

**Comprehensive Engineering Exhibit**  
**Facility ID No. 139604, K296GB**

This exhibit is for minor change of translator facility 139604, K296GB, BLFT-20101005ABH, which is seeking an increase in power only, at the presently licensed location and elevation.

The transmit antenna is located 82 meters above ground on a tower identified by registration number 1058155. This proposal will replace the existing antenna with an "off the shelf" directional, vertical only polarity, antenna with no change in location upon the tower, and increase power to 250 watts.

Below as Figure 1 is a spacing study from which it can be determined that this proposal is within the protected contour of station KBZC which is on the third adjacent channel. With respect to all other authorized facilities this proposal will not create any prohibited contour overlap.

Section 74.1204(d) states that *"The provisions of this section concerning prohibited overlap will not apply where the area of such overlap lies entirely over water. In addition, an application otherwise precluded by this section will be accepted if it can be demonstrated that no actual interference will occur due to intervening terrain, lack of population or such other factors as may be applicable."*

We will demonstrate that a lack of population and/ or other factors allow this proposal to be compliant with 74.1204. The process commonly called "Living Way", as recently described in FCC 08-242 in connection with BPFT-19981001TA, allows for the use of U/D Analysis, also known as "signal strength ratio methodology." In this instant case the facilities of KBZC and this proposal are third adjacent channels, which are to be afforded protection from signals 40 dB stronger.

Figure 2 is a map showing the predicted signal contour of KBZC at the proposed translator location utilizing the FCC F50:50 curve. KBZC is predicted to present an 81.7 dBu signal at the translator tower location. Thus the 121.7 dB contour (81.7 dBu + 40 dBu) of this proposal is the lowest value predicted to cause interference to KBZC. Also Shown in Figure 2 are the contours of the primary station, this proposal, and that of the currently licensed facility.

Figure 3 depicts the predicted signal strength from the translator both at ground level, and at receiving antenna locations up to 40 meters above ground level of the translator. The 40 meter data is identified in the table as the "artificial plane," and as can be determined by the columns colored green, at no location from ground level to 40 meters above ground does the predicted signal of the proposed translator exceed that of 40 dB greater than KBZC.

Figure 4 is a photograph of the 109 meter overall height support tower. It can be determined from the image that no habitable space exists near the tower which exceeds 40 meters above ground level, thus compliance with Section 74.1204(d) has been demonstrated.

The proposed facilities were evaluated in terms of potential radio frequency radiation exposure at ground level in accordance with OET Bulletin No. 65, "Evaluating Compliance With FCC-Specified Guidelines for Human Exposure to Radio Frequency Radiation."

The proposed antenna system is not modeled in "FM Model", a worst case EPA type 1 "Ring-Stub", 1 bay antenna full wave element spaced, has been evaluated using "FM Model, as being mounted with its

center of radiation 82 meters above ground level, with an effective radiated power of 0.250 kilowatts in both the horizontal and vertical planes.

At 2 meters above the surface, at 18 meters from the closest point of approach, this proposal will contribute worst case, 1.24 microwatts per square centimeter, or 0.12 percent of the allowable ANSI limit for controlled exposure, and 0.60 percent of the allowable limit for uncontrolled exposure. This figure is less than 5% of the applicable FCC exposure limit at all locations extending out from the base of the tower. It is therefore believed that this proposal is in compliance with OET Bulletin Number 65 as required by the Federal Communications Commission.

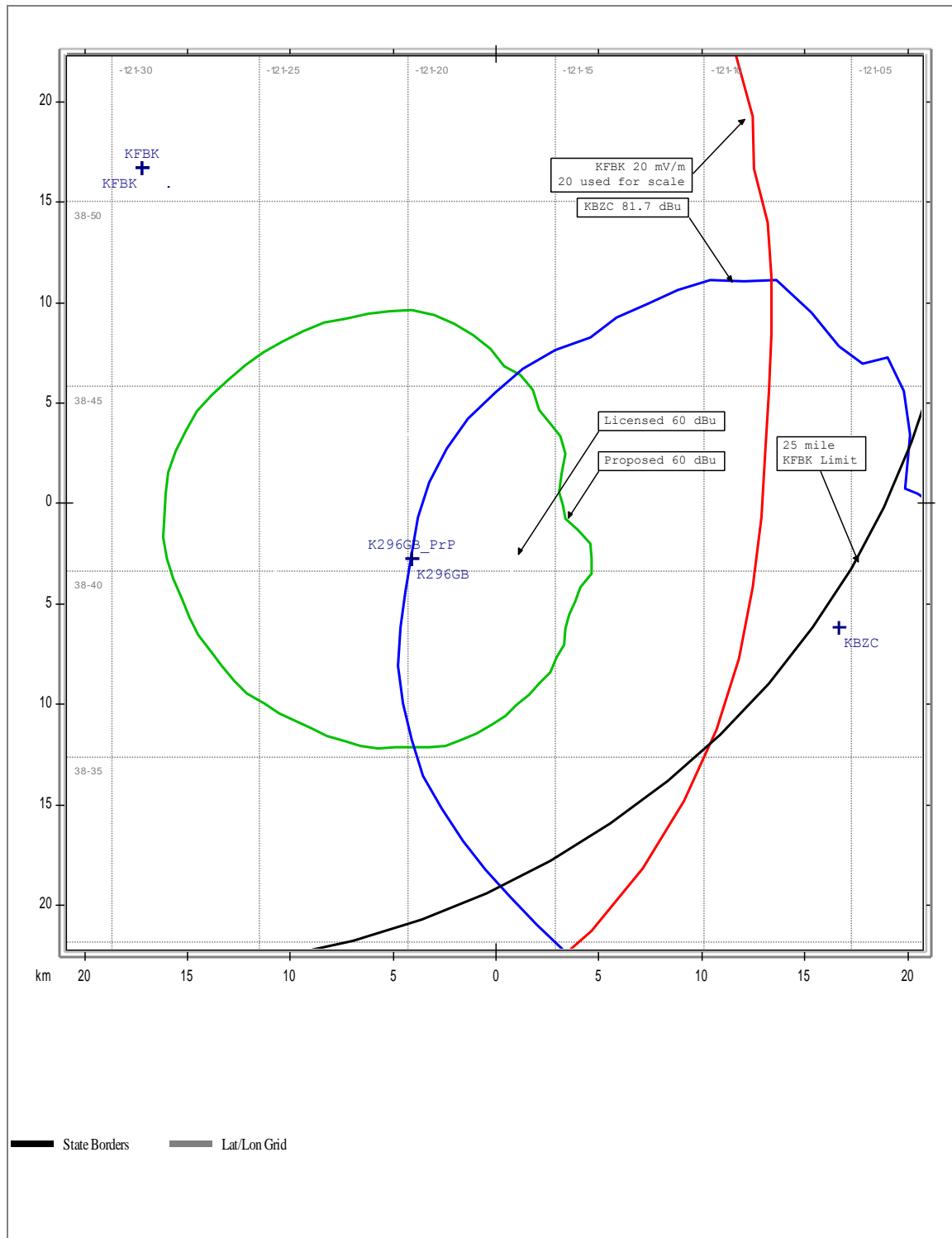
Further, the applicant will see that signs are posted in the vicinity of the tower, warning of potential radio frequency hazards at the site. The site itself is restricted from public access. The applicant will cooperate with other users of the tower to reduce power of the facility, or discontinue operation, as necessary to limit human exposure to levels less than specified by the Federal Communications Commission should anyone be required to climb the tower for maintenance or inspection.

**Figure 1. Spacing Study**

| K296GB with 250 watts @ Lic Loc & Height with Scala FMV                   |          |          |      |       |  |                                      |         |         |                            |                 |         |
|---|----------|----------|------|-------|--|--------------------------------------|---------|---------|----------------------------|-----------------|---------|
| REFERENCE   |          | CH#      | 296D | -     | 107.1 MHz, Pwr= 0.25 kw DA, HAAT= 77.5 M, COR= 113 M | Educational Media Foundation         |         |         |                            |                 |         |
| 38 40 21.0 N.   |          |          |      |       |  | Average Protected F(50-50)= 11.41 km |         |         |                            |                 |         |
| 121 19 51.0 W.  |          |          |      |       |  | Standard Directional                 |         |         |                            |                 |         |
| 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) | (in km) |
| 293B  | KBZC     | LIC _CY  |      | 99.2  | 21.21  | 38 38 30.0                           | 50.000  | 7.3     | 73.0                       | 6.1             | -53.4*< |
| Sacramento  | CA       |          |      | 279.4 | BLH19830216AD  | 121 05 25.0                          | 125     | 299     | Entercom Sacramento        |                 | Licens  |
| 296D  | K296GB   | LIC _C_  |      | 0.0   | 0.00   | 38 40 21.0                           | 0.019   | 20.5    | 6.2                        | -32.3*<         | -46.5*< |
| North Highlands   | CA       |          |      | 0.0   | BLFT20101005ABH                                      | 121 19 51.0                          | 78      | 113     | Educational Media Foundati |                 |         |
| 297B  | KLVX     | LIC _HX  |      | 202.7 | 102.33   | 37 49 17.0                           | 8.100   | 97.1    | 80.9                       | -3.9<           | 2.4     |
| Livermore   | CA       |          |      | 22.4  | BLED20120628AAI                                      | 121 46 49.0                          | 491     | 713     | San Joaquin Broadcasting C |                 |         |
| 295D  | 649728   | APP _C_  |      | 183.6 | 24.37  | 38 27 12.0                           | 0.250   | 15.1    | 10.7                       | 0.4             | 1.3     |
| Elk Grove   | CA       |          |      | 3.6   | BNPFT20030317MNK                                     | 121 20 54.0                          | 69      | 87      | Eastern Sierra Broadcastin |                 |         |
| 243D  | 649715<  | APP _C_  |      | 227.7 | 17.51  | 38 33 59.0                           | 0.205   | 0.0     | 0.0                        | 9.5R            | 8.0M    |
| Sacramento  | CA       |          |      | 47.6  | BNPFT20030317KKK                                     | 121 28 47.0                          | 104     | 113     | Eastern Sierra Broadcastin |                 |         |
| 295C  | KRNO     | LIC _CY  |      | 60.0  | 144.00   | 39 18 38.0                           | 37.000  | 126.1   | 85.9                       | 9.9             | 46.7    |
| Incline village   | NV       |          |      | 240.9 | BMLH20010806AAN                                      | 119 53 01.0                          | 911     | 2987    | Americom Las Vegas Limited |                 |         |
| 296D  | K296EX   | LIC _DC_ |      | 324.7 | 72.76  | 39 12 20.0                           | 0.010   | 50.9    | 13.8                       | 9.9             | 18.0    |
| Yuba City   | CA       |          |      | 144.4 | BLFT20080805AAX                                      | 121 49 09.0                          | 605     | 651     | Educational Media Foundati |                 |         |
| 298A  | DKSAC    | VAC _N   |      | 124.0 | 55.68  | 38 23 30.0                           | 6.000   | 3.9     | 42.6                       | 43.8            | 12.4    |
| Sutter Creek  | CA       |          |      | 304.3 |  | 120 48 06.0                          | 100     | 480     |                            |                 |         |
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| 298A  | 1432289  | RSV-A    |      | 124.0 | 55.68  | 38 23 30.0                           | 6.000   | 3.9     | 42.6                       | 43.8            | 12.4    |
| Sutter Creek  | CA       |          |      | 304.3 |  | 120 48 06.0                          | 100     | 480     | Calvary Chapel of Amador C |                 |         |
| One Step Application  |          |          |      |       |  |                                      |         |         |                            |                 |         |
| 298A  | 1422321  | RSV-A    |      | 124.0 | 55.68  | 38 23 30.0                           | 6.000   | 3.9     | 42.6                       | 43.8            | 12.4    |
| Sutter Creek  | CA       |          |      | 304.3 |  | 120 48 06.0                          | 100     | 480     | Sutter Hill Seventh-day Ad |                 |         |
| One Step Application (missing FA corrected from procedure data_one_steps) |          |          |      |       |  |                                      |         |         |                            |                 |         |
| 298A  | 1513664  | RSV-A    |      | 124.0 | 55.68  | 38 23 30.0                           | 6.000   | 3.9     | 42.6                       | 43.8            | 12.4    |
| Sutter Creek  | CA       |          |      | 304.3 |  | 120 48 06.0                          | 100     | 480     | Sutter Hill Seventh-day Ad |                 |         |
| One Step Application  |          |          |      |       |  |                                      |         |         |                            |                 |         |
| 295B  | KFRC-FM  | LIC _C_  |      | 228.5 | 136.87   | 37 51 04.0                           | 80.000  | 109.1   | 88.2                       | 18.0            | 28.2    |
| San Francisco   | CA       |          |      | 47.8  | BMLH20050811ABJ                                      | 122 29 50.0                          | 305     | 369     | Cbs Radio Stations Inc.    |                 |         |
| 298B  | KQPT     | LIC _CN  |      | 308.6 | 110.56   | 39 17 17.0                           | 28.000  | 7.6     | 78.3                       | 90.9            | 30.7    |
| Colusa  | CA       |          |      | 128.0 | BLH19860925KB  | 122 20 02.0                          | 193     | 410     | Mapleton License of Chico, |                 |         |
| 298A  | 1509306  | APP _CX  |      | 111.7 | 72.66  | 38 25 45.0                           | 2.600   | 3.0     | 39.4                       | 62.0            | 32.6    |
| Sutter Creek  | CA       |          |      | 292.1 | BNPED20100225ADX                                     | 120 33 25.0                          | 148     | 1023    | Sutter Hill Seventh-day Ad |                 |         |
| One Step Application  |          |          |      |       |  |                                      |         |         |                            |                 |         |
| 298A  | 1432058  | APP _CX  |      | 107.8 | 73.93  | 38 27 59.0                           | 4.800   | 3.6     | 40.3                       | 62.6            | 32.9    |
| Sutter Creek  | CA       |          |      | 288.3 | BNPED20100225AAO                                     | 120 31 27.0                          | 111     | 1103    | Calvary Chapel of Amador C |                 |         |
| 298A  | 1357799  | APP _CX  |      | 111.6 | 72.86  | 38 25 44.6                           | 2.100   | 2.8     | 39.0                       | 62.4            | 33.1    |
| Sutter Creek  | CA       |          |      | 292.1 | BNPED20100225ADX                                     | 120 33 16.3                          | 170     | 1051    | Sutter Hill Seventh-day Ad |                 |         |
| 298A  | 1358990  | APP _CX  |      | 111.7 | 72.66  | 38 25 45.0                           | 1.870   | 2.7     | 38.5                       | 62.3            | 33.4    |
| Sutter Creek  | CA       |          |      | 292.1 | BNPED20100226AJU                                     | 120 33 25.0                          | 184     | 1055    | Sonora Sierra Heritage Fou |                 |         |
| 298A  | 1358480  | APP _CX  |      | 111.7 | 72.66  | 38 25 45.0                           | 1.800   | 2.7     | 38.5                       | 62.3            | 33.5    |
| Sutter Creek  | CA       |          |      | 292.1 | BNPED20100224ACJ                                     | 120 33 25.0                          | 186     | 1060    | Farms of Amador            |                 |         |
| 296L1   | KRBS-LP  | LIC _    |      | 349.3 | 94.56  | 39 30 33.0                           | 0.100   | 18.6    | 5.6                        | 64.2            | 48.6    |
| Oroville  | CA       |          |      | 169.1 | BLL20100929AFN                                       | 121 32 11.0                          |         | 85      | Bird Street Media Project  |                 |         |
| 296A  | KSRT     | LIC _CX  |      | 276.4 | 150.14   | 38 48 34.0                           | 3.500   | 79.4    | 25.8                       | 59.3            | 84.9    |
| Cloverdale  | CA       |          |      | 95.3  | BLH20020509AAT                                       | 123 02 56.0                          | 131     | 471     | Lazer Licenses, Llc        |                 |         |
| 243D  | 630933<  | APP _C_  |      | 324.7 | 72.77  | 39 12 20.0                           | 0.100   | 0.0     | 0.0                        | 9.5R            | 63.3M   |
| Sutter  | CA       |          |      | 144.4 | BNPFT20030314ACZ                                     | 121 49 10.0                          | 659     | 705     | Educational Media Foundati |                 |         |
| 299D  | KSAN-FM1 | LIC _HN  |      | 210.4 | 101.68   | 37 52 55.0                           | 0.185   | 1.0     | 37.7                       | 91.4            | 63.4    |
| Pleasanton, Etc.  | CA       |          |      | 30.1  | BLFTB19900803TD                                      | 121 55 05.0                          |         | 1155    | Susquehanna Radio Corp.    |                 |         |
| 296D  | K296FO   | LIC _DH_ |      | 133.1 | 111.68   | 37 58 58.0                           | 0.200   | 28.6    | 8.6                        | 74.8            | 75.7    |
| Sonora  | CA       |          |      | 313.7 | BLFT20071113AJD                                      | 120 24 03.0                          | 178     | 750     | Central Valley Broadcastin |                 |         |

Terrain database is NGDC 30 SEC , R= 73.215 qualifying spacings or FCC minimum spacings in KM, M= Margin in KM  
 contour distances are on direct line to and from reference station. Reference zone= , Co to 3rd adjacent.

**Figure 2. Contour Map**



**Figure 3. Distance to Interference Contour With Antenna Vertical Pattern**

| <b>Proposed Antenna:</b> Scala FMV<br><b>Proposed Power:</b> 0.25 kW<br><b>Antenna Height AGL:</b> 82 meters<br><b>Interference Contour:</b> 121.7 dBu f(50:10)<br><b>Artificial Rcv Antenna Height:</b> 2 meters<br><b>Distance (Free Space) Equation:</b> $= (10^{\frac{106.92 - [\text{desired dBu}] + [\text{ERP in dBk}]}{20}}) * 1000$<br><b>Field Strength (dBu) Equation:</b> $= 106.92 - (20 * (\text{LOG10}[\text{DistMeters}/1000])) + [\text{ERP in dBk}]$ |          |       |        |           |                  |                  |                 |                |
|--|----------|-------|--------|-----------|------------------|------------------|-----------------|----------------|
| Depression   |          |       |        | Distance  |                  |                  |                 |                |
| Angle  | Antenna  |       |        | from Ant. | Distance         | Field Strength   | Distance        | Field Strength |
| Below  | Relative | ERP   | ERP    | to Interf | from Ant. to     | in dBu @         | from Ant.       | in dBu @       |
| Horizon  | Field    | in kW | in dBk | Contour   | Artificial Plane | Artificial Plane | to Ground Level | Ground Level   |
| 0°   | 1.000    | 0.250 | -6.02  | 91.19 m   | infinite         | ---              | infinite        | ---            |
| -5°  | 0.995    | 0.248 | -6.06  | 90.74 m   | 917.90 m         | 101.60 dBu       | 940.84 m        | 101.39 dBu     |
| -10°   | 0.982    | 0.241 | -6.18  | 89.55 m   | 460.70 m         | 107.47 dBu       | 472.22 m        | 107.26 dBu     |
| -15°   | 0.950    | 0.226 | -6.47  | 86.64 m   | 309.10 m         | 110.65 dBu       | 316.82 m        | 110.44 dBu     |
| -20°   | 0.918    | 0.211 | -6.76  | 83.72 m   | 233.90 m         | 112.78 dBu       | 239.75 m        | 112.56 dBu     |
| -25°   | 0.867    | 0.188 | -7.26  | 79.07 m   | 189.30 m         | 114.12 dBu       | 194.03 m        | 113.90 dBu     |
| -30°   | 0.803    | 0.161 | -7.93  | 73.23 m   | 160.00 m         | 114.91 dBu       | 164.00 m        | 114.70 dBu     |
| -35°   | 0.727    | 0.132 | -8.79  | 66.30 m   | 139.48 m         | 115.24 dBu       | 142.96 m        | 115.03 dBu     |
| -40°   | 0.645    | 0.104 | -9.83  | 58.82 m   | 124.46 m         | 115.19 dBu       | 127.57 m        | 114.98 dBu     |
| -45°   | 0.558    | 0.078 | -11.09 | 50.89 m   | 113.14 m         | 114.76 dBu       | 115.97 m        | 114.55 dBu     |
| -50°   | 0.472    | 0.056 | -12.54 | 43.04 m   | 104.43 m         | 114.00 dBu       | 107.04 m        | 113.79 dBu     |
| -55°   | 0.388    | 0.038 | -14.24 | 35.38 m   | 97.66 m          | 112.88 dBu       | 100.10 m        | 112.67 dBu     |
| -60°   | 0.310    | 0.024 | -16.19 | 28.27 m   | 92.38 m          | 111.42 dBu       | 94.69 m         | 111.20 dBu     |
| -65°   | 0.240    | 0.014 | -18.42 | 21.89 m   | 88.27 m          | 109.59 dBu       | 90.48 m         | 109.37 dBu     |
| -70°   | 0.176    | 0.008 | -21.11 | 16.05 m   | 85.13 m          | 107.21 dBu       | 87.26 m         | 106.99 dBu     |
| -75°   | 0.119    | 0.004 | -24.51 | 10.85 m   | 82.82 m          | 104.05 dBu       | 84.89 m         | 103.83 dBu     |
| -80°   | 0.067    | 0.001 | -29.50 | 6.11 m    | 81.23 m          | 99.23 dBu        | 83.26 m         | 99.01 dBu      |
| -85°   | 0.019    | 0.000 | -40.45 | 1.73 m    | 80.31 m          | 88.38 dBu        | 82.31 m         | 88.17 dBu      |
| -90°   | 0.025    | 0.000 | -38.06 | 2.28 m    | 80.00 m          | 90.80 dBu        | 82.00 m         | 90.58 dBu      |

**Figure 4.**

