

FAQ for N221-024: Automated Air Traffic Control Communication Technology Enhancement FAQ

Q: The topic indicates that “instructors must be able to modify the environment of the scenarios.” Please clarify what type of modifications are of interest.

A: In order to provide a flexible and scalable solution, instructors must have the capability to modify different aspects of the training scenarios to simulate different mission sets and different difficulties. For example, the instructor may want to have a communications-dense environment, in order to provide a challenging training session, or may want to select a certain set of aircraft to be present. The instructor should be able to modify the training scenario (by either pre-set, in real-time, or both, depending on your approach) in order to fit some key training needs.

Q: What type of environment is currently being used for this type of ATC training?

A: Training of communications for aviation training is well-focused in current course instruction and training systems when looking at inter-crew coordination. However, when platforms are required to interact with entities (e.g., aircraft, ships) or other organizations (e.g., command and control) the training of these interactions is often reliant on role players/instructors or other means of limited introduction in platform training pipelines. For these reasons, training in these areas can be limited and/or lack the fidelity of what is experienced in the real world. Similarly, for ATC training, use of simulation based training may be scoped to early training and initial certification, where the focus is on the accuracy of the controller’s terminology and coordination. An ability to dial up the amount of communications being experienced by a training to increase the fidelity over time to more closely replicate potential real-world situations may increase proficiencies at later stages of training or serve as a means for refresher and mitigation support throughout an individual’s career. The goal of this topic is to explore innovative solutions to this wide variety of communication training needs to advance technologies that will increase training fidelity and support instructor assessment of student performance.

Q: What constitutes the ‘noise’ communication that is referenced in the topic description? Does this refer to background chatter of on-task communications, off-task communications, or other noise that obscures communication?

A: By “noise” we refer to typical communications an operator may hear/see that are relevant to the environment but is not the current target communications to which the operator is supposed to respond. In an operational setting, individuals will likely see and hear calls/messages that do not require a response from them, or calls/messages that are meant for someone else.

Q: Would a solution be solely focused on the “non-target” communication generation, or will it also need to involve generation of “target” communications?

A: Both non-target and target communications should be part of the technical approach to fully meet the requirements of the solicitation.

Q: Will the solution created under this effort need to integrate with current training programs? If so, what types of systems?

A: ATC is the primary use case for the topic description; this domain was selected to provide a use case that is scoped, unclassified, and open domain for proof of concept development. Future work and transition will be defined based on the technical approaches selected and the feasibility of technology to support specific training use cases (e.g., standalone communication training, integration with high fidelity training solutions) and interest of necessary stakeholders. There is potential for transition outside of the ATC community, and as such, a solution that can easily be translated into other domains is of interest. A flexible and scalable solution will have the highest probability for a successful transition.

Q: Do you expect this training system to include a visual component, or to integrate with a fully virtual environment or simulator?

A: Because the ultimate transition path is not defined, inclusion in a proof of concept demonstration or overall technology solution would be dependent on your technical approach.

Q: What evaluation tools are being used to evaluate trainees in similar situations? What type of evaluations are of interest for a proposed solution?

A: For communications-based trainers across platforms, we see a range of evaluation tools, ranging from subjective instructor feedback, to objective accuracy and content information. It largely varies dependent on platform, training objective, and specific approach. Some approaches are pass/fail and meant to qualify students to a certain level. Some approaches are more geared toward exposure, and repeat practicing. The current topic calls out needing some kind of evaluation that at minimum indicates whether or not the student is speaking to the correct entities. Beyond this, it is up to your unique technical approach.