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# Republic of Korea's UAM Policy and Aircraft Certification

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Feb, 2023

UAM Technical Center  
Korea Institute of Aviation Safety Technology

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Part 1

# Overview

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# Introduction of KIAST (Korea Institute of Aviation Safety Technology)

## Overview

- Established in 2013 as a special institution
- Public organization specialized in aviation safety
- Dedicated to aviation safety certification of aircraft
- Research and development of safety technology

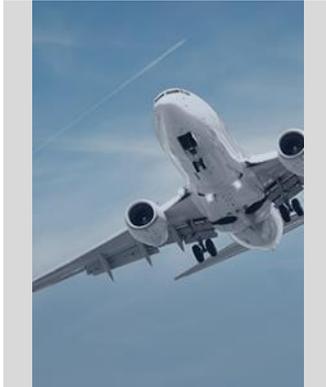
KOREA INSTITUTE OF AVIATION SAFETY TECHNOLOGY



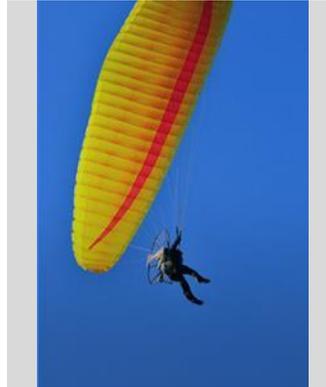
# Introduction of KIAST (Korea Institute of Aviation Safety Technology)

## Major activities of KIAST

Aircraft Certification



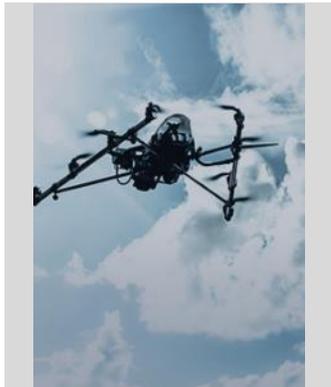
Safety Certification



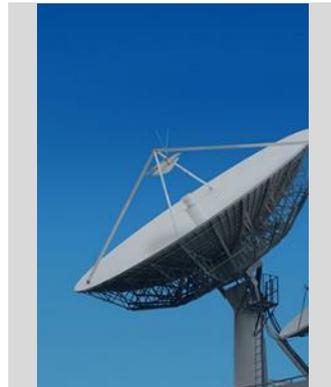
Safety Technology R&D



Aviation Security



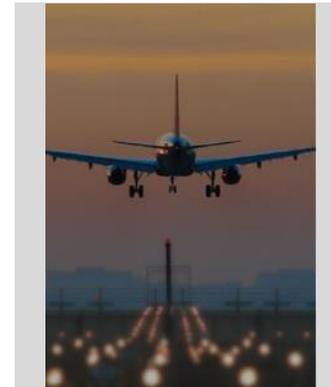
Drone Safety Evaluation



UTM Development



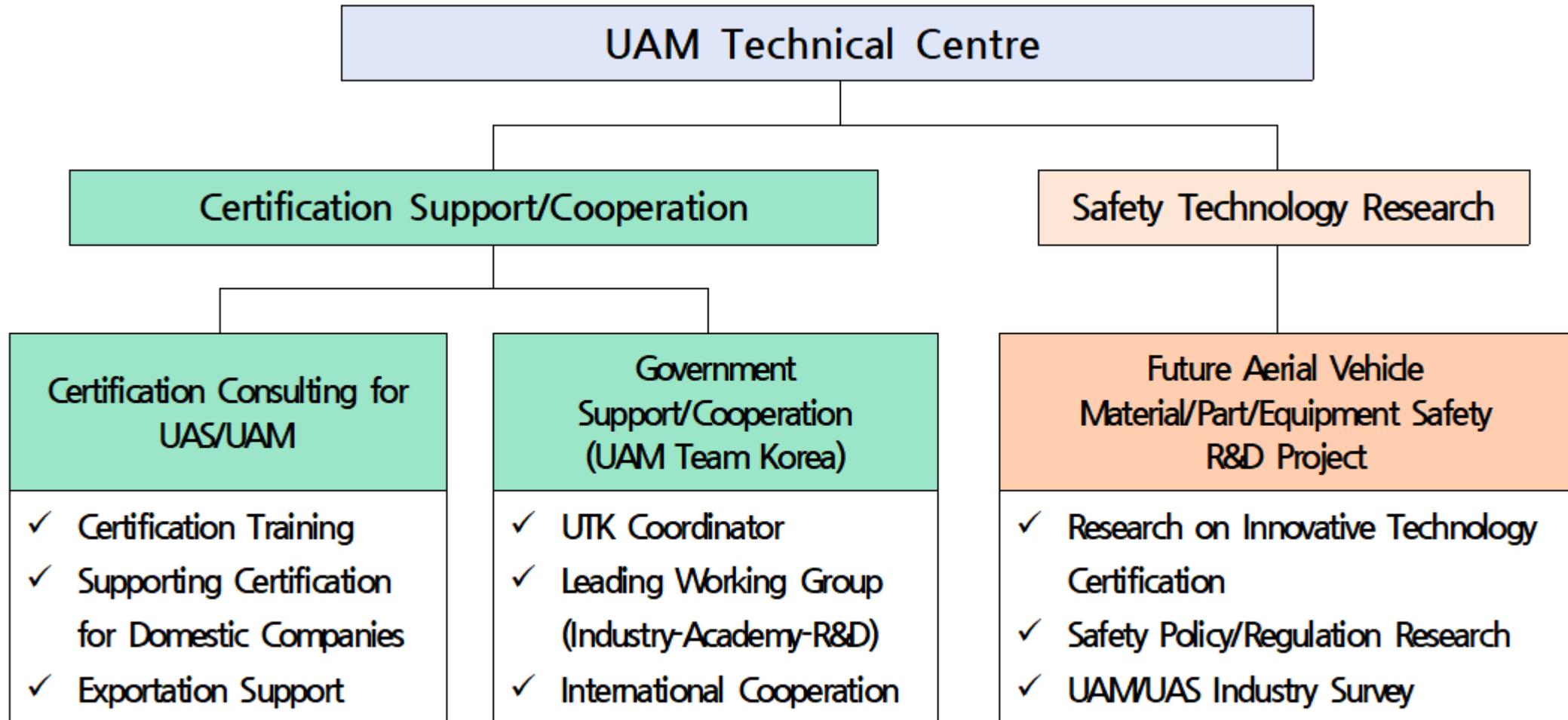
Drone Industry Support



Navigational Aid

# Introduction of UAM Technical Center

## Overview



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Part 2

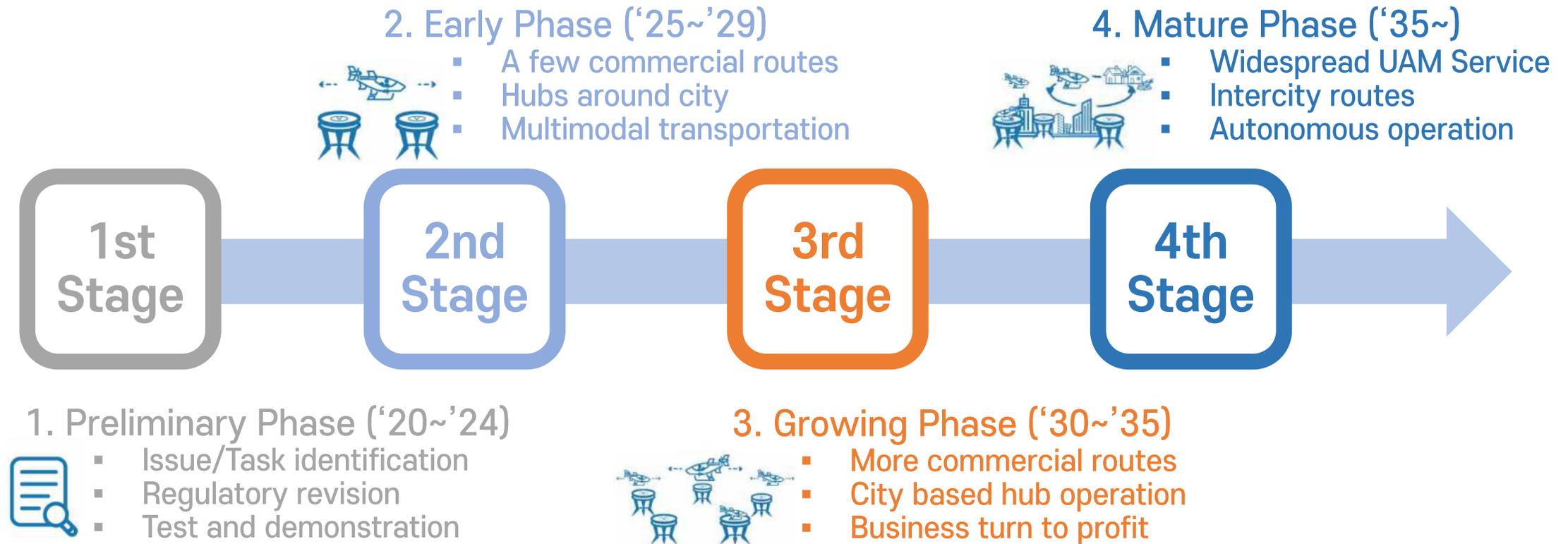
# K-UAM Roadmap

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# Introduction of K-UAM Roadmap

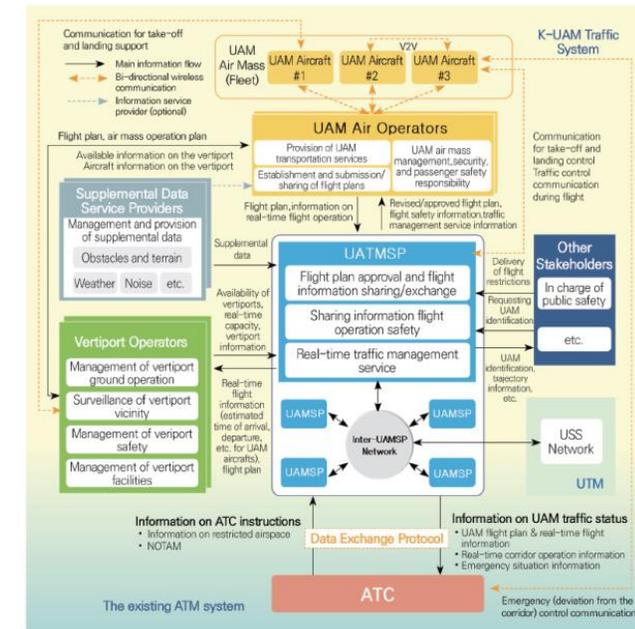
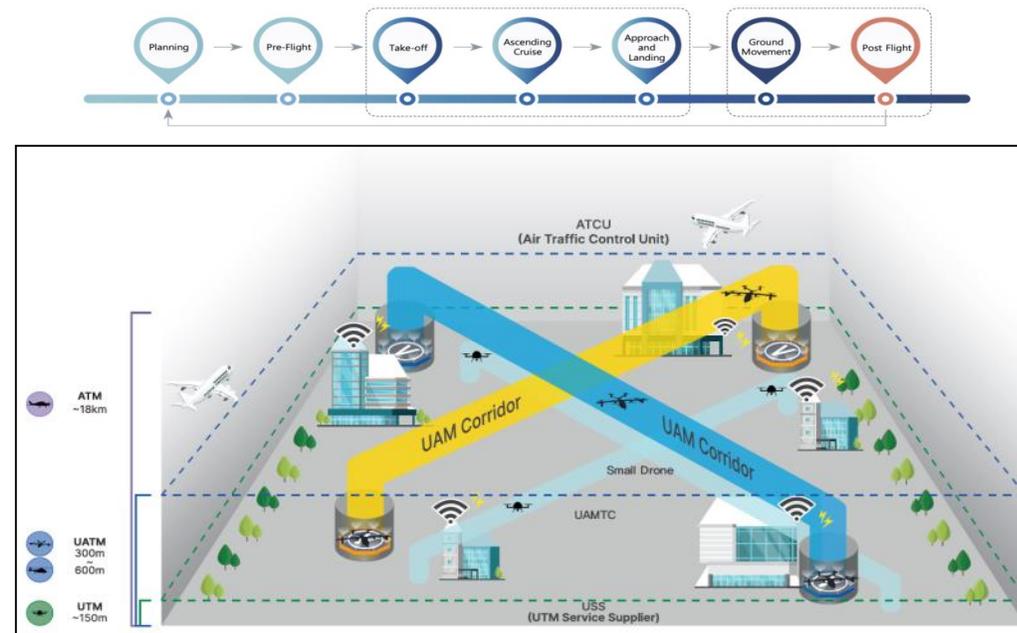
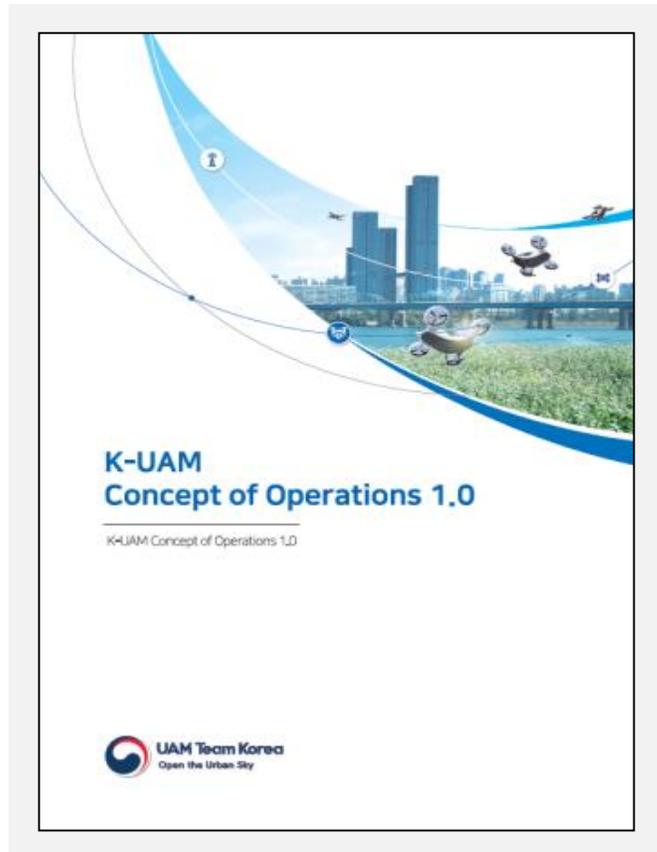
## K-UAM Roadmap 1.0 based on a phased approach



# Introduction of K-UAM Roadmap

## K-UAM ConOps 1.0

- ✓ Official release in Sep 2021
- ✓ Drafted by UAM Team Korea
- ✓ Corridor and monitoring system adopted
- ✓ Nominal and Off-nominal situations defined



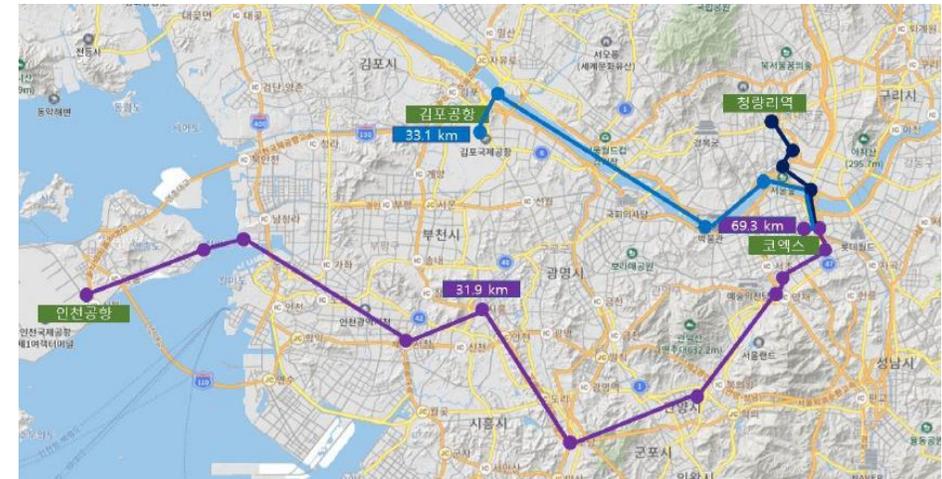
# Introduction of K-UAM Roadmap

## K-UAM Grand Challenge

- ✓ Official announcement in Feb 2022
- ✓ A total of 55 applications submitted
- ✓ Aircraft/Operator, Traffic Management, Vertiport
- ✓ Selection of participants in November



Example route for initial service



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Part 3

# UAM Flight Demonstration Project

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# UAM Flight Demonstration Project

## Flight Demonstration Project since 2020

2020



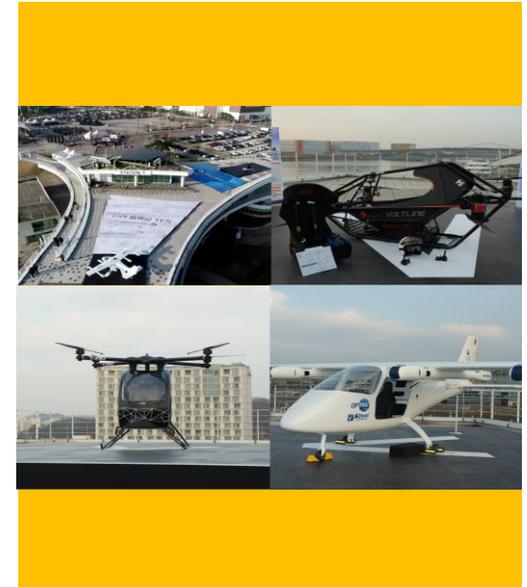
UAM Seoul Demonstration  
Han River, Seoul

2021



UAM Airport Demonstration  
Gimpo/Incheon Airports

2022



UAM/Vertiport Demonstration  
Gimpo Ara-Marina

# UAM Flight Demonstration Project

## 2022 Demonstration – Venue Configuration

### 1F Exhibits for Vertiport Experience (Security check, biometrics, reservation platform)



Vertiport model(KAC) / UAM reservation platform (SKT&Tmap Mobility)  
Smart Check-in System(Hanwha System) / Security Check(ROHDE & SCHWARZ)

### 3F UAM Takeoff and landing pad (OPPAV, VOLTLINE, V-SPACE)



Vehicle : OPNAV, VOLTLINE, V-SPACE

# UAM Flight Demonstration Project

## Vehicle for Flight Demonstration

***V-SPACE***

V-speeder



***VOLTLINE***

SKYLA-V2



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Part 4

# UAM Aircraft Certification

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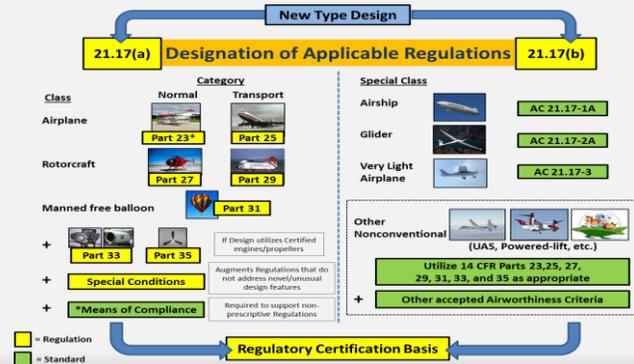
# UAM Aircraft Certification

## UAM Aircraft Certification – USA vs Europe

- Different frames between the USA and Europe
  - ✓ USA) **Special Class** – Powered Lift, CFR 14 Part 21.17(b)
  - ✓ Europe) **Special Condition** for Small-Category VTOL Aircraft(**SC-VTOL**)

### US, FAA)

- (Part 23/27) + Special Condition  
→ Special Class – Powered Lift



### Europe, EASA)

- Interim standard for Small-Category VTOL (SC-VTOL, '19.6)
- Interim standard for Propulsion System (SC-E-19, '20.1)



# UAM Aircraft Certification

## Korea's UAM Aircraft Certification Direction

- **Promoting integration of UAM aircraft within the current aircraft certification system**
  - ✓ **Establish an internationally equivalent certification system in a timely/simultaneously**
    - **Cooperation with international associations and foreign airworthiness authorities for harmonization of certification systems between countries (FAA, EASA, JAPAN, ASTM, EUROCAE, etc)**
  - ✓ **Establish a certification system suitable for the domestic situation**
    - **Considering aviation safety policies and aspects of revitalizing the domestic UAM industry, setting certification directions suitable for the domestic operating environment and actual situation**
    - **MOLIT is in the process of establishing regulation for UAM aircraft certification**
  - ✓ **For the successful commercialization of UAM, research and system establishment not only of aircraft but also of the entire ecosystem**
    - **In addition to aircraft certification, it is necessary to establish standards and related regulations for personnel licensing, operation and facilities, etc.**

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Part 5

# R&D Project on UAS/UAM

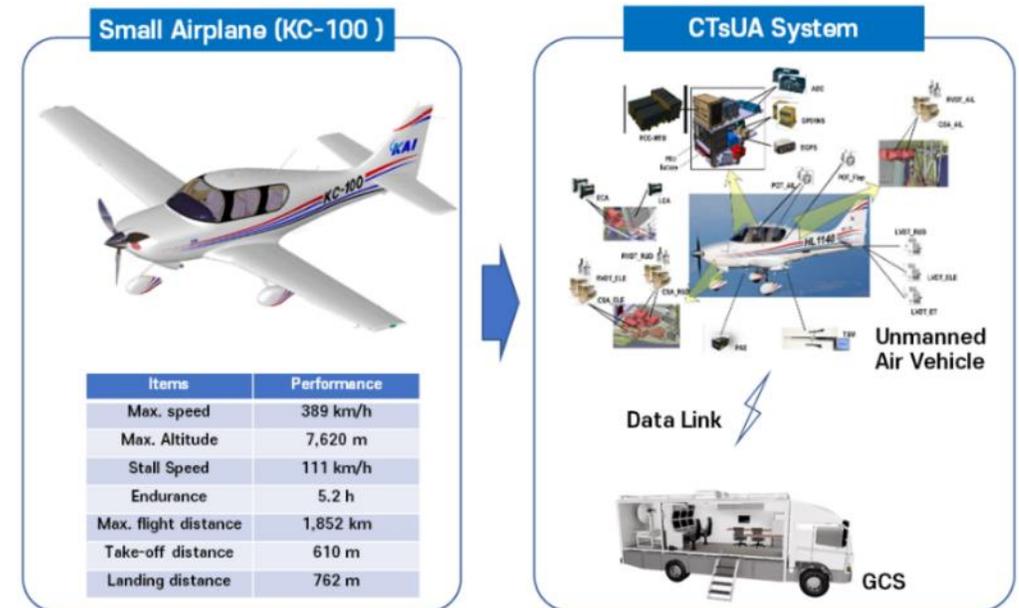
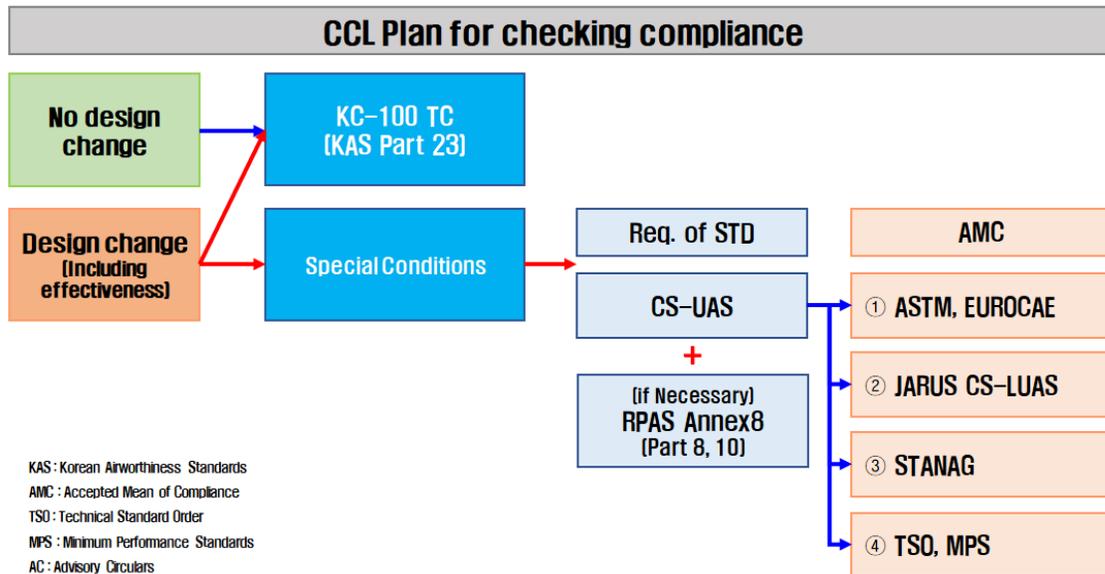
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# R&D Project on UAS/UAM

## CTsUA R&D Project

- ✓ Development of certification technology of UAS via modification of existing type certified KC-100 airplane into unmanned configuration



### Current Status

- ✓ Part 23 + Special Condition
- ✓ CCL finalized
- ✓ Test Readiness Review Completed

# R&D Project on UAS/UAM

## OPPAV R&D Project



### OPPAV Project Overview

- ✓ Development of verification technology for OPPAV
- ✓ Research on a new framework for safe operation of VTOL
- ✓ Aircraft certification, airspace integration, pilot/operator license
- ✓ First flight of full-scale aircraft scheduled in late 2022

### Optionally Piloted Personal Air Vehicle (OPPAV)

- ✓ Development of 8-proprtor eVTOL aircraft by KARI
- ✓ 4 front rotors tilt for lift/thrust, 4 rear rotors fixed for lift
- ✓ Certification basis and MOC for OPPAV by KIAST
- ✓ Supplementary guidance material for key technologies



# Thank you

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