■About this Initiative

1. Implementation Overview

KDDI and JAL jointly carry out the following:

・Consideration of systems and operational requirements for multiple drone flights
・Development of Flight Control System for "One-to-Many Operation"
・Obtaining approval for flight demonstrations
・Demonstration of simultaneous flights of multiple drones in multiple airspaces
・Business verification of “one-to-many drone operation”

2. About flight demonstration

In logistics and security use cases, we plan to conduct flight demonstrations for multiple simultaneous drone flights in multiple airspaces.

(1) Logistics use case

Item / Summary

Use cases

・Transportation of daily necessities
・Disaster relief goods transportation
・Emergency pharmaceutical logistics

Demonstration environment

In setting up the operational route departing from Setouchi Town, Oshima County, Kagoshima Prefecture, several points will be selected from the main and secondary islands, taking into account logistics demand. After verifying the drone's range and the efficiency of the route, an automated navigation demonstration will be carried out.

Details to be verified

① Safety assessment methods required to realize one-to-many operation
② Operational requirements
③ Flight control system and flight requirements for multiple aircraft flights
④ Business expenses and break-even points for operating one-to-many operation

(2) Security Use Case

Item / Summary

Use case

・Facility security based on one-to-many operation

・Multiple drones for patrolling security and emergency response

・Wide-area patrolling security and emergency response of multiple security drones operated a control console by a single operator

Demonstration environment

The demonstration will be carried out using automated navigation to secure facilities and equipment over a wide area. The locations and routes will be investigated and selected later, in conjunction with logistics use cases.

Details to be verified

① Patrol security for facilities by one-to-many operation

② Sudden operational changes under one-to-many operation (e.g. cases of tracking suspicious persons)

③ Response to interference with drones operated by other operators during one-to-many operation

3. Role

KDDI

・Consideration of system requirements

・Operation management system development

・Demonstration of security use cases and business verification

JAL

・Safety Assessment Method, Review of Operation Requirements

・Development of safety assessment technology

・Logistics use case demonstration and business verification

(Reference)

■KDDI and JAL Alliance

KDDI and JAL have accumulated knowledge and experience for the automatic and autonomous operation of drones, as well as for the high-density and high-frequency operation of drones, through the simultaneous demonstration of multiple drones (Note 3), the delivery of pharmaceuticals in Hyogo Prefecture (*4), and the first demonstration of drones crossing multiple Ohashi bridges in Tokyo (*5). We will continue to conduct flight demonstrations and aim to further promote the social implementation of drones in Japan.

■NEDO's Realization of Advanced Air Mobility Project

With the need for operational efficiency due to labor shortages and increased logistics volume, as well as contactless services under the pandemic, next-generation air mobility (drones and flying cars) is expected to provide free movement of people and goods with energy savings and less manpower. To realize this goal, it is necessary to build efficient automated and autonomous operations on the premise of ensuring the safety of next-generation air mobility. This project will develop performance evaluation methods for drones and flying vehicles, and integrate drones, flying vehicles, and existing aircraft that coexist in low-altitude airspace.
Through the development of flight management technology and other technologies necessary to realize next-generation air mobility, we will realize energy conservation and safe and efficient air transportation.

(*1) Press Release, February 15, 2022, “JAL and KDDI Collaborate to Create Social Infrastructure for Drones"
https://press.jal.co.jp/en/release/202202/006546.html
(*2) 「KDDI SmartDrone」
https://smartdrone.kddi.com/
(*3) Press release, March 25, 2021
"Successful simultaneous operation of multiple drones with missions of logistics, security, inspection and aerial photography in the same area"
https://www.jal.com/ja/press/backnumber/areanews/attaches/pdf/osa_210325.pdf
(*4) Press Release, November 24, 2021, " Demonstration Test was Held in Hyogo-prefecture with an Eye toward Drone Level4 Operation in Urban Areas."
https://press.jal.co.jp/en/release/202112/006405.html
(*5) Press Release, February 1, 2022 “First in Tokyo, Drone to Cross Eitai Bridge and Other Bridges in Pharmaceutical Delivery Experiment”
https://press.jal.co.jp/en/release/202202/006503.html