250.00 | 55.92 | 44.06 | 34.43 | 40.57 |
| 39 | 1.0000 | 1.0000 | 250.00 | 55.92 | 43.45 | 35.19 | 39.81 |
| 40 | 1.0000 | 1.0000 | 250.00 | 55.92 | 42.83 | 35.94 | 39.06 |
| 41 | 1.0000 | 1.0000 | 250.00 | 55.92 | 42.20 | 36.68 | 38.32 |
| 42 | 1.0000 | 1.0000 | 250.00 | 55.92 | 41.55 | 37.42 | 37.58 |
| 43 | 1.0000 | 1.0000 | 250.00 | 55.92 | 40.89 | 38.13 | 36.87 |
| 44 | 1.0000 | 1.0000 | 250.00 | 55.92 | 40.22 | 38.84 | 36.16 |
| 45 | 1.0000 | 1.0000 | 250.00 | 55.92 | 39.54 | 39.54 | 35.46 |

| Depression Angle | Relative Field | Relative Power | ERP Watts | Radii in meters | | | |
|------------------|----------------|----------------|-----------|-----------------|------------|----------|-------|
| | | | | Field Strength | Horizontal | Vertical | AGL |
| 45 | 1.0000 | 1.0000 | 250.00 | 55.92 | 39.54 | 39.54 | 35.46 |
| 46 | 1.0000 | 1.0000 | 250.00 | 55.92 | 38.84 | 40.22 | 34.78 |
| 47 | 1.0000 | 1.0000 | 250.00 | 55.92 | 38.13 | 40.89 | 34.11 |
| 48 | 1.0000 | 1.0000 | 250.00 | 55.92 | 37.42 | 41.55 | 33.45 |
| 49 | 1.0000 | 1.0000 | 250.00 | 55.92 | 36.68 | 42.20 | 32.80 |
| 50 | 1.0000 | 1.0000 | 250.00 | 55.92 | 35.94 | 42.83 | 32.17 |
| 51 | 1.0000 | 1.0000 | 250.00 | 55.92 | 35.19 | 43.45 | 31.55 |
| 52 | 1.0000 | 1.0000 | 250.00 | 55.92 | 34.43 | 44.06 | 30.94 |
| 53 | 1.0000 | 1.0000 | 250.00 | 55.92 | 33.65 | 44.66 | 30.34 |
| 54 | 1.0000 | 1.0000 | 250.00 | 55.92 | 32.87 | 45.24 | 29.76 |
| 55 | 1.0000 | 1.0000 | 250.00 | 55.92 | 32.07 | 45.80 | 29.20 |
| 56 | 1.0000 | 1.0000 | 250.00 | 55.92 | 31.27 | 46.36 | 28.64 |
| 57 | 1.0000 | 1.0000 | 250.00 | 55.92 | 30.45 | 46.90 | 28.10 |
| 58 | 1.0000 | 1.0000 | 250.00 | 55.92 | 29.63 | 47.42 | 27.58 |
| 59 | 1.0000 | 1.0000 | 250.00 | 55.92 | 28.80 | 47.93 | 27.07 |
| 60 | 1.0000 | 1.0000 | 250.00 | 55.92 | 27.96 | 48.42 | 26.58 |
| 61 | 1.0000 | 1.0000 | 250.00 | 55.92 | 27.11 | 48.91 | 26.09 |
| 62 | 1.0000 | 1.0000 | 250.00 | 55.92 | 26.25 | 49.37 | 25.63 |
| 63 | 1.0000 | 1.0000 | 250.00 | 55.92 | 25.39 | 49.82 | 25.18 |
| 64 | 1.0000 | 1.0000 | 250.00 | 55.92 | 24.51 | 50.26 | 24.74 |
| 65 | 1.0000 | 1.0000 | 250.00 | 55.92 | 23.63 | 50.68 | 24.32 |
| 66 | 1.0000 | 1.0000 | 250.00 | 55.92 | 22.74 | 51.08 | 23.92 |
| 67 | 1.0000 | 1.0000 | 250.00 | 55.92 | 21.85 | 51.47 | 23.53 |
| 68 | 1.0000 | 1.0000 | 250.00 | 55.92 | 20.95 | 51.84 | 23.16 |
| 69 | 1.0000 | 1.0000 | 250.00 | 55.92 | 20.04 | 52.20 | 22.80 |
| 70 | 1.0000 | 1.0000 | 250.00 | 55.92 | 19.12 | 52.54 | 22.46 |
| 71 | 1.0000 | 1.0000 | 250.00 | 55.92 | 18.20 | 52.87 | 22.13 |
| 72 | 1.0000 | 1.0000 | 250.00 | 55.92 | 17.28 | 53.18 | 21.82 |
| 73 | 1.0000 | 1.0000 | 250.00 | 55.92 | 16.35 | 53.47 | 21.53 |
| 74 | 1.0000 | 1.0000 | 250.00 | 55.92 | 15.41 | 53.75 | 21.25 |
| 75 | 1.0000 | 1.0000 | 250.00 | 55.92 | 14.47 | 54.01 | 20.99 |
| 76 | 1.0000 | 1.0000 | 250.00 | 55.92 | 13.53 | 54.26 | 20.74 |
| 77 | 1.0000 | 1.0000 | 250.00 | 55.92 | 12.58 | 54.48 | 20.52 |
| 78 | 1.0000 | 1.0000 | 250.00 | 55.92 | 11.63 | 54.69 | 20.31 |
| 79 | 1.0000 | 1.0000 | 250.00 | 55.92 | 10.67 | 54.89 | 20.11 |
| 80 | 1.0000 | 1.0000 | 250.00 | 55.92 | 9.71 | 55.07 | 19.93 |
| 81 | 1.0000 | 1.0000 | 250.00 | 55.92 | 8.75 | 55.23 | 19.77 |
| 82 | 1.0000 | 1.0000 | 250.00 | 55.92 | 7.78 | 55.37 | 19.63 |
| 83 | 1.0000 | 1.0000 | 250.00 | 55.92 | 6.81 | 55.50 | 19.50 |
| 84 | 1.0000 | 1.0000 | 250.00 | 55.92 | 5.84 | 55.61 | 19.39 |
| 85 | 1.0000 | 1.0000 | 250.00 | 55.92 | 4.87 | 55.70 | 19.30 |
| 86 | 1.0000 | 1.0000 | 250.00 | 55.92 | 3.90 | 55.78 | 19.22 |
| 87 | 1.0000 | 1.0000 | 250.00 | 55.92 | 2.93 | 55.84 | 19.16 |
| 88 | 1.0000 | 1.0000 | 250.00 | 55.92 | 1.95 | 55.88 | 19.12 |
| 89 | 1.0000 | 1.0000 | 250.00 | 55.92 | 0.98 | 55.91 | 19.09 |
| 90 | 1.0000 | 1.0000 | 250.00 | 55.92 | 0.00 | 55.92 | 19.08 |

