

Noise Certification Streamlining

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Cost Share Partners: Boeing, Bell, Gulfstream, Rolls-Royce

Industry Partners: Boeing, Bell, Gulfstream, Rolls-Royce, Embraer, Cessna/Textron, De Havilland Canada

Objective:

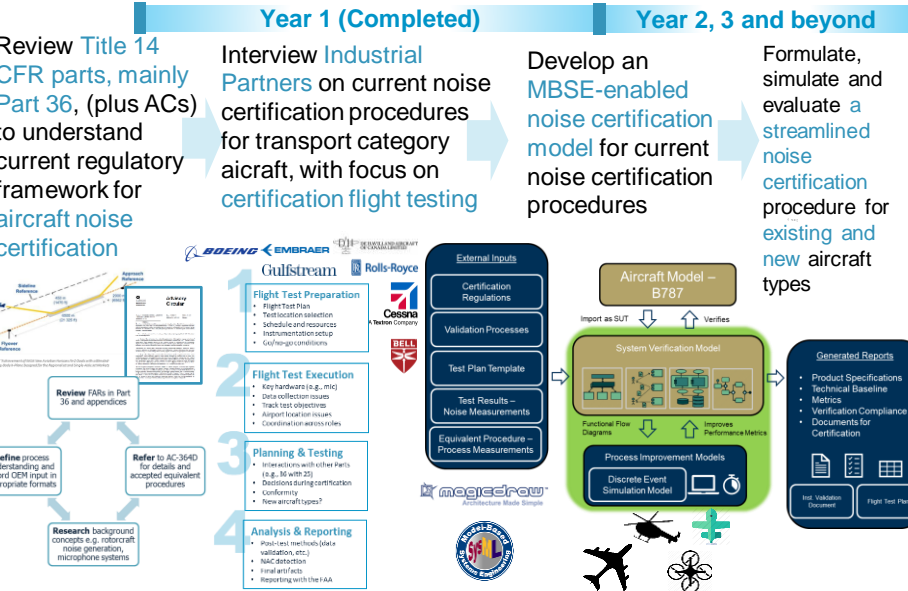
Examine current noise certification procedures and identify opportunities to streamline the noise certification process in addition to recommending methodologies for building the needed flexibility to accommodate all air vehicle types

Project Goal and Benefits:

Recommendations towards a more efficient, streamlined, and flexible aircraft noise certification:

- Proposition of equivalent procedures, supported by latest technologies and hardware
- Evaluation of alternative practices through a Model-Based Systems Engineering (MBSE) model of the noise certification process (in SysML)
- Analysis techniques to support certification of future air vehicles types

Research Approach



Major Accomplishments (to date):

- Formulation of **Use Cases** that are aligned with needs and recommendations provided by OEM Partners
 - Assess implications on regulatory compliance, and benefits of process simplification
 - Target example: Lateral microphone placement, or removal, if trusted analysis is used
- Key Improvements in SysML-based **Verification Model**
 - Updates based on training materials provided by VOLPE (Acoustical DERs regarding the processes of determining EPNL used in FAA Recurrent Seminars)
- **Process Improvement Model (PIM)** for streamlined certification using Markov Chains
- Identification of options for **Equivalent Procedures** and documentation through a database/library compilation
- **Visualization environment** to aid as a use case companion

Future Work / Schedule (Year 2 Tasks):

- Use case implementation and sensitivity exploration for streamlined certification process alternatives
- Model expansion beyond transport category; workshops to follow on rotorcraft and small UAV categories