



**International Committee on GNSS  
Working Group A Meeting on GNSS Interoperability**

**View on Interoperability**

**China Satellite Navigation Project Center**

Nov. 30<sup>th</sup>, 2009, Gold Coast, Australia

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The background is a composite image. The top left shows a satellite with solar panels in space. The top right features a diagram of the Earth with several orbital paths and small satellite icons. The bottom left shows a section of the Great Wall of China. The bottom right depicts a rocket launch with a large plume of fire and a service tower.

# 1、 Basic Concept of Interoperability



# Interoperability

**Interoperability refers to the ability of open services of multiple satellite navigation system to be used together to provide better capabilities at the user level than would be achieved by relying solely on one service, without significantly increasing the complexity of receivers.**

The background is a composite image. In the top left, a satellite with solar panels is in orbit. In the top right, a diagram shows the Earth with several orbital paths and small satellite icons. In the bottom right, a rocket is launching with a large plume of fire and smoke. In the bottom left, the Great Wall of China is visible against a dark background.

## 2、 Signal Characteristics

# Frequencies

**B1: 1559.052~1591.788MHz**

**B2: 1166.22~1217.37MHz**

**B3: 1250.618~1286.423MHz**

<b>Component</b>	<b>Carrier Frequency (MHz)</b>	<b>Chip Rate (cps)</b>	<b>Data/Symbol Rate (bps/sps)</b>	<b>Modulation Type</b>	<b>Service Type</b>
<b>B1-C<sub>D</sub></b>	<b>1575.42</b>	<b>1.023</b>	<b>50/100</b>	<b>MBOC(6,1,1/11)</b>	<b>Open</b>
<b>B1-C<sub>P</sub></b>			<b>No</b>		
<b>B1</b>		<b>2.046</b>	<b>50/100</b>	<b>BOC (14, 2)</b>	
		<b>No</b>			
<b>B2a<sub>D</sub></b>	<b>1191.795</b>	<b>10.23</b>	<b>25/50</b>	<b>AltBOC(15,10)</b>	<b>Open</b>
<b>B2a<sub>P</sub></b>			<b>No</b>		
<b>B2b<sub>D</sub></b>			<b>50/100</b>		
<b>B2b<sub>P</sub></b>			<b>No</b>		
<b>B3</b>	<b>1268.52</b>	<b>10.23</b>	<b>500bps</b>	<b>QPSK(10)</b>	<b>Authorized</b>
<b>B3-A<sub>D</sub></b>		<b>2.5575</b>	<b>50/100</b>	<b>BOC(15,2.5)</b>	<b>Authorized</b>
<b>B3-A<sub>P</sub></b>			<b>No</b>		



The background is a composite image. The top left shows a satellite with solar panels in space. The top right features a diagram of the Earth with several orbital paths and satellite positions. The bottom left shows the Great Wall of China winding through a landscape. The bottom right depicts a rocket launch with a large plume of fire and smoke.

# 3、 Time and Coordinate Systems



# Time System

- **COMPASS/BeiDou time is named as BDT, traced to UTC(NTSC), and synchronized with UTC within 100ns. The epoch time of BDT is UTC 00d 2006.**
- **Interoperability of BDT with GPS/Galileo time was considered in the design of COMPASS/BeiDou time system. The offset between BDT and GPST/ GST will be measured and broadcasted.**

# Coordinate System

- **COMPASS/BeiDou uses China Geodetic System 2000 (CGS2000)**
- **Coinciding with ITRF at a few cm level, and for most applications the difference between CGS2000 and ITRF can be ignored.**



## 4、 Essential of Interoperability





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