Overview of Compass/BeiDou Navigation Satellite System

China Satellite Navigation Project Center

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Satellite Navigation System, which is an important basic space establishment, can make enormous benefit in society and economy areas. Many countries attach importance to Satellite Navigation System.

China, a large developing country in the world which has spacious domain and sea area, also highly regards construction of Satellite Navigation System at all time and has started to build its own satellite navigation system called Compass/BeiDou Navigation Satellite System (CNSS).

The space segment of CNSS consists of 5 geostationary earth orbit (GEO) and 30 medium earth orbit (MEO) satellites. The ground segment consists of Master Control Station, Upload Station and Monitor Station. The user segment consists of COMPASS/BeiDou user terminal and compatible terminal which is compatible with GPS, GLONASS and GALILEO.

The carrier frequency of CNSS is 1195.14～1219.14MHz, 1256.52～1280.52MHz, 1559.05～1563.15MHz and 1587.69～1591.79MHz.

Two kinds of service will be provided. One is the Open Service, which is designed to provide users with positioning accuracy within 10 meters, velocity accuracy within 0.2 meter per second and timing accuracy within 50 nanoseconds. The other is the Authorized Service, which will offer “safer” positioning, velocity, timing, communication services and integrity information for authorized users.

China has sent three satellites into geostationary orbit (80° E(east longitude eighty degree), 140° E, 110.5° E) since 2000, and then BeiDou/Compass Navigation Test System has been established.

The existing three-satellite BeiDou/Compass Navigation System has played an important role in offering efficient positioning, timing, communication services and differential GPS information in surveying, telecommunications, transportation, meteorology, forest fire prevention, disaster forecast and public security areas.

In order to test and validate CNSS, the fourth experimental satellite was launched on Feb 2007 and brought into use on 26th March 2007.

On the basis of Compass/BeiDou Navigation Test System, China has started to build CNSS. The first satellite of CNSS which is a medium earth orbit (MEO) was launched on Apr 2007, and is under In Orbit Validation at present. the system has been implemented in arranged time. The system is expected to cover China and parts of neighbouring countries by 2008 and then develop into a global constellation step by step.

CSNPC (China Satellite Navigation Project Center) takes charge of the research, building and management of CNSS.

In order to promote the compatibility and interoperability between the BeiDou/Compass Navigation Satellite System and other GNSS systems, to improve the application of positioning, navigation and timing services, China is willing to cooperate with other countries to develop the satellite navigation industry together.

T h a n k y o u !