

**Technical Exhibit**  
**Comprehensive Engineering Statement**

prepared for

**DuPage Radio, LLC**  
W272DQ Chicago, Illinois  
Facility ID 151530  
Channel 272D 0.099 kW 625 meters AMSL

DuPage Radio, LLC (“*DuPage*”), is the licensee of translator W272DQ (file no. BLFT-20161013AAR) on Channel 272D utilizing a non-directional antenna. W272DQ is a fill-in translator for standard broadcast station WCKG(AM), 1530 kHz, Elmhurst, IL. *DuPage* seeks to move W272DQ to another transmitting location as a minor modification. In particular, *DuPage* proposes to use the registered structure, ASRN 1032959, with coordinates of 41° 52’ 44.1”N, 87° 38’ 10.2”W (NAD 83). The proposed antenna will be directional, circularly polarized and mounted at 443.8 meters AGL. A maximum ERP of 99 Watts is being specified.

**Nature of the Proposal**

The antenna system for the proposed translator is a directional antenna, which will be side-mounted on an existing antenna support structure. No change in structure overall height is necessary to carry out this proposal. Since no change to the structure’s overall height is proposed, no change to structure marking/lighting requirements will result. To demonstrate the proposal’s qualifications as a minor modification, **Figure 1** depicts the W272DQ licensed contour, the proposed contour, the parent station WCKG(AM) 2 mV/m contour, and the 40 km (25 mile) radius from the WCKG(AM) transmitter site. As shown, the contour of the proposed facility overlaps the licensed facility, and remains within the greater of the 2 mV/m contour or the 40 km radius of the parent station, WCKG(AM), thus complying with §74.1201(g).

**Allocation Considerations**

The results of a study of nearby FM facilities on co-channel, adjacent-channel, and intermediate frequencies was conducted to identify which stations require further study to demonstrate compliance under §74.1204. The nearest co-channel facilities are WXLC(FM) (Ch. 272A, Waukegan, IL), WYCA(FM) (Ch. 272A, Crete, IL) and translator W272BZ (Ch. 272D, Portage, IN). As demonstrated in **Figure 3**, no prohibited contour overlap will occur with co-

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channel facilities. The nearest first adjacent channel stations are WLUM-FM, Ch. 271B at 139 km and W273CZ, Ch. 273D at a distance of 81.7 km.

The proposed facility is located inside the 60 dB $\mu$  contour of second adjacent channel WVAZ(FM) (Ch. 274B, Oak Park, IL) and WTMX(FM) (Ch. 270B, Skokie, IL). Protection of both stations is achieved pursuant to §74.1204(d) by demonstrating that the proposed translator's interfering contour does not reach populated areas. Both the WTMX(FM) and the WVAZ(FM) contour-method field strength is at least 104.3 dB $\mu$  at the proposed translator site. Thus, based on the -40 dB desired-to-undesired ratio specified in §74.1204(a)(3), the appropriate second-adjacent interfering signal level at this location is 144.3 dB $\mu$ . Assuming a worst-case omni-directional antenna, calculations indicate that the 144.3 dB $\mu$  contour would extend 4.25 meters from the antenna. Thus, the proposed translator's interfering signal will not exceed the level of 144.3 dB $\mu$  that would be considered interference to surrounding population at ground level or nearby buildings. The nearest IF relationship (53 or 54 channels removed) facility is WBEZ(FM) (Ch. 218B, Chicago, IL) at a distance of 2.47 km. §74.1204(g) states that facilities that operate at less than 100 Watts will not be subject to intermediate frequency separation requirements. There are no AM stations within 3.2 km of the proposed facility.

The proposed site is located more than 370 km from the Canadian and Mexican borders, well beyond the 320 km coordination distance required for translators specified in §74.1235(d). The nearest FCC monitoring station is 160.49 km distant at Allegan, MI and the facility is 671.16 km from the Green Bank Quiet Zone. These distances exceed the threshold minimum distance specified in §73.1030 that would suggest consideration.

It is therefore believed that the proposed facility satisfies all of the pertinent Commission Rules and Policies now in effect regarding allocation matters.

### **Environmental Considerations**

The proposed facility will operate with a circularly-polarized ERP of 99 Watts with a directional antenna at 443.8 meters AGL on the Willis Tower, ASRN 1032959, which also provides support for a number of other broadcast facilities. The use of existing transmitting locations has been characterized as being environmentally preferable by the Commission, according to Note 1 of

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§1.1306 of the FCC Rules. Because no change in structure height is proposed, no change in current structure marking and lighting requirements is anticipated. Therefore, it is believed that this application may be categorically excluded from environmental processing pursuant to §1.1306 of the Commission's rules.

### **Human Exposure to Radiofrequency Radiation**

The proposed operation was evaluated for human exposure to radiofrequency energy using the procedures outlined in the Commission's OET Bulletin No. 65 ("OET 65"). OET 65 describes a means of determining whether a proposed facility meets the radiofrequency exposure guidelines adopted in §1.1310. Under present Commission policy, a facility may be presumed to comply with the limits specified in §1.1310 if it satisfies the exposure criteria set forth in OET 65. Based upon that methodology, and as demonstrated in the following, the proposed transmitting system will comply with the cited adopted guidelines.

The general population/uncontrolled maximum permitted exposure ("MPE") limit specified in §1.1310 for the entire FM broadcast band is  $200 \mu\text{W}/\text{cm}^2$ . For the purpose of this study, "public access" will be considered at the base of the tower at a location two-meters above ground. Using the FCC's FM Model program and a worst-case EPA Type 1 antenna it was determined that the proposed facility would contribute a worst-case RF power density of  $0.02 \mu\text{W}/\text{cm}^2$  at two meters above ground level near the antenna support structure, or 0.01 percent of the general population/uncontrolled limit.

§1.1307(b)(3) states that facilities at locations with multiple emitters are categorically excluded from responsibility for taking any corrective action in the areas where their contribution is less than five percent of the pertinent MPE limit. Since the instant situation meets the five percent exclusion test at all ground level areas, the impact of any other facilities near this site may be considered independently from this proposal. Accordingly, it is believed that the impact of the proposed operation should not be considered to be a factor at ground level as defined under §1.1307(b).

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### **Safety of Tower Workers and the General Public**

As demonstrated herein, excessive levels of RF energy will not be caused by the proposal at publicly accessible areas at ground level near the antenna supporting structure. Consequently, members of the general public will not be exposed to RF levels in excess of the Commission's guidelines. Nevertheless, roof-top access will continue to be restricted and controlled through the use of a locked door. According to information provided by the applicant, appropriate RF exposure warning signs are posted. In the event that maintenance or other workers gain access to the tower, power output of the translator will be decreased or shut off to protect workers.

With respect to worker safety, it is believed that based on the preceding analysis, excessive exposure would not occur in areas at ground level. A site exposure policy will be employed protecting maintenance workers from excessive exposure when work must be performed on the tower in areas where high RF levels may be present. Such protective measures may include, but will not be limited to, restriction of access to areas where levels in excess of the guidelines may be expected, power reduction, or the complete shutdown of facilities when work or inspections must be performed in areas where the exposure guidelines would otherwise be exceeded. On-site RF exposure measurements may also be undertaken to establish the bounds of safe working areas. The applicant will coordinate exposure procedures with all pertinent stations. Based on the preceding, it is believed that the instant proposal may be categorically excluded from environmental processing under §1.1306 of the Rules, hence preparation of an Environmental Assessment is not required.

### **Conclusion**

It is therefore believed that the proposed facility satisfies all of the pertinent Commission Rules and Policies now in effect.

**FIGURE 1**  
**COVERAGE CONTOUR COMPARISON**

*prepared June 2020 for*

**DuPage Radio, LLC**  
**W272DQ Chicago, IL**  
**Facility ID 151530**  
**Ch. 272D 0.099 kW 625 m AMSL**

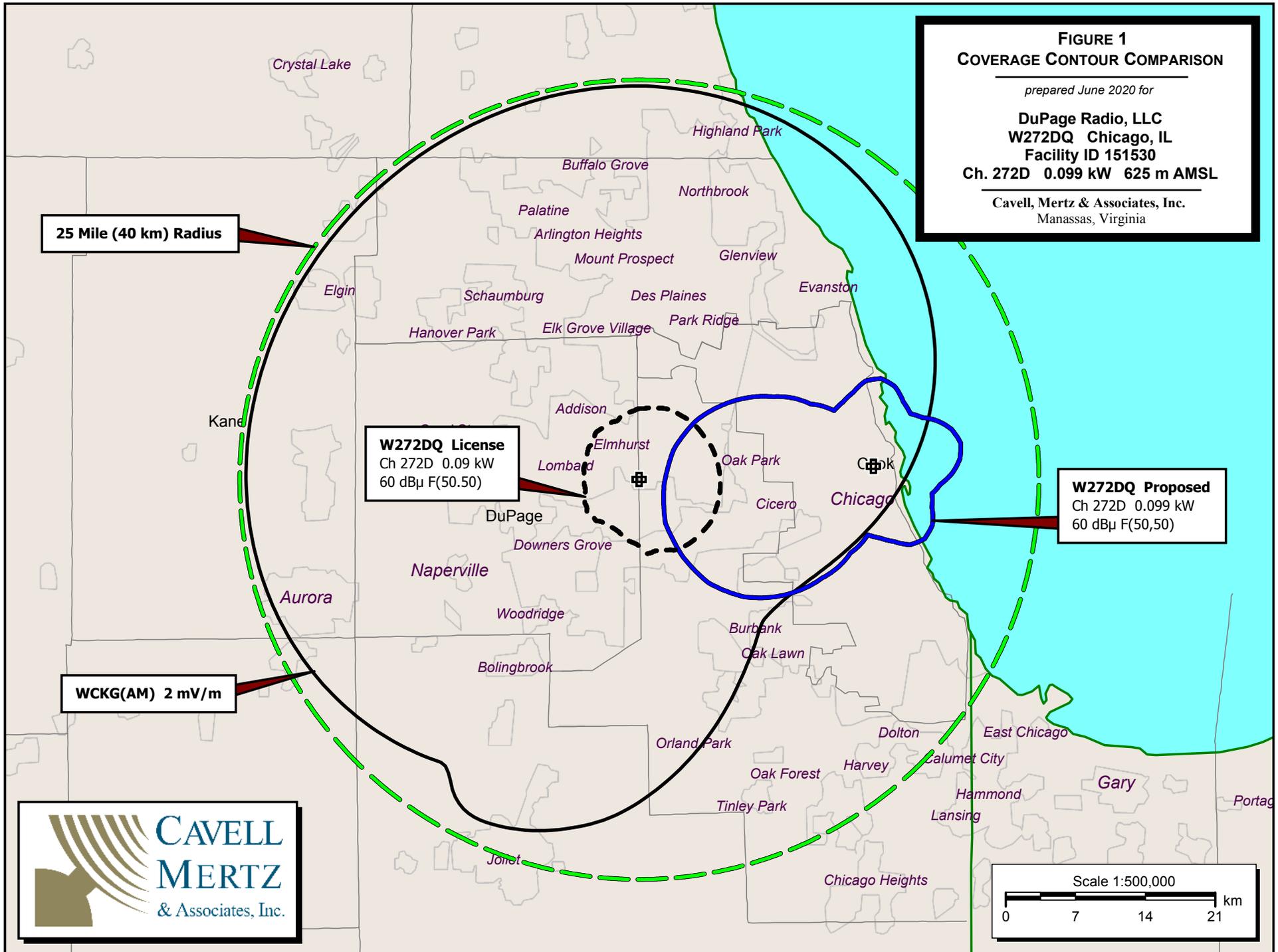
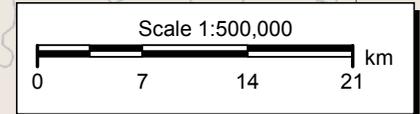
**Cavell, Mertz & Associates, Inc.**  
Manassas, Virginia

**25 Mile (40 km) Radius**

**W272DQ License**  
Ch 272D 0.09 kW  
60 dBμ F(50,50)

**W272DQ Proposed**  
Ch 272D 0.099 kW  
60 dBμ F(50,50)

**WCKG(AM) 2 mV/m**



**FIGURE 2**  
**CO-CHANNEL CONTOUR PROTECTION**

*prepared June 2020 for*

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**Facility ID 151530**

**Ch. 272D 0.099 kW 625 m AMSL**

**Cavell, Mertz & Associates, Inc.**  
Manassas, Virginia

**WXLC(FM) License**  
Ch 272A 3 kW  
60 dBμ F(50,50)

**WYOT(FM) License**  
Ch 272A 6 kW  
60 dBμ F(50,50)

**W272DQ Proposed**  
Ch 272D 0.099 kW  
60 dBμ F(50,50)  
40 dBμ F(50,10)

**W272BZ License**  
Ch 272D 0.027 kW  
60 dBμ F(50,50)

**WYCA(FM) License**  
Ch 272A 1.05 kW  
60 dBμ F(50,50)

