International Committee on GNSS

COMPASS/BeiDou Navigation Satellite system

China Satellite Navigation Project Center

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1. System Description and Applications

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1.1 Space segment

- 5 GSO satellites: 58.75E, 80E, 110.5E, 140E and 160E
- 30 MEO satellites

	MEO
Number of satellites	**30**
number of orbital planes	**3**
satellite altitude (km)	**21500**
inclination angle (deg)	**55**

1.2 Ground segment

- Master Stations
- Upload Stations
- Monitor Stations

1.3 Signals

Signal	Carrier frequency （MHZ）	bandwidth （MHZ）	PRN code chip rate (Mcps）	Signal modulation	Navigation data bit rate (bps)
B1	1561.098	4.092	2.046	QPSK	I: GSO：500 NGSO：50 Q：500
B1-2	1589.742	4.092	2.046	QPSK	
B2	1207.14	24	10.23	QPSK	
B3	1268.52	24	10.23	QPSK	
B1-BOC	1575.42	16.368	1.023	MBOC（6，1，1/11）	50
B2-BOC	1207.14	30.69	5.115	BOC（10，5）	
B3-BOC	1268.52	35.805	2.5575	BOC（15，2.5）	
L5	1176.45	24	10.23	QPSK	

1.4 Performance

Coverage: Global

- Positioning Accuracy: 10m
- Velocity Accuracy: 0.2 m/s
- Timing Accuracy: 20 ns

1.5 Timetable

- Since the year 2000
  - The first experimental satellite (140E) was launched on 31st October 2000;
  - The second experimental satellite (80E) was launched on 21st December 2000;
  - The third experimental satellite (110.5E) was launched on 25th May 2003.
- After the COMPASS Navigation Test System has been deployed, it could provide Positioning, Timing, Communication and WDGPS services in the territory of China and nearby areas.

1.5 Timetable

- to cover China and nearby areas before 2010;
- then it will gradually expanded into a global system in the near future.

1.6 Applications

- The Beidou/Compass Navigation Test System has played an important role in many areas, such as telecommunications, transportation, meteorology, forest fire prevention, disaster forecast, Marine, Etc. At present, the number of registered user terminals has rose to nearly 100,000.
- Especially in the search and rescue activities in Sichuan earthquake, the system operates with 100% security and reliability and applies very well.

2. Services provided and Provision Policies

Two kinds of services

- Open Service：free and open to users
- Authorized Service: Offer more reliable "authorized" Positioning, Velocity, Timing and Communications services as well as Integrity Information

2. Services provided and Provision Policies

- **Open Service:**
  - **B1 I**
  - **B1-BOC**
  - **B2 I**
  - **B2-BOC**
  - **L5**
- **Authorized Service:**
  - **B1 Q**
  - **B1-2**
  - **B2 Q**
  - **B3**
  - **B3-BOC**

3. Perspective on compatibility and Interoperability

3.1. Definition of compatibility and interoperability

3.2 Efforts to ensure compatibility & interoperability

Compatibility

- the ability of China and other space-based positioning, navigation, and timing services to be used separately or together without interfering with each individual service or signal.

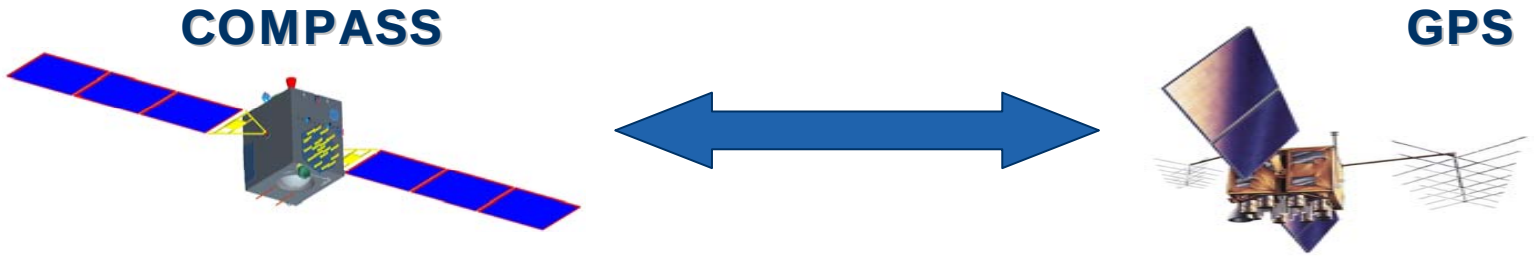
Interoperability

- the ability of civil China and other space-based positioning, navigation, and timing services to be used together to provide better capabilities at the user level than would be achieved by relying solely on one service or signal.

Efforts to pursue compatibility & interoperability

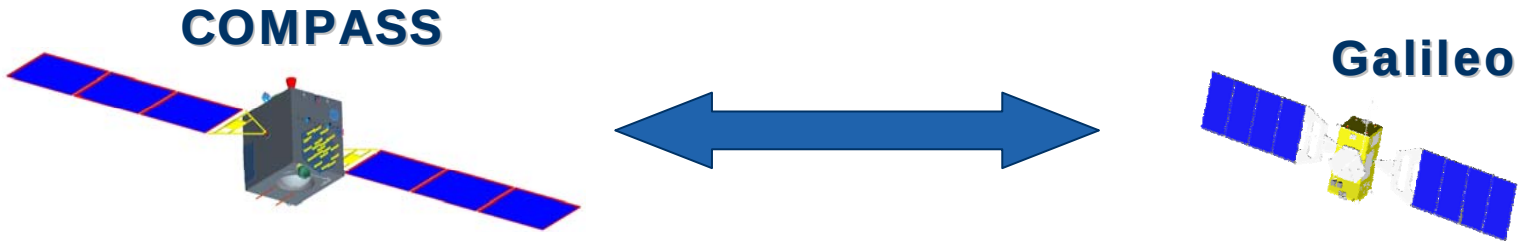
- China is willing to cooperate with other countries to promote the compatibility and interoperability between COMPASS and other GNSS systems, improve the application of Positioning, Navigation and Timing services together through bilateral and multilateral venues.

Related Bilateral Activities



- The 1st Frequency Compatibility Coordination Meeting between the Operators of COMPASS and GPS was hold in Geneva in June 2007.
- The 2rd Frequency Compatibility Coordination Meeting Between the Operators of COMPASS and GPS was hold in Xi'an in May 2008.
- Sharing of system status and related concepts improved mutual understanding and promoted the cooperation.

Related Bilateral Activities



- The frequency cooperation meeting between COMPASS and Galileo was hold in May 2007 in Beijing.
- The 1st Formal Meeting Between the Operators and Technicians of COMPASS and Galileo was hold in April 2008 in Brussel.
- Having the same wish to establish a bilateral Working Group on Compatibility and Interoperability.

4. Participation in ICG

- China will actively take part in the working groups and workplan activities of the Committee. China intent to host the 5th ICG meeting.
- China is willing to cooperate with other countries to promote the compatibility and interoperability between COMPASS and other GNSS systems in order to improve the applications of Positioning, Navigation and Timing services.

Thank you
for your attention!