

Current Status of UTM R&D in Korea

2025. 1. 22.(Wed.)

KIAST (Korea Institute of Aviation Safety Technology)



supported by  **MOLIT**
Ministry of Land,
Infrastructure and Transport &  **KAIA**
Korea Agency for
Infrastructure Technology
Advancement

 **KIAST** Korea Institute of
Aviation Safety Technology

 **KARI**
Korea Aerospace Research Institute

 **ETRI**  **KLRI** KOREA LEGISLATION
RESEARCH INSTITUTE

 **KAC** KOREA AIRPORTS
CORPORATION  **KDFC**  **metabuild** CO., LTD.  **Smatii**  **KOREA AEROSPACE
UNIVERSITY**

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01 UTM in Korea

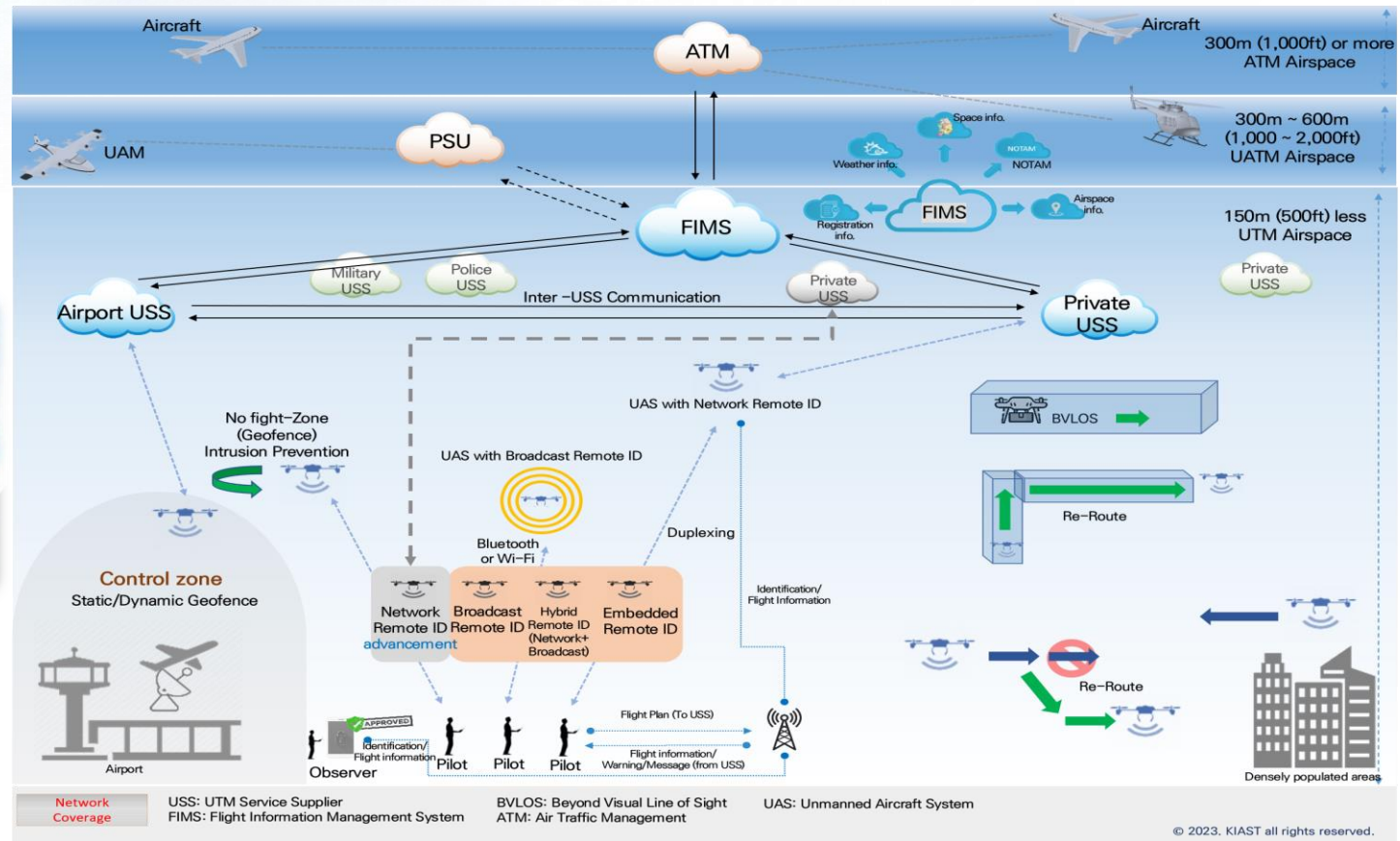
UTM(Unmanned Aircraft System Traffic Management)

A traffic management service provided to more safely and efficiently operate unmanned aircraft system flying in low-altitude(150m/500ft or less) airspace environments

BEFORE



- Rely on the judgement of the pilot
- VLOS Flight
- Not providing flight information between flights
- Unable to identify flight information



AFTER

- Providing real-time flight information from flight plan to landing
- BVLOS Flight
- Sharing integrated flight information of manned & unmanned aircraft

01 UTM in Korea

Drone Law and Policy

Act on Promotion of Utilization of Drones and Creation of Infrastructure

- Act Enactment : 2020.5.1.
- Establishing a Legal Basis :
 - such as Operating Drone-related Regulatory Special Cases, Supporting Start-ups and R&D, Supporting Drone Companies' Overseas Expansion, Fostering Drone Professionals and Establishment & Operation of UTM

Policy

- Master Plans for Development of Drone Industry (2023.6., every 5 years)
 - Provide Real-time UTM Service including urban area until 2028
- Proactive Deregulation Roadmap 2.0 (2023.6.)
 - Prepare Legal Basis of UTM operating and Drone Flight Information Standards

01 UTM in Korea

UTM Research & Development in Korea

Phase 1(2017~2022)

Objective

Development and Implementation of UAS Traffic Management System in Low Altitude(lower than 150m) for safe and efficient operations of drones under 150kg

Goal

Focusing on flight demonstration based on developed USS system

Duration

2017.4. ~ 2022.12.(5years 9months)

Demonstration

Total 11 times of demonstration from 2018 to 2022 by testing USS system & Network based remote-ID

Members(10)

supported by



&



Phase 2(2023~2026)

Objective

Development and Implementation of UAS Traffic Management System in Low Altitude(lower than 150m) for safe and efficient operations of drones under 150kg

Goal

Focusing on creating total ecosystem of UTM by developing FIMS, multi-USS, Remote ID

Duration

2023.6. ~ 2026.12.(3years 7months)

Demonstration Goal

Flight demonstration at urban area with population more than 0.5mil. by testing **FIMS-USS, USS-USS, FIMS-PSU or ATM, Remote ID(Network, Broadcasting, Hybrid, Embedded)**

Members(9)

supported by



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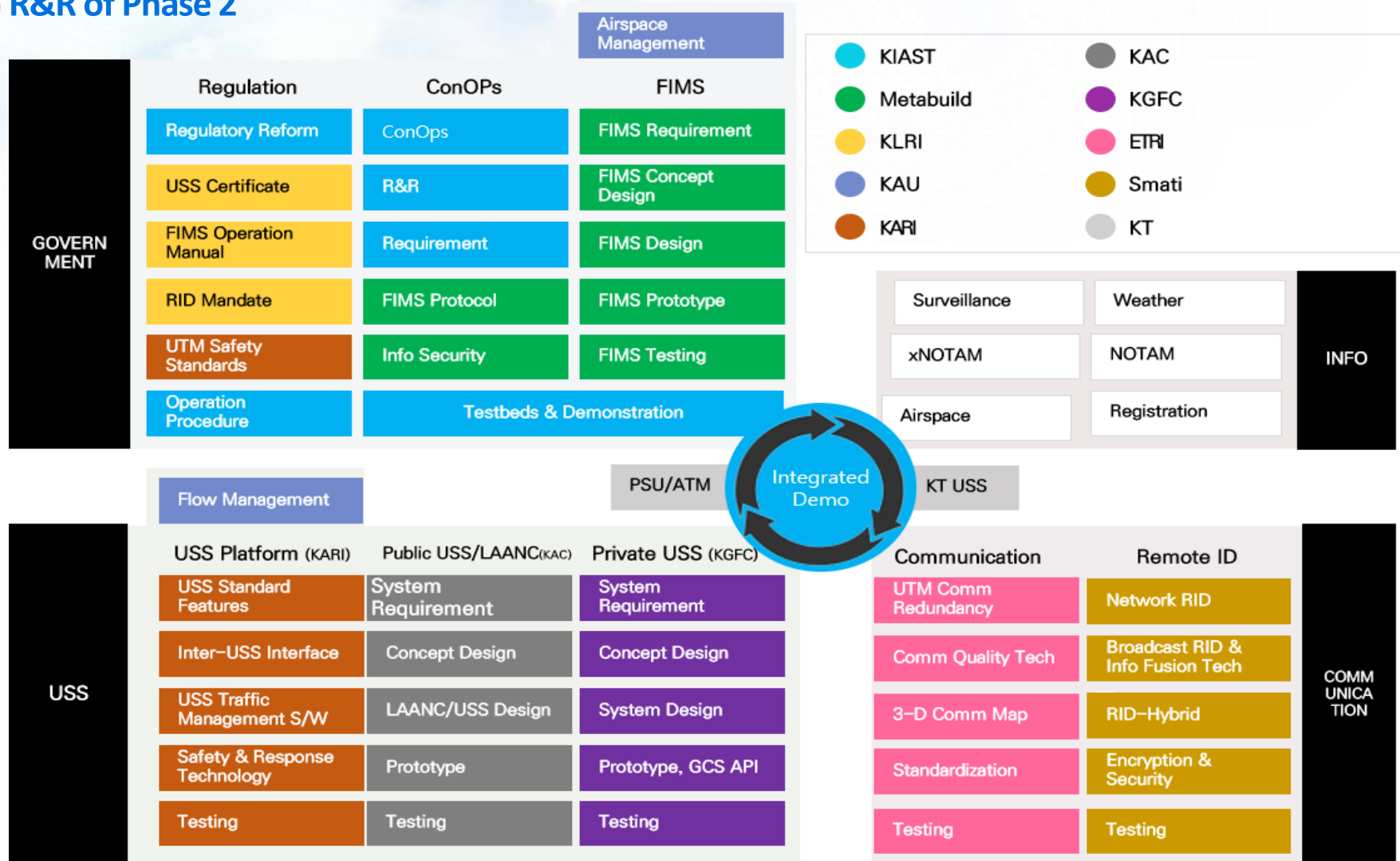
* FIMS: Flight Information Management System

** USS: UTM Service Supplier

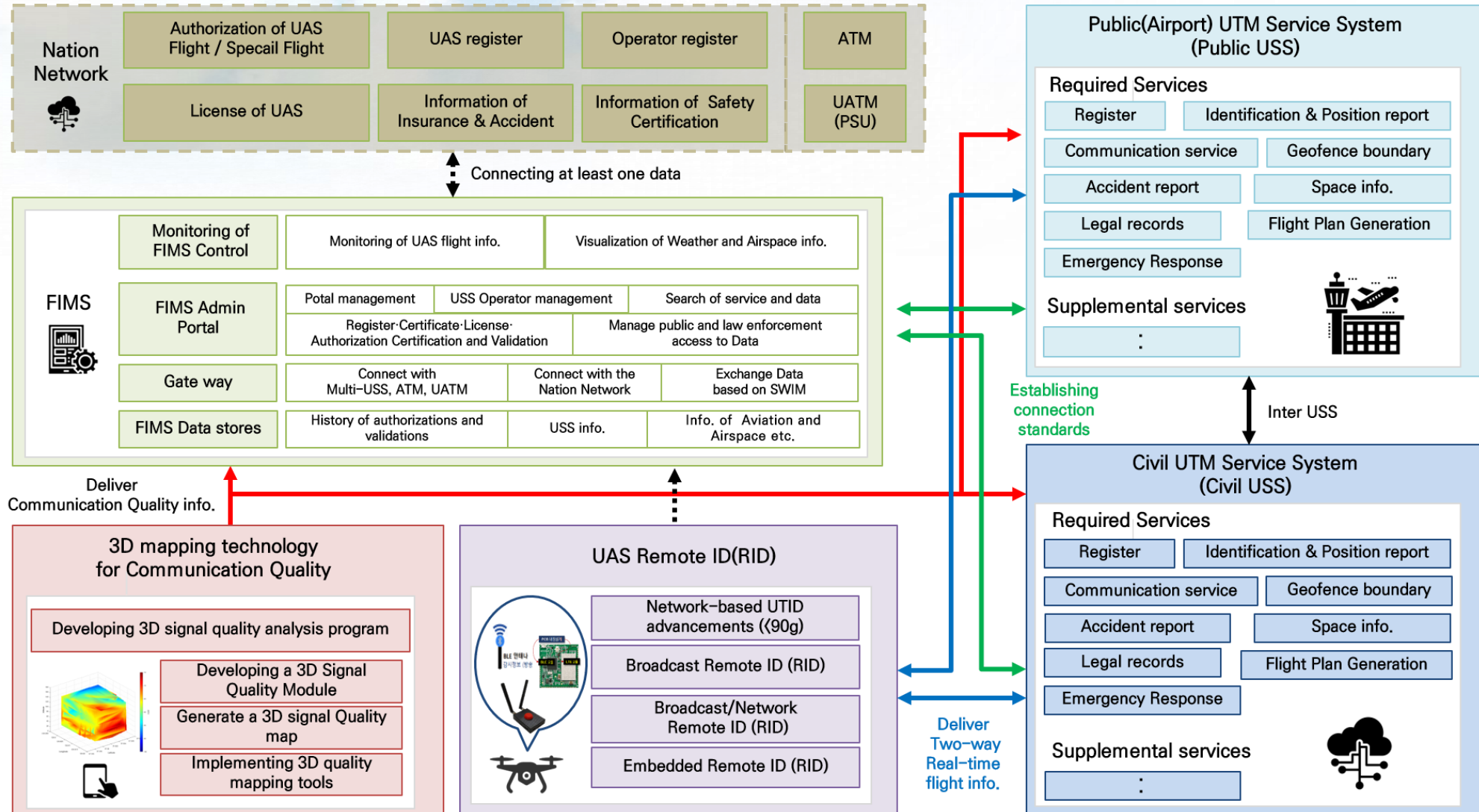
*** PSU: Provider of Services for UAM

01 UTM in Korea

R&R of Phase 2

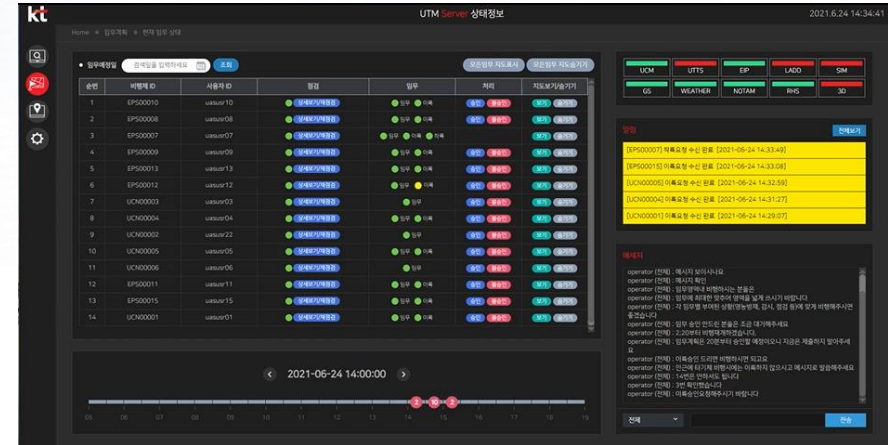


01 Architecture Overview

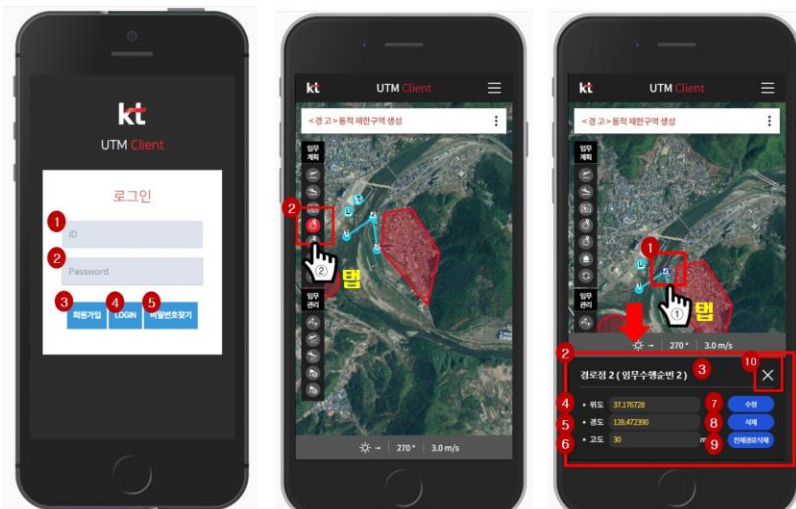


02 Major Research Outcomes

UTM related Systems and Module



<Phase 1 UTM System(USS)>



<Mobile UTM Client>



<UTID(UAS Tracking Identification Device)>

02 Major Research Outcomes

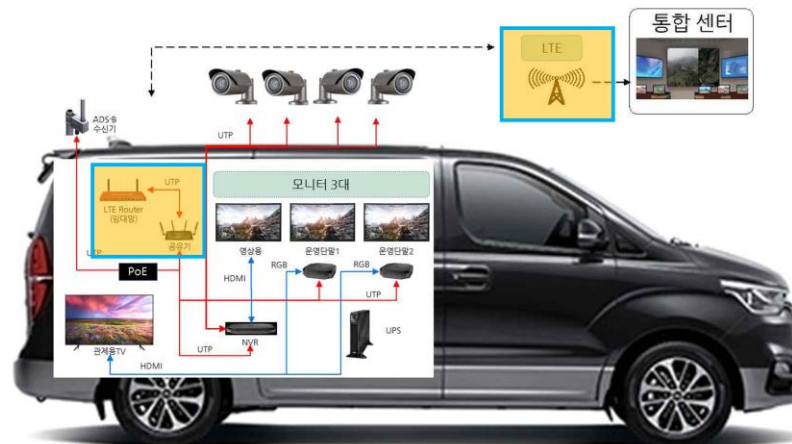
UTM related Infrastructures



<UTM Monitoring Center @ KARI, Daejeon>



<FIMS Center @ KIAST, Incheon>



<UTM Mobile Monitoring Vehicle>

03 UTM Flight Demonstrations

Total of 11 UTM Flight Demonstrations since 2018

#	Year	# of Drones	Sorties	Test Site	Major Operations
1	Oct.2018	5	55	Yeongwol	1 st use of the phase 1 UTM system
2	Nov.2019	4	20	Yeongwol	demonstrated with other research team by using single UTM system
3	Apr.2020	2	12	Incheon Port	1 st flight demonstration at marine environment
4	May.2020	7	89	Yeongwol	tested operating procedures of virtual emergency situations
5	Oct.2020	6	56	Yeongwol	tested altitude separation, takeoff & landing accuracy through UTM system
6	Nov.2020	8	37	Seoul	1 st demonstration with UAM at urban area
7	Apr.2021	5	56	Incheon	tested mobile monitoring vehicle
8	Jun.2021	15	181	Incheon	tested high density simultaneous flight with a maximum of 13 drones
9	Nov.2021	8	66	Incheon Daejeon	multi-area simultaneous demonstration
10	Jun.2022	26	84	8 Sites	UTM system function tested in 8 sites simultaneously
11	Oct.2022	36	74	9 Sites	operational procedure, priority flight test applied into UTM system

Thank You

