

Improved Combined GPS and Galileo Receivers Performance

On 30th July 2010, the Government of the United States, the European Union (EU) and its Member States affirmed interoperability between GPS and Galileo, and concluded that enhanced performance of combined GPS and Galileo receivers is expected. This results from their 2004 Agreement on the Promotion, Provision and Use of Galileo and GPS Satellite-Based Navigation Systems and Related Applications.

A working group for enhanced cooperation between the next generation GPS and Galileo studied the combined performance of the GPS Space-Based Augmentation Systems (SBAS) of both the US and the EU. These systems are called Wide Area Augmentation System (WAAS) and European Geostationary Navigation Overlay Service (EGNOS), respectively. SBAS are an important addition to satellite-navigation systems for safety-of-life applications like aviation. The study confirmed improved availability for a wide range of aviation services and significantly improved robustness to GPS satellite outages.

The working group also studied receivers that could integrate the future GPS III signals and the Galileo open civil service signals. It concluded that the combination of GPS and Galileo services provided noteworthy performance improvements, particularly in partially obscured environments. Such environments are common where buildings, trees or terrain block large portions of the sky.

The result of these consultations is the public release of two papers: "Combined Performances for SBAS Receivers Using WAAS and EGNOS" and "Combined Performances for Open GPS/Galileo Receivers". The papers are available at: <http://pnt.gov/public/docs/#studies> and http://ec.europa.eu/enterprise/policies/satnav/documents/index_en.htm.

The United States and European Union are now focusing on coordination of safety-of-life services, through the evolution of SBAS and the development of advanced integrity monitoring techniques for receivers. These activities demonstrate the close United States and the European cooperation to ensure that GPS and Galileo are compatible. Also, it is important for the U.S and the EU to improve the general public's understanding of the complementary nature of civil GPS and Galileo, systems that are designed for the benefit of users around the world.