

[The following article was originally published in *Airport Noise Report* newsletter on pages 67 and 69 in Volume 36, Number 17, May 31, 2024.]

Airport Noise Report



A weekly update on litigation, regulations, and technological developments

Volume 36, Number 17

May 31, 2024

Noise Policy Review

COMMUNITY SAY NASA AAM ANNOYANCE MUST ACCURATELY REFLECT IMPACT

The so-called VANGARD test that NASA intends to use to assess community annoyance to new Advanced Air Mobility (AAM) vehicles – such as air taxis and drones – must accurately reflect how impacted communities actually experience this new kind of aircraft noise, several community groups told the agency.

Three groups – the Aviation-Impacted Communities Alliance (AICA), Studio City for Quiet Skies, and UproarLA – said their “overarching input is for NASA to design, execute, and derive findings from the Varied AMM Noise and Geographic Area Response Difference (VANGARD) test to accurately reflect how impacted communities experience AAM noise.

“The current FAA noise policy and metrics based on government agency and non-government agency research do not” achieve that goal, the community groups, which were formed in response to airspace changes made under FAA’s NextGen projects, stressed.

In March, NASA announced that it was seeking public comment on its plan to remotely test people’s annoyance to AAM vehicles, such as air taxis and drones (36 ANR 32).

These aircraft are expected to form a new transportation system to move people and cargo between places previously not served or underserved by aviation. The human response to noise from AAM/UAM vehicles, which are powered by electrically-driven rotors, needs to be better understood to help minimize their noise impact, NASA explained in its March 15 Federal Register notice.

The agency said it seeks to conduct a psychoacoustic test, called the Varied AAM Noise and Geographic Area Response Difference (VANGARD) test in order to determine:

- If there are statistically significant differences in annoyance between subjects who live in low versus high ambient noise environments, and to determine as a covariate;
- If there is a difference between subjects’ responses in specific geographical regions.

NASA will use its recently developed VANGARD test on an estimated 360 subjects from the public drawn from geographic regions of the United States where AAM/UAM aircraft are likely to operate in the future. Test subjects will participate in an online test application using their own computers and audio playback devices, such as headphones, to listen to calibrated sound stimuli. The test is expected to take one hour to complete.

Subjects will be drawn from low and high ambient noise areas of geographical regions within the United States that are likely to see initial AAM/UAM operations, such as Los Angeles, Dallas, and New York City.

NASA explained that “High” ambient noise environments are locations proximate to urban centers of each region, while “Low” ambient environments are suburban areas along likely AAM/UAM flight paths within 100 miles of the urban center.

‘Low’, ‘High’ Ambient Levels Too Ambiguous

But the community groups told NASA that its use of “Low” and “High” ambient environments is ambiguous without defining the decibel levels they encompass.

“Ambient noise estimates in the VANGARD project should be evidence-based and transparent, e.g., informed by noise monitoring data already collected by airports if available or through temporary monitoring by airports. In the absence of noise monitoring data, ambient noise could be estimated using evidence-based community characteristics (for example, ambient of 35 dB for rural or very low-density suburban, 40 dB for low-density suburban, 50 dB for medium-density suburban, 60 dB for urban, etc.)” the community groups told NASA.

“... AAM/UAM is likely to create a new type of noise similar to how NextGen created a new type of noise,” the community groups asserted.

“In fact, FAA affirmed during a Noise Policy Review Webinar that AAM ‘operations are coming and they’re likely going to change the character of how people experience aircraft noise and ...could expose some communities that already experienced aviation activity to different kinds of noise and it also could expose communities that don’t have a lot of aircraft noise to new noise...and are likely to operate at lower altitudes.’ This new type of noise should be investigated and included in the design of the VANGARD study. Accurately include the anticipated noise level implications of the new dedicated AAM corridors or procedures and the VFR for transition routes, etc. that are in addition to the take-off and landing phase of flight.

“There was a failure to reflect the new noise impacts of NextGen that accurately represented the communities’ lived experience. The same inability to accurately predict noise impacts for NextGen should not be repeated for AAM/UAM.”

N-Above-Ambient Should be Metric

The community groups asserted that Number Above (NAbove) “and most likely N-Above-Ambient, needs to be the metric for NASA to use to characterize the various communities and the effects of AAM/UAM on these communities.”

The groups also urged NASA “to ensure scientific and ethical integrity” in its VANGARD study by employing the following:

- Peer review and disclosure of reviewers.
- Disclosure of organizations involved with the design, execution, and findings (e.g., review of documents) by including who, organization, and how they were involved.
- Make available the raw data (or open data) so it is accessible and discoverable for additional researchers to build on the findings.
- Document participant selection criteria and process.
- Disclosure of AAM/UAM aircraft types, mix, error bars, altitudes, hovering, and what noise levels were used for the test.
- The community groups said the study should explicitly state important areas it is not covering such as:
 - Only covering a single AAM/UAM event (with single vehicle type and manufacturer), not the annoyance from the total count of AAM/UAM event overflights (multiple AAM/UAM events with a fleet mix); and
 - Only covering an AAM/UAM event (with single vehicle type and manufacturer) and did not consider the annoyance from the cumulative aviation impacts on the participant (existing aircraft noise included from multiple vehicles and multiple airports) that is a major factor in annoyance.

[The community groups’ comments are attached to the email that brought you this week’s issue of ANR.]