Moving towards a New Concept of Operations for Advanced Air Mobility's Communications

Implementing Reliable Livestreaming Protocols to Expedite Entry to Market for AAM Operators.

SITA EBOOK

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Introduction

This document is published by SITA, a trusted communications provider in the aviation sector and a pioneer in the Advanced Air Mobility (AAM) communication space. It outlines the approach SITA believes is essential for ensuring AAM vehicles maintain safety-level communications with aircraft, supporting the continuity of safe and efficient operations.

AAM vehicles already outnumber conventional aircraft. While approximately 400,000 traditional aircraft occupy global airspace (Commercial airliners, general aviation and civil helicopters), the current commercial small drone population has reached 800,000 units. This disparity—a ratio of 2:1—represents only the initial phase of what experts suggest will be a continuing exponential growth in the AAM segment.

The Challenge: AAM Communication Infrastructure

The implementation of reliable communication systems that satisfy Civil Aviation Authorities such as the Federal Aviation Administration requires both technical expertise and a comprehensive understanding of aviation's safety-prioritized operational framework. This presents a significant challenge for most AAM operators who typically originate from commercial innovation sectors rather than traditional aviation environments.

The best way for AAM entities to tackle this would be to seek out guidance from established aviation stakeholders who already have the experience and understand the best ways of working to navigate this highly regulatory environment effectively and efficiently.

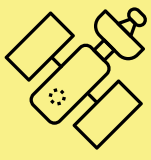
SITA's approach: AAM Livestream Concept, a Contemporary Secure Connectivity Solution

SITA is exploring a new technological and organizational structure for AAM communications that will meet future safety objectives, while preserving the integrity of existing systems. Their mission is to develop secure hyperconnectivity to support the evolving needs of the AAM ecosystem.

SITA envisions a future with "AAM Livestream," a customizable service that provides AAM vehicles with uninterrupted, secure communication capabilities. This service addresses critical operational scenarios, including drone operations in rural areas with limited connectivity, unmanned passenger transport vehicles in low-altitude urban environments where communication integrity is non-negotiable, and mixed-traffic areas where AAM operates in controlled airspace.

"AAM Livestream" is characterized by diverse network infrastructure, distributed data centres, and communication systems typically spread across multiple service providers with intensive dependence on non-protected spectrum connectivity modules.

Infrastructure



Responsible for physical connectivity and the availability of transmission media.

Data

Handles databases, APIs, and analytics to increase revenue and safety.

Communications

Manages logical system connections over communications infrastructure.

At SITA we believe safe and secure AAM operations require a comprehensive model integrating collective cybersecurity management across all system elements while guaranteeing complete network availability. Achieving this will also likely involve evolutionary modifications to global standards and regulatory frameworks.

An Evolutionary Connectivity Concept:

Advanced Air Mobility vehicles encounter several challenges on getting certification to operate from Civil Aviation Authorities (CAAs) often causing launch dates to be delayed. SITA's proposed comprehensive managed service framework ensures technical specifications across communication systems, data architecture, and infrastructure deployments meet regulatory and safety requirements. Such structure will foster and streamline the certification process of operations and services in the CAA managed environment, giving them complete peace of mind and allowing AAMs to focus on their core business.

SITA's established position within aviation's institutional framework provides optimal capabilities for implementing reliable connectivity solutions, including in geographically isolated operational environments. Our services effectively manage compliance complexities such as those mandated by CAAs ensuring continuous communication availability for AAM platforms while significantly reducing operational safety vulnerabilities.

We will provide expertise in mitigating unidentified communications risk factors for AAM operators, supporting flight authorization within current regulatory structures while the industry progresses toward fully integrated and Hyperconnected Air Traffic Management.

AAM Livestream implements a methodologically flexible framework designed to accommodate the aviation industry's evolving operational demands. The system architecture incorporates adaptive protocols, evidence-based solutions, innovative technical approaches, and interoperable standards to address emerging requirements. This includes the strategic integration of artificial intelligence applications within communication systems and cybersecurity infrastructure to enhance operational resilience and threat mitigation capabilities.

SITA Framework

Service Based

Always On SLAs, validated by supervisory authorities.

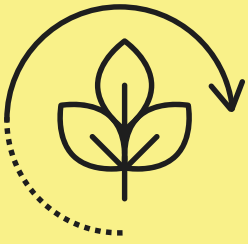
Performance Based

Technology agnostic, use the best tools for the requirements.

Customer Orientated

Tailored to the specific needs of the AAM, choosing from multiple providers.

Economically & Environmentally Friendly



Optimizes signal emissions and minimizes onboard and ground systems with a focus on green tech.

A Collaborative Approach to Communication Service Design

Through structured multi-stakeholder collaboration, applied engineering optimization, and methodological approaches prioritizing both safety protocols and commercial cellular and satellite network advancement, SITA's coordinated partnership aims to establish industry leadership in Advanced Air Mobility communication implementation.

This strategic initiative seeks to develop a comprehensive operational environment where secure, environmentally sustainable, and economically viable communication services achieve universal availability for all Advanced Air Mobility providers regardless of temporal or geographical constraints.

Catch the full report later this year!

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