KPS & KASS
Status Updates

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Overview of KPS (Korean Positioning System)

**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

**KPS R&D Program** (including Space, Ground and User Segment)
2022~2035 (14 years)

**Governing**
Ministry of Science and ICT

**R&D**
KARI (Korea Aerospace Research Institute)
KPS Satellite Constellation

It consists of 3 GEO satellites and 5 IGSO satellites.
KPS Development Plan

Launching 1st KPS-IGSO in 2027, Finishing Deployment until 2035

System Design (‘22~’24)
- KPS R&D start and application for international satellite network registration
- Navigation signal and Constellation design

System Development (‘25~’28)
- Development of satellite bus, payloads, and ground segments
- Launch of the 1st IGSO satellite in 2027

Deployment and Validation (‘29~’35)
- Development and launch of the remaining 4 IGSO and 3 GEO satellites
- Development of all of the ground segments, Test and validation
Overview of KASS (Korea Augmentation Satellite System)

Main Goals

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

- APV-I and NPA service provision within Incheon FIR
  - APV-I: around airports (land mass and Jeju Island)
  - NPA: Outside of the APV-I service area

- SoL service commencement
  - After 2023yr

- **APV-I class SoL service**
  - Accuracy: 16m(H), 20m(V)
  - Integrity: 1- (2 x 10^{-7})/in any approach

- **Basic study for CAT-I class**
  - Accuracy: 16m(H), 6m(V)
  - Integrity: 1- (2 x 10^{-7})/in any approach

*APV(APproach with Vertical guidance), CAT(CATegory), DH(Decision Height), SoL(Safety of Life)
KASS Status

Start APV-I class SoL Service after 2023

Status

- (21.6) KUS Infrastructure Facilities Construction Completion
- (22.6.23.) KASS 1st GEO satellite launch (Measat-3D with KASS payload)
- (22.7.4.-6.) KASS Navigation Payload IOT (In Orbit Test) Completion
- (22.7.19.) KASS FAT (Factory Acceptance Test) Completion
- (22.10.-11.) KUS ↔ GEO#1 (Measat-3D) integration test
- (22.12.) KASS 1st signal broadcasting (MT0/0)
- (23.6.) KASS 2nd signal broadcasting (MT0/2)

Future Plan

- (23.11.) SQR (System Qualification Review)
IPNT (Institute of Positioning, Navigation and Timing in Korea)

Main Activities

- Established in 1994
- IPNT Annual Conference from 2012 to Present
- GPS / GNSS Workshop from 1994 to Present
Thank you