

Exhibit B

UMFUS Compliance Showing

This exhibit demonstrates Hughes's compliance with the UMFUS compatibility rules in Section 25.136, as adopted in the *Spectrum Frontiers Order*.¹

The Spectrum Frontiers Order indicated the FCC would publish a Public Notice providing guidance on how applicants should assess compliance with Section 25.136. While the FCC has sought comment on this issue, no guidance has been provided.² Hughes has proceeded in the absence of such guidance on the following assumptions:

- 1) Hughes has utilized a simulated antenna radiation mask provided by the manufacturer, which is more stringent than the spectrum mask defined in Section 25.209. Hughes will confirm this mask with measurements when possible.
- 2) Hughes has utilized a propagation model presuming decay of the transmitted signal at a rate of distance from the antenna squared with further clutter attenuation as quantified by New ITU-R Recommendation P.[Clutter].
- 3) Hughes has calculated the area within which the PFD at 10 meters above ground level will be greater than $-77.6 \text{ dBm/m}^2/\text{MHz}$.
- 4) Hughes has calculated the population of each census tract contained within the contour, using the actual area method to calculate populations of census tracts partially covered. Hughes has also visually checked the contents of the contour for interstate highways, U.S. Highways, arterial streets, major event venues, urban mass transit routes, passenger rail lines, and cruise ship ports.

Each of the following calculated contours for 28 GHz PFD meets the requirements of Section 25.136 10 meters above ground level. Hughes notes that while the contour for Rapid City, South Dakota, appears to contain a U.S. Highway, the proposed earth station site is elevated at least 107 feet above the highway and is directing RF energy away from it. The actual PFD 10 meters above the US highway will be under $-77.6 \text{ dBm/m}^2/\text{MHz}$.

¹ FCC 16-89 ¶54 (2016).

² *Public Notice*, "International Bureau Seeks Comment on Implementing Earth Station Siting Methodologies," DA 17-606 (June 21, 2017) ("Public Notice"). In the Public Notice, The FCC seeks comment on encouraging best practices for earth station siting, including collocation of earth stations operating in the 27.5-28.35 GHz band. In order to encourage this best practice, the FCC should consider an application for a new earth station using all or part of the 27.5-28.35 GHz band collocated with an already authorized earth station using all or part of the 27.5-28.35 GHz band as having a *de minimis* impact on UMFUS operation. This practice creates a significant incentive for FSS operators to collocate their 28 GHz earth stations, which would benefit UMFUS operators by concentrating FSS operations into a single area and leaving the remainder of the county undisturbed. See Comments of EchoStar Satellite Operating Corp. and Hughes, IB Docket No. 17-172 (filed July 21, 2017).

1. Flagstaff, AZ; population within contour 0



2. Boise, ID; population within contour 0, collocated with existing 27.5-28.35 GHz earth station



3. Bend, OR; population within contour 0



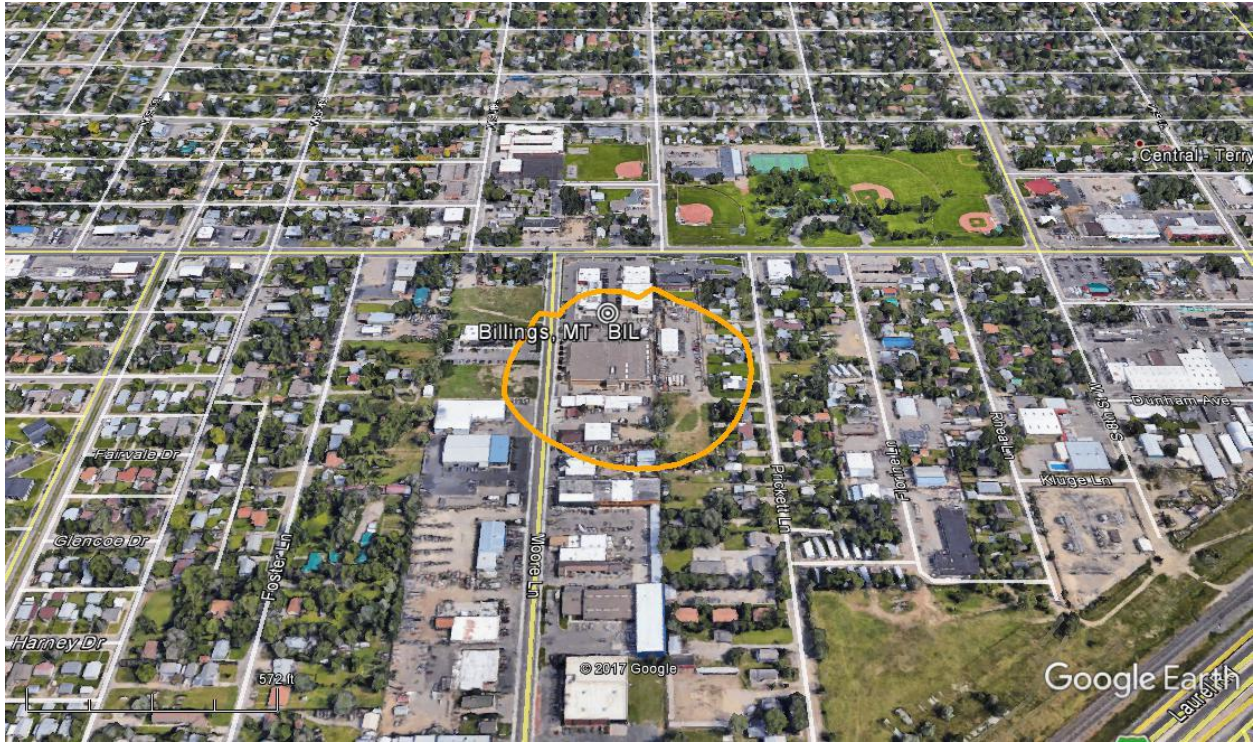
4. North Las Vegas, NV; population within contour 0, collocated with existing 27.5-28.35 GHz earth station



5. Rapid City, SD; population within contour 0, US Highway 16 is at least 107 feet below the station site at all points shown within the contour, which is shown in two dimensions but is actually three dimensional. Off-axis and terrain losses are sufficient to attenuate the contour to below the $-77.6 \text{ dBm/m}^2/\text{MHz}$ level at 10 meters above the highway.



6. Billings, MT; population within contour 20 percent of 251 = 50, 0.1 percent of Yellowstone County population = 152, collocated with existing 27.5-28.35 GHz earth station



7. Missoula, MT; population within contour 0, collocated with existing 27.5-28.35 GHz earth station



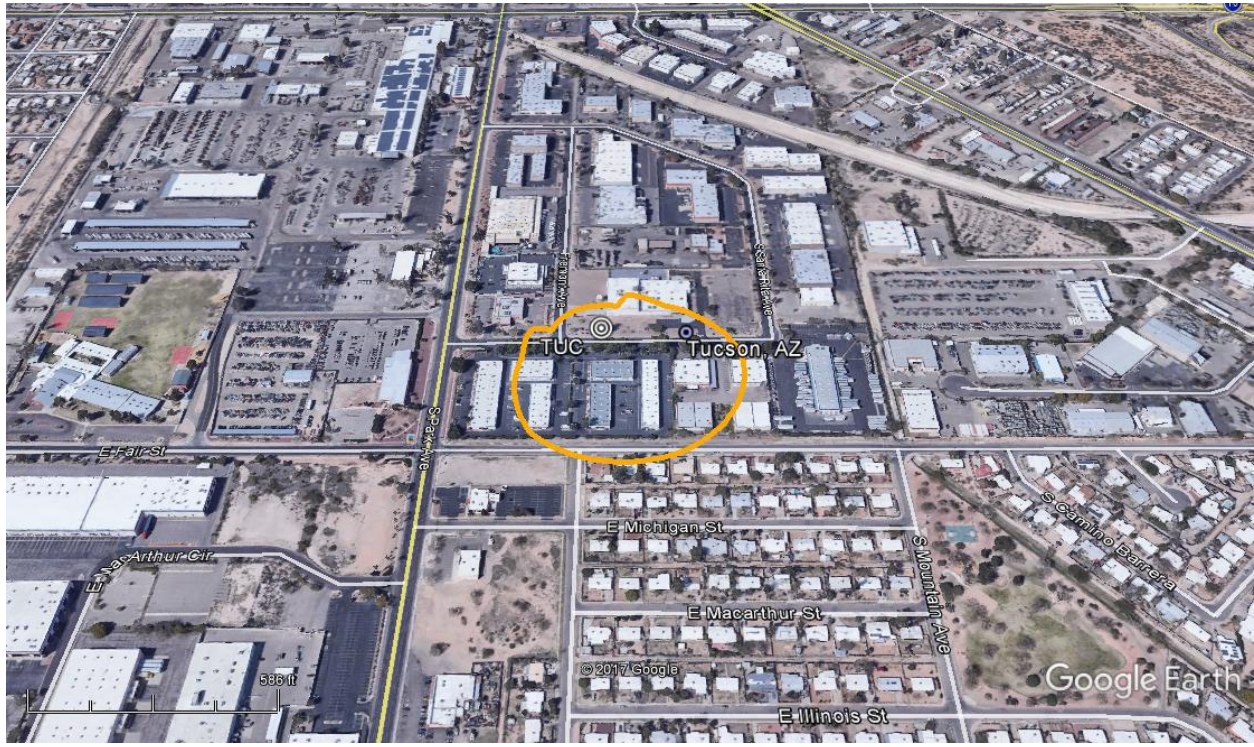
8. Bismarck, ND; population within contour 0.03 square miles / 0.14 square miles in census block times 127 people in census block = 27 people (high estimate given small number of houses overlapped), 0.1 percent of Burleigh County population = 87; collocated with existing 27.5-28.35 GHz earth station



9. North Platte, NE; population within contour 0, collocated with existing 27.5-28.35 GHz earth station



10. Tucson, AZ; population within contour 0



11. Cheyenne, WY; population within contour 0



12. Simi Valley, CA; population within contour 0



13. Quincy, WA; population within contour 0



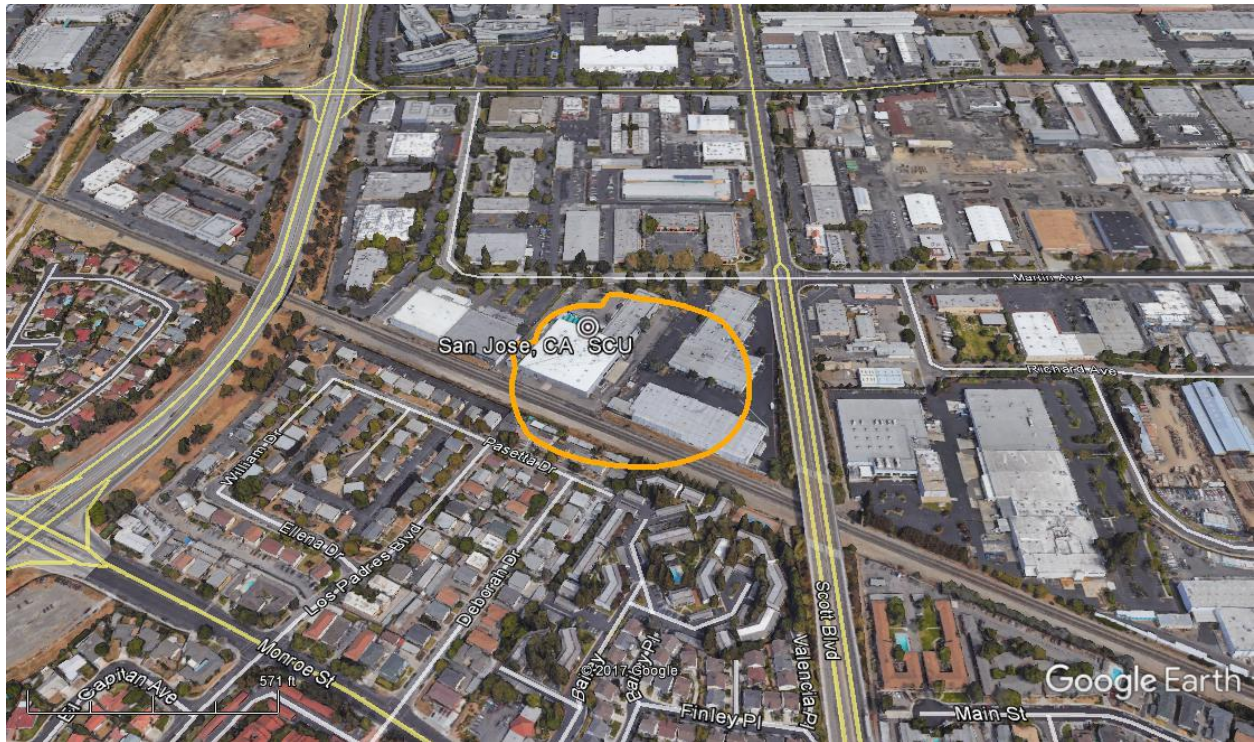
14. Rifle, CO; population within contour = 20; 0.1 percent of population of Garfield County = 57



15. Lindon, UT; population within contour 0, collocated with existing 27.5-28.35 GHz earth station



16. Santa Clara, CA; population within contour 10 percent of 991 = 100, 0.1 percent of Santa Clara County population = 1842, collocated with existing 27.5-28.35 GHz earth station



17. Yuma, AZ; population within contour = 25 (1/12 of 115 in block to west of site = 10; 1/5 of 37 in block to southeast of site = 7; 1/20 of 141 in irregularly shaped census block to south and east of site = 8; site itself in uninhabited block; total population = 25); 0.1 percent of Taos County population = 201.



18. Reno, NV; population within contour 0.



19. Taos, NM; population within contour = 32, 0.1 percent of Taos County population = 33. Shielding along the perimeter of the lot, particularly the southwest side, may be installed if necessary.



20. Driggs, ID; population within contour 0.

