

CGSIC / International Subcommittee

Japan's Update

at Savannah, 2009/SEP/22

Presented by Hiroaki Maeda

Contents

- New Acts and Basic Plans
 - Basic Act on Promotion of Utilization of Geographical Information
 - Aerospace Basic Act
- The status of Infrastructures
 - MSAS
 - QZSS
- International Activities
 - Meetings
 - Multi GNSS Demonstration Campaign
- A variety Applications
 - Indoor Positioning

New Acts and Basic Plans

Basic Act on Promotion of Utilization of Geographical Information (AUGI)

(ref. Japanese Law translation)

- 2007/AUG, Basic Act entered into force
- 2008/APR, Basic Plan for AUGI was approved by the Cabinet (based on Article 9 of the Basic Act)
 - In the basic plan, QZSS is a key and to be implemented by phased approach;
 - Phase 1: Launch 1st satellite and demonstrate the GNSS technology and applications
 - Phase 2: 2nd and 3rd satellite will be launched after assessment of the result of the phase 1

Aerospace Basic Act

(ref. Japanese Law translation)

- 2008/MAY, Aerospace Basic Act was enacted
- 2009/JUN, Basic Plan based on the act was decided by the Strategic Headquarters for Space Policy.
 - Support six basic pillars in the plan
 - Promote QZSS and MSAS
 - Create new services in our daily life such as personal navigation systems with private sector

The status of Infrastructures

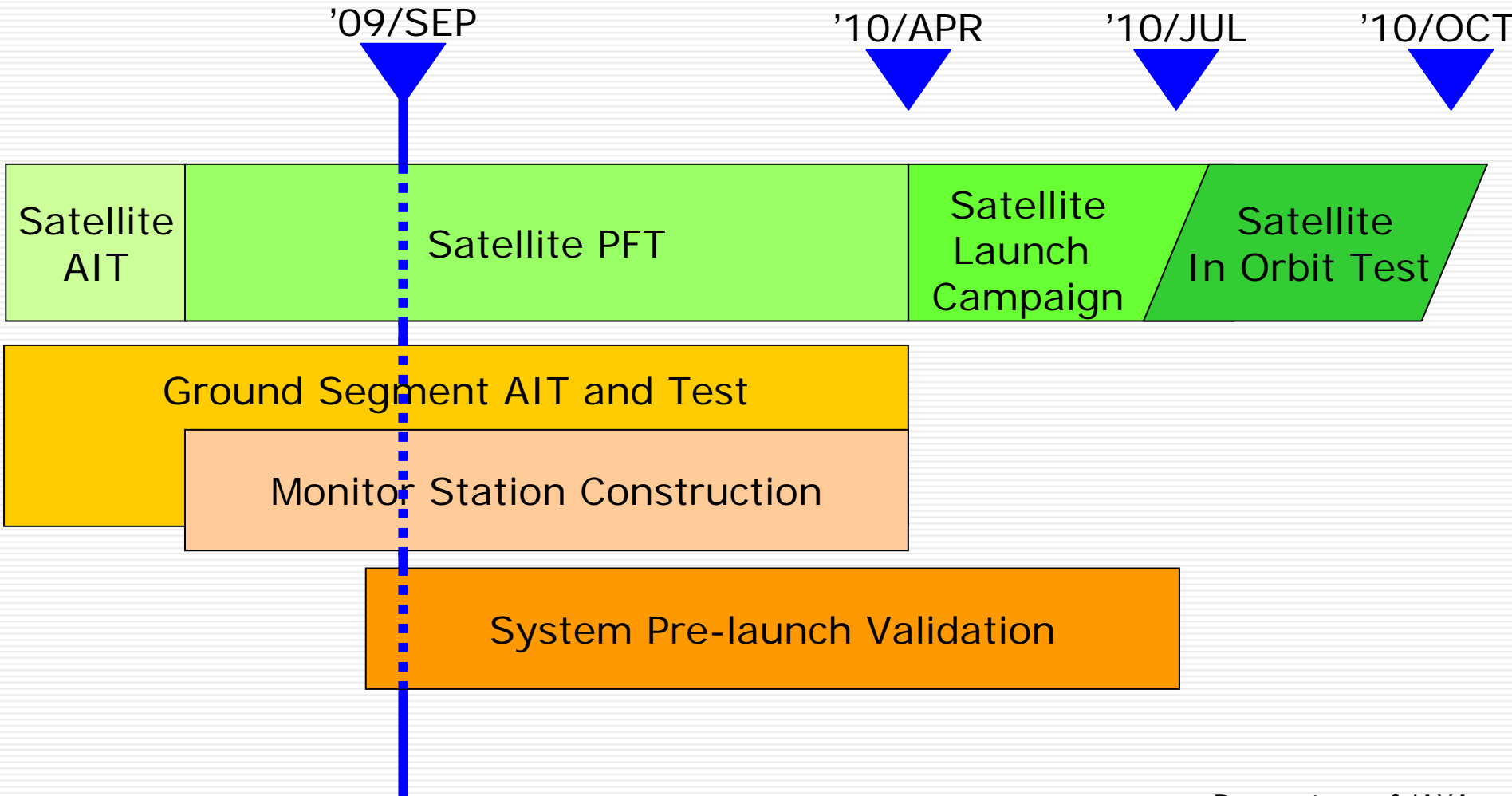
MSAS / Status

- Since 2007/SEP, MSAS is operational.
(From MSAS WEB Site)

- For Non-Precision Approach,
 - Horizontal Accuracy(95%) < 2.2m
 - Integrity (Probability of HMI)
~ $0.903 \times 10^{-7} / \text{hr}$
 - Availability ~ 99.926%
(From ICG WEB Site)

The status of Infrastructures

QZSS / Development Schedule



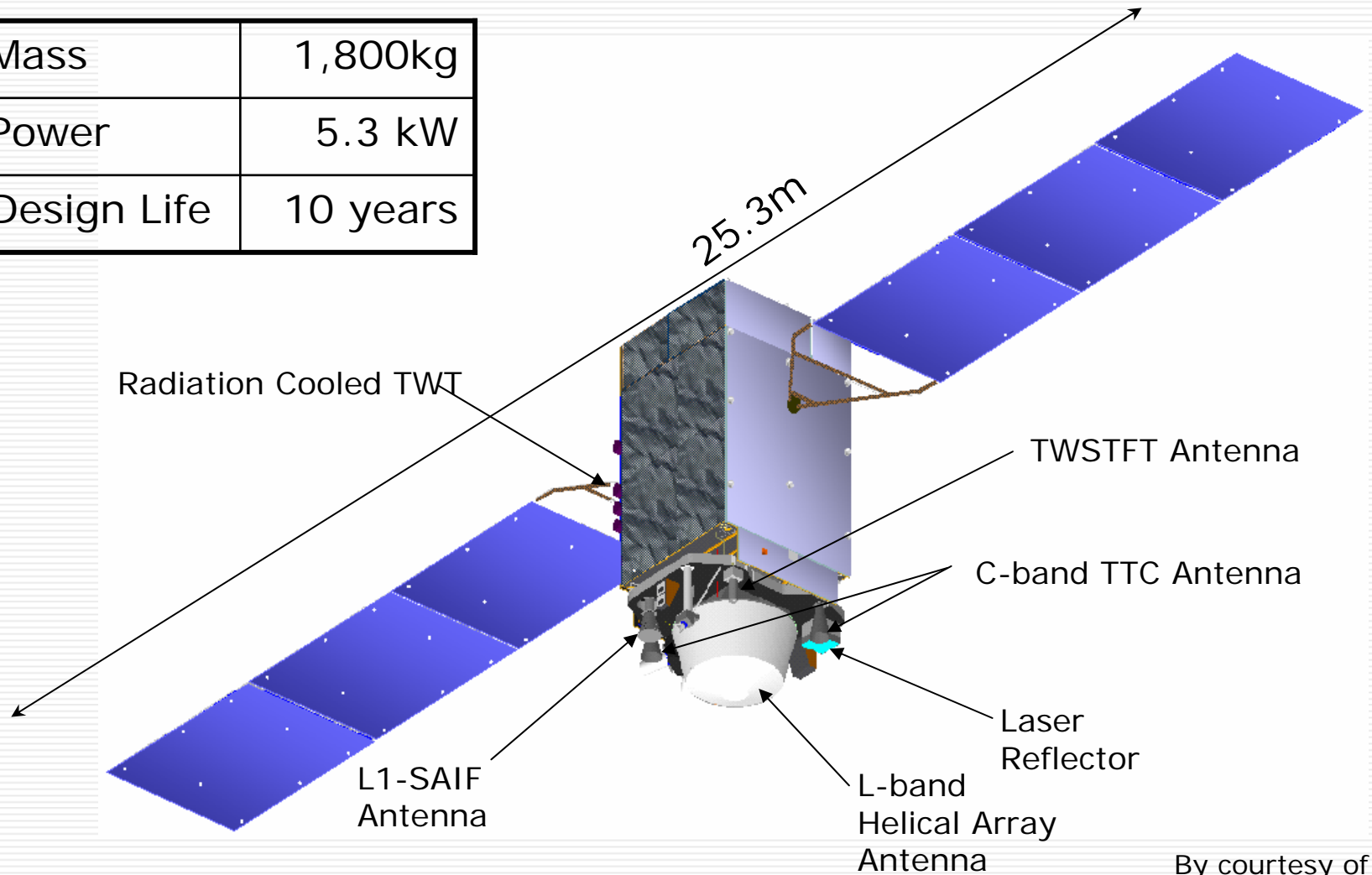
By courtesy of JAXA

JGPSC

The status of Infrastructures

QZSS / Satellite On-Orbit Configuration

Mass	1,800kg
Power	5.3 kW
Design Life	10 years



By courtesy of JAXA

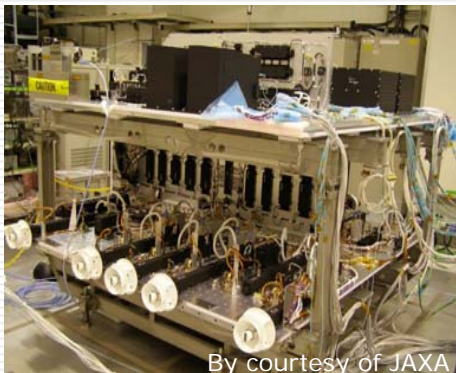
The status of Infrastructures

QZSS / Development Status ~Satellite~



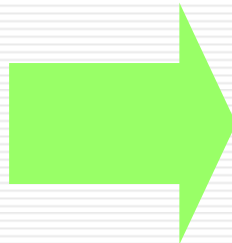
By courtesy of JAXA

L-band Antenna Test
(July 2008)



By courtesy of JAXA

NAV Payload Test
(Jan 2009)



By courtesy of JAXA

Satellite AIT (Aug 2009)

By courtesy of JAXA

The status of Infrastructures

QZSS / Development Status ~Ground~

Monitor Stations

- We are constructing:
 - 5 Monitor Stations in Japan
 - 4 Monitor Stations distributed outside Japan



By courtesy of JAXA

Guam, US
(Aug 2009)

By courtesy of JAXA

The status of Infrastructures QZSS / Development Status ~Ground~

TT&C and Uplink Station

- Built at Okinawa, Japan
 - For TT&C and
 - For Navigation Message Uplink



Okinawa, Japan

By courtesy of JAXA

Meetings

□ US-JAPAN

- Three meetings were held since the last ION.

□ Japan attended the 4th ICG, and

- Expressed interest to host the 6th ICG in Japan in 2011.
- Proposed “Multi-GNSS Demonstration Campaign in the Asia/Pacific Region”. This campaign was endorsed by the ICG.

Multi GNSS Demonstration Campaign

- Is a series of activities for four or five years from 2010 initiated by Japan,
 - Starting with the Asia Oceania Regional Workshop on GNSS, JAN/25-26 2010 in Thailand.
- Comprises the following parts,
 - Infrastructure Establishment
 - Multi-GNSS Monitoring Network
 - Projects
 - Development of new or extended multi GNSS applications
 - Carrying out Experiments and Demonstrations
 - Regional Work Shop
 - Annual base Workshop in the Asia/Pacific region
 - Announcement of joint experiment plans and reporting results of the experiments

Indoor Positioning

- The “Indoor Positioning” is one of the key functions for mobile phones in Japan.
- Several techniques were developed such as;
 - A Super High Sensitivity GPS Chip,
-165dBm sensitivity.
 - Indoor Messaging System, IMES.

Summary

□ Acts and Plans

- Basic Plans on the Aerospace Basic Act

□ Infrastructure Status

- The 1st QZSS satellite will be launched next year.

□ International Activities

- Multi GNSS Demonstration Campaign

□ An indoor positioning applications