

Channel Study

| REFERENCE | | CH# 225D - 92.9 MHz, Pwr= 0.25 kW DA, HAAT= 233.5 M, COR= 504 M | | | | | | | | DISPLAY DATES | |
|-----------------------|---------|---|--------------|----------------|---------------------------|--------------------------|--------------------|-------------------|------------------------------------|-------------------------|---------|
| 44 58 36.0 N. | | Average Protected F(50-50)= 20.0 km | | | | | | | | DATA 06-27-18 | |
| 93 16 15.0 W. | | Standard Directional | | | | | | | | SEARCH 06-29-18 | |
| 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* |
| 223C Golden Valley | KQRS-FM | LIC | CN MN | 51.7 231.8 | 14.69 BLH19910814KB | 45 03 30.0 93 07 27.0 | 100.000 315 | 10.4 593 | 73.9 Radio License Holdings Llc | -13.5*< | -60.1*< |
| 225D St. Paul | W225AP! | CP | C MN | 0.0 0.0 | 0.00 BPFT20170710AAY | 44 58 36.0 93 16 15.0 | 0.099 | 52.5 504 | 16.1 Educational Media Foundati | -57.8 | -35.0 |
| 225D St. Paul | W225AP! | LIC | C MN | 97.5 277.6 | 15.56 BLFT20170707ABE | 44 57 30.0 93 04 31.0 | 0.250 | 23.8 287 | 7.1 Educational Media Foundati | -27.9 | -52.5 |
| 227D Shoreview | W227BF | LIC | V MN | 240.6 60.6 | 0.12 BLFT20170724ABF | 44 58 34.0 93 16 20.0 | 0.099 | 0.7 504 | 15.3 Educational Media Foundati | -14.8*< | -15.7*< |
| 225C3 St. Joseph | KKJM | LIC | CN MN | 310.9 130.1 | 113.50 BLH19960510KA | 45 38 19.0 94 22 23.0 | 25.000 100 | 117.3 448 | 42.1 Gabriel Media | -8.1*< | 55.9 |
| 226D River Falls | W226CK | CP | C WI | 101.1 281.6 | 49.93 BNPFT20171201ACY | 44 53 19.0 92 39 02.0 | 0.250 | 21.7 393 | 14.4 Hanten Broadcasting Co. In | 8.7 | 6.6 |
| 226C1 New Ulm | KATO-FM | LIC | CX MN | 218.0 37.3 | 119.05 BMLH20140612ACV | 44 07 46.0 94 11 17.0 | 100.000 149 | 88.4 440 | 58.7 Minnesota Valley Broadcast | 12.3 | 33.0 |
| 225A Rochester | KFSI | LIC | CN MN | 151.2 331.7 | 120.62 BLED19810507AJ | 44 01 27.0 92 32 36.0 | 6.000 97 | 85.5 443 | 27.4 Faith Sound, Inc. | 15.6 | 32.7 |
| 225A Elk Mound | WECL | LIC | CN WI | 93.8 275.0 | 133.52 BLH19920720KI | 44 53 04.0 91 35 04.0 | 3.300 136 | 83.6 424 | 28.4 Mid-west Management, Inc. | 30.1 | 43.7 |
| 225A Lake Hallie | WECL | CP | NCX WI | 95.8 277.1 | 144.99 BPH20170303ABG | 44 49 47.0 91 26 48.0 | 5.800 92 | 87.1 372 | 28.9 Mid-west Management, Inc. | 38.0 | 54.9 |
| 225C1 Duluth | WSCD-FM | LIC | C MN | 23.5 204.3 | 220.41 BMLED19940823KA | 46 47 20.0 92 07 04.0 | 70.000 185 | 163.8 492 | 69.3 Minnesota Public Radio | 43.4 | 107.1 |
| 226L1 Amery | WPCA-LP | LIC | | 62.2 242.9 | 82.35 BLL20120523AAS | 45 19 02.0 92 20 27.0 | 0.050 42 | | | 53.2 | 47.1 |

Terrain database is FCC 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= West Zone, Co to 3rd adjacent.
 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.
 < = Contour Overlap

Compliance with C.F.R. 74.1204

The proposed FM Translator is located within the protected 60dBu contour of second adjacent channel station KQRS, channel 223C, Golden Valley, MN. According to 74.1204(a)(3), in order to protect second and third adjacent facilities, the difference in dBu between the two facilities must not exceed 40dBu.

| | |
|--|------------|
| The proposed ERP for W225AP.P: | 250 watts |
| The proposed COR for W225AP.P: | 245 meters |
| KQRS F(50/50) contour at proposed site: | 94.0dBu |
| The F(50/10) contour of proposed W225AP.P: | 134.0dBu |

The predicted distance to the 134.0dbu interfering contour is 22 meters. The antenna array will be mounted on a building rooftop. Taking into account the vertical elevation pattern of the Scala CLFM dual antenna array, and a center of radiation of 4m above the rooftop, it has been determined that the interfering contour of 134.0dbu does not extend to any regularly occupied structures. As seen in exhibit 13-A1, the interfering contour extends 3.1m below the rooftop. This is well above any regularly occupied areas of this building as the top floors are mechanical rooms and elevator control and motor rooms.

Exhibit 13–A2 shows the building location on Google Earth. It has been determined that no other nearby buildings extend higher or are near enough to enter into the interfering aperture.

Therefore, EMF respectfully requests a waiver of C.F.R. 74.1204 based on no population within the area of predicted interference.

EXHIBIT 13 - A1
74.1204(d) Showing
W225AP
St Paul, MN

ERP (kw): 0.25
Height of Antenna above Roof (m): 4
Translator's IX Contour: 134
Antenna Type: Scala CL-V

| <u>Depression Angle from Horizon</u> | <u>Antenna Relative Field</u> | <u>ERP (kw) from the Antenna RF</u> | <u>Dist. To IX Contour (m)</u> | <u>Height IX Contour Above Ground (m)</u> |
|--|-----------------------------------|---|--------------------------------|---|
| 0 | 1.000 | 0.2500 | 22.1294 | 4.000 |
| 5 | 0.980 | 0.2401 | 21.6868 | 2.110 |
| 10 | 0.950 | 0.2256 | 21.0229 | 0.349 |
| 15 | 0.895 | 0.2003 | 19.8058 | -1.126 |
| 20 | 0.820 | 0.1681 | 18.1461 | -2.206 |
| 25 | 0.735 | 0.1351 | 16.2651 | -2.874 |
| 30 | 0.645 | 0.1040 | 14.2735 | -3.137 |
| 35 | 0.563 | 0.0791 | 12.4478 | -3.140 |
| 40 | 0.470 | 0.0552 | 10.4008 | -2.686 |
| 45 | 0.360 | 0.0324 | 7.9666 | -1.633 |
| 50 | 0.250 | 0.0156 | 5.5324 | -0.238 |
| 55 | 0.155 | 0.0060 | 3.4301 | 1.190 |
| 60 | 0.085 | 0.0018 | 1.8810 | 2.371 |
| 65 | 0.045 | 0.0005 | 0.9958 | 3.097 |
| 70 | 0.020 | 0.0001 | 0.4426 | 3.584 |
| 75 | 0.010 | 0.0000 | 0.2213 | 3.786 |
| 80 | 0.010 | 0.0000 | 0.2213 | 3.782 |
| 85 | 0.010 | 0.0000 | 0.2213 | 3.780 |
| 90 | 0.010 | 0.0000 | 0.2213 | 3.779 |

Compliance with C.F.R. 74.1204

The proposed FM Translator is located within the protected 60dBu contour of second adjacent channel station W227BF, channel 227D, Shoreview, MN. According to 74.1204(a)(3), in order to protect second and third adjacent facilities, the difference in dBu between the two facilities must not exceed 40dBu.

| | |
|--|------------|
| The proposed ERP for W225AP.P: | 250 watts |
| The proposed COR for W225AP.P: | 245 meters |
| W227BF F(50/50) contour at proposed site: | 114.9dBu |
| The F(50/10) contour of proposed W225AP.P: | 154.9dBu |

The predicted distance to the 154.9dbu interfering contour is 2 meters. The antenna array will be mounted on a building rooftop. Taking into account the vertical elevation pattern of the Scala CLFM dual antenna array, and a center of radiation of 4m above the rooftop, it has been determined that the interfering contour of 154.9dbu does not extend to any regularly occupied structures. As seen in exhibit 13-A1, the lowest interfering contour extends 3.4m above the rooftop. This is well above any regularly occupied areas of this building as the top floors are mechanical rooms and elevator control and motor rooms.

Exhibit 13–A2 shows the building location on Google Earth. It has been determined that no other nearby buildings extend higher or are near enough to enter into the interfering aperture.

Therefore, EMF respectfully requests a waiver of C.F.R. 74.1204 based on no population within the area of predicted interference.

EXHIBIT 13 - A1
74.1204(d) Showing
W225AP
St Paul, MN

ERP (kw): 0.25
Height of Antenna above Roof (m): 4
Translator's IX Contour: 154.9
Antenna Type: Scala CL-V

| Depression Angle from Horizon | Antenna Relative Field | ERP (kw) from the Antenna RF | Dist. To IX Contour (m) | Height IX Contour Above Ground (m) |
|--|-----------------------------------|---|--------------------------------|---|
| 0 | 1.000 | 0.2500 | 1.9951 | 4.000 |
| 5 | 0.980 | 0.2401 | 1.9552 | 3.830 |
| 10 | 0.950 | 0.2256 | 1.8954 | 3.671 |
| 15 | 0.895 | 0.2003 | 1.7856 | 3.538 |
| 20 | 0.820 | 0.1681 | 1.6360 | 3.440 |
| 25 | 0.735 | 0.1351 | 1.4664 | 3.380 |
| 30 | 0.645 | 0.1040 | 1.2869 | 3.357 |
| 35 | 0.563 | 0.0791 | 1.1223 | 3.356 |
| 40 | 0.470 | 0.0552 | 0.9377 | 3.397 |
| 45 | 0.360 | 0.0324 | 0.7182 | 3.492 |
| 50 | 0.250 | 0.0156 | 0.4988 | 3.618 |
| 55 | 0.155 | 0.0060 | 0.3092 | 3.747 |
| 60 | 0.085 | 0.0018 | 0.1696 | 3.853 |
| 65 | 0.045 | 0.0005 | 0.0898 | 3.919 |
| 70 | 0.020 | 0.0001 | 0.0399 | 3.963 |
| 75 | 0.010 | 0.0000 | 0.0200 | 3.981 |
| 80 | 0.010 | 0.0000 | 0.0200 | 3.980 |
| 85 | 0.010 | 0.0000 | 0.0200 | 3.980 |
| 90 | 0.010 | 0.0000 | 0.0200 | 3.980 |



Google Earth

feet
meters

700
200



Yellow Pin Marker

NAD 27

44-58-36.0 N 93-16-15.0 W