

## SFO AIRPORT COMMUNITY ROUNDTABLE – REGULAR MEETING APRIL 3, 2024 – WRITTEN PUBLIC COMMENT

Juan J. Alonso

Vance D. and Arlene C. Coffman Professor

James and Anna Marie Spilker Chair of the Department of Aeronautics & Astronautics

496 Lomita Mall, Durand Bldg. Room 260

Stanford University

Stanford, CA 94305

E-mail: [jjalonso@stanford.edu](mailto:jjalonso@stanford.edu)

—

Re: Written comments addressing HMMH's Summary & Review of "Large-Scale Validation Study of Aircraft Noise Modeling for Airport Arrivals", J. Acoust. Soc. Am, 155(3), March 2024

We appreciate HMMH's review and observations of this one-of-a-kind study (because of the unprecedented amount of data it is based on, an entire year of observations, leading to statistically-significant observations) that we have recently published in the JASA (see <https://pubs.aip.org/asa/jasa/article/155/3/1928/3270390/A-large-scale-validation-study-of-aircraft-noise?searchresult=1>), but believe that some of the observations fail to properly interpret key elements of the study, as published, or are can be misleading. We would like to clarify, for the record:

- Mestre's response: "contamination of non-aircraft sources" fails to appreciate the care we have taken to virtually eliminate non-aircraft noise sources (see JASA paper Appendix). The results of the study are only based on aircraft noise data alone, since we have worked to eliminate all noise events that are not to aircraft flying overhead.
- Mestre's response: "neglect to recognize Regulatory mode does not model real-world altitude profiles". Our paper, Section III.A, explicitly states "AEDT computes noise estimates from standard altitude and airspeed profiles in conjunction with the latitude and longitude of the aircraft ground track". "Standard altitude profiles" are clearly understood to mean the profiles embedded in AEDT that, we agree, do not model real-world profiles.
- HMMH's observation (page 56): "We would recommend the modeling be redone using altitude control codes (ACC) feature". The JASA paper explicitly runs AEDT in both standard/regulatory mode (AEDT-R, out of the box) and in what we call AEDT-AE, which uses BADA4 performance modeling and both "altitude and airspeed controls specified for each ground-track position" (see JASA paper, Section III.A). In other words, the modeling that HMMH recommends we pursue is already included in the paper, showing no significant differences from the standard AEDT analyses.
- HMMH's observation: "CL600 skewed the average differences". Indeed, these are the worst AEDT predictions, by far. Rather than removing these results as outliers (since they are, after all, modeled in AEDT) we have chosen to present all the data by aircraft category so that the reader can interpret those data fully.
- HMMH's observation that "the report was not thoroughly peer reviewed prior to publishing" is, at best, misleading. The paper/report was submitted to the Journal of the Acoustical Society of America, a high impact factor journal whose editors followed their standard peer-review process prior to publication. This peer-review process came after nearly two years of work by our team, in collaboration with our program manager at FAA, to make significant improvements on the quality of the data used to draw our conclusions, prior to submission to the JASA.

We understand, and explicitly state, that our report is limited to arrival operations at a single airport (SFO) and at two locations outside of the airport boundary, but we also believe that the unprecedented abundance of data in our study points to a real need to improve the noise modeling in AEDT (for arrival operations outside the airport boundary) so that better decisions involving air traffic above overflown communities can be reached.