

KPS & KASS Update

10st October 2022



과학기술정보통신부
Ministry of Science and ICT



Overview of KPS

Objectives

Providing high-precision PNT information required
in the era of the 4th industrial revolution

Goals

Development and construction of KPS system
that stably provides PNT services to meet various satellite navigation needs



Program

KPS R&D Program
(including Space, Ground
and User Segment)

Period

2022~2035 (14 years)

Governing

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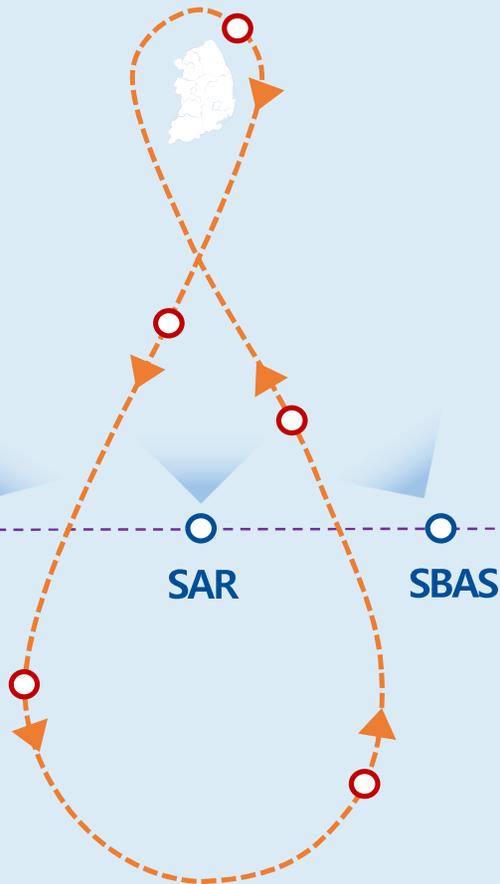
R&D

 한국항공우주연구원
KOREA AEROSPACE RESEARCH INSTITUTE

KPS System Configuration

KPS Satellite Constellation

- 3 GEO
- 5 IGSO



KPS Segments



- 3 GEO Satellites
- 5 IGSO Satellites
- Payloads : Navigation, Time-sync., SBAS, and SAR



- Operation Centers
- Satellite Control Centers
- Antenna Stations
- Monitoring Stations
- Mission Control Stations



- Research and Development Receiver
- Reference Station Receiver
- Test and Evaluation Receiver
- User Receivers

KPS Development Plan

System Design (‘22~‘24)

- SDR/PDR/CDR of KPS system
- International cooperation for orbits, frequencies, sites acquisition
- Navigation signal and constellation design

System Development (‘25~‘28)

- Development of satellite bus and payloads
- Development of satellite control center and antenna station
- Launch of the 1st IGSO satellite in 2027

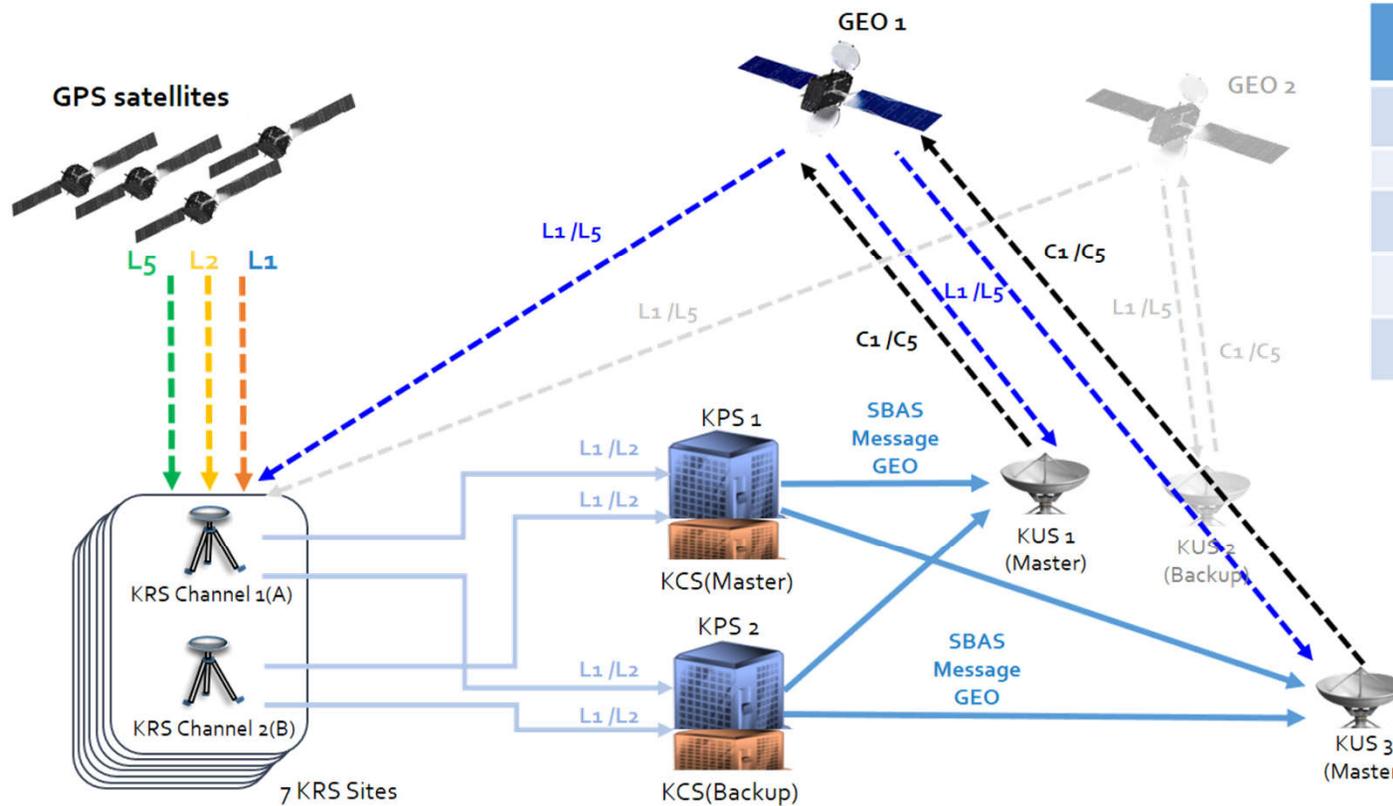
Deployment and Validation (‘29~‘35)

- Development and launch of the 4 IGSO and 3 GEO satellites
- Development of all of the ground segment
- Test during IOC and FOC

KASS Status (1)

Main Goal

- Provide APV-I SoL Service to Airports located in South Korea
- Start APV-I SoL Service after 2023



S/S (Sub System)	Qty. (Baseline)
KRS (KASS Reference Station)	7
GEOs	2(1)
KUS (KASS Uplink Station)	3
KCS (KASS Control Station)	2
KPS (KASS Processing Station)	2

KASS Status (2)

KASS 1st Satellite Launch

- (Satellite) Malaysian Measat-3D launch with **KASS** payload
- (Date) 23rd June in 2022
- (Vehicle) Ariane 5 ECA+
- (Launch Location) Ariane Launch Area 3, Kourou, French Guiana
- (GEO Location / Lifespan) 91.5 ° E / 15 years



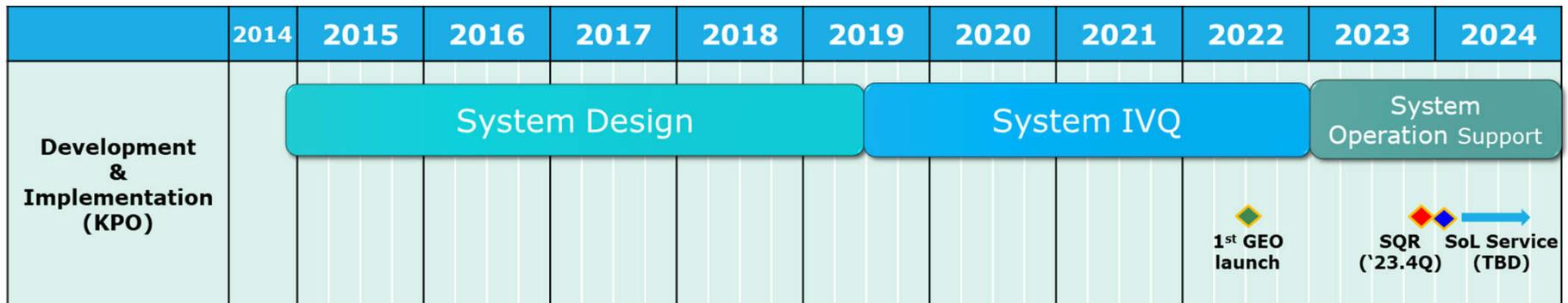
KASS Status (3)

Status

- ('21.6) KUS Infrastructure Facilities Construction Completion
- ('22.6.23.) KASS 1st GEO satellite (Measat-3D with KASS payload) launch
- ('22.7.4.~6.) KASS Navigation Payload IOT (In Orbit Test) Completion
- ('22.7.19.) KASS FAT (Factory Acceptance Test) Completion

Future Plan

- ('22.10.~11.) KUS ↔ GEO#1 (Measat-3D) integration test
- ('22.12.) KASS 1st signal broadcasting (MT0/0)
- ('23.6.) KASS 2nd signal broadcasting (MT0/0 or MT0/2)
- ('23.11.) SQR (System Qualification Review)



* KPO : KASS(Korean SBAS) Program Office * KUS : KASS Uplink Station

GNSS Application in Korea

Various areas including **ICT, Transportation, Commerce, and Safety**



Smart Phone & Apps



Self-Driving Car



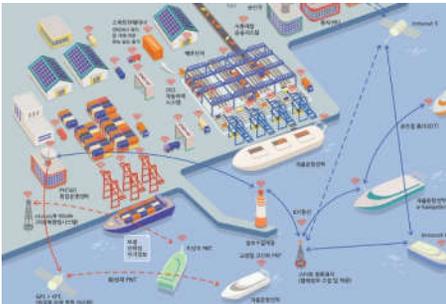
Urban Air Mobility



Aviation Traffic



Autonomous Ship



Smart Ports



Search & Rescue



Smart Farming



Thank you



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