UAM Noise Working Group Meeting
Subgroup 2: Ground & Flight Testing

04 November 2020

Virtual Meeting

Group Leads:

Juliet Page (Volpe, US DOT), Brenda Henderson (NASA, GRC), Kyle Pascioni (NASA, LaRC)

Goal: Ground & Flight Testing Subgroup Goal

Develop a research measurement standard or set of guidelines which can be used to adequately quantify community noise impact

Approach: *Define measurements suitable for the creation of acoustic spheres*

- Ensure sufficient data gathered to support quantifying community noise impacts
- Activities coupled with all the other SGs: Tools/Technologies, Metrics, Regulation & Policy

- Taking steps towards a standard or set of guidelines
  - Define a prioritized list of all possible measurements that would fully define the acoustic environment for the community – potentially perform an extensive test (possibly multiple tests)
  - Define a subset of measurements and requirements for a standard – this will likely require analysis (from multiple groups) of the data from an extensive measurement campaign
  - Starting small and receiving group input on specifying best practices/requirements

SG2 Activities

- Co-Leadership:
  - Brenda Henderson (NASA, GRC)
    - Transitioning out in Feb 2021
  - Kyle Pascioni (NASA, LaRC)
  - Juliet Page (Volpe, US DOT)
  - Devin Boyle (NASA, GRC)
    - Incoming Co-Lead

We have an active subgroup!

- Monthly Team meetings:
  - Second Wednesday of the month, 3-4 ET
  - Appx. 15-20 in attendance at meetings
  - Appx. 45 on distribution
- Initiated creation of a working document identifying measurement guidelines
- File sharing of documents via Microsoft OneDrive
  - E.Greenwood (PSU) provided a collection of empirical noise model literature
  - PSU is hosting the shared drive
- The following topics were briefed:
  - Kyle Pascioni – Existing Standards Review – Test Environment (Jun '20)
  - Juliet Page – "Legacy" Helicopter 1/3 OB Analysis Procedure (Jul '20)
  - James Stephenson – Moving bandwidth technique for background measurements (Sep '20)
  - Alan Wall – "Rule of 10" for reflecting surfaces (Sep '20)
  - Per Rasmussen – Signal Processing for UAM measurements (Oct '20)
  - James Stephenson – Characterization of the Effects of Ground Boards on Acoustic Signals (Oct '20)
- Upcoming Planning Discussions *(tentative):*
  - Chris Debusschere – Scale testing opportunities

SG2 Discussion Topics

Review current research, existing standards, certification procedures and guidelines. Discuss interrelated items and develop SG consensus on testing topics, including confidence level needs.

- Environment:
  - Temperature profiles
  - Wind Profiles
  - Humidity
  - Ground Impedance
  - Terrain / Obstructions
  - Background Noise
- Time Synchronization:
  - Acoustics & Flight Vehicle
- Signal Acquisition and Processing:
  - Frequency Range
  - Dynamic Range
  - Spectral Resolution
- Acoustic Measurements:
  - Microphone orientation
  - Ground board material / geometry
  - Microphone location / array layout

Ground and Flight Testing SG Requests

- Request to the UAM community:
  - Vehicles for acoustic measurements
    - Would provide crucial data!
    - Would provide you with quality acoustic measurements and a better understanding of potential community impact
- Request to other UNWG subgroups:
  - Input from tools group on what outcomes from measurements may be useful
  - Input from metrics group on any specific attributes of importance