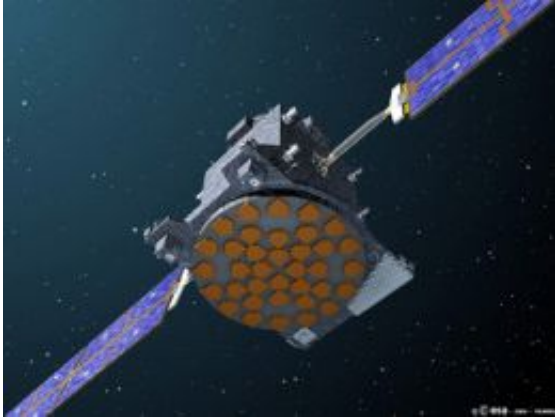


GIOVE-A navigation signal available to users

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Artist's impression of GIOVE-A in orbit. The spacecraft's navigation signal antenna is directed towards the viewer. Credits: ESA

The GIOVE-A Signal-in-Space Interface Control Document, the document that gives the technical details of the signals transmitted by the GIOVE-A satellite, has been released. This will allow receiver manufacturers and research institutions to use a real signal for their research and development.

Following the launch of GIOVE-A on 28 December 2005 from the Baikonur Cosmodrome and the transmission of the first Galileo signals from medium Earth orbit on 12 January 2006, ESA and Surrey Satellite Technology Limited (SSTL – United Kingdom) have completed the GIOVE-A in-orbit validation activities. The GIOVE-A signal validation has been accomplished through a network of 13 Galileo Experimental

Sensor Stations (GESS), deployed world wide, and a GIOVE Processing Centre which computes precise orbits and clock timings for the GIOVE satellites, based on the measurements made by the GESS and satellite laser ranging stations.

The GIOVE-A Signal-in-Space Interface Control Document (SIS-ICD) is the key document that will allow any user to build a receiver able to track GIOVE-A signals, interpret the navigation message and compute the distance between the satellite and the receiver. Following the successfully in-orbit validation mission, ESA has decided to release the SIS-ICD to the public to allow receiver manufacturers and research centres to benefit from experiments with a real Signal-in-Space for research and development purposes.

This is possible since the nominal GIOVE-A navigation Signal-in-Space (SIS) is fully representative of the future Galileo navigation signals, on all three Galileo frequency bands, even though GIOVE-A uses specific spreading codes that are different from the nominal codes of the final Galileo constellation to allow unambiguous identification of the spacecraft. These codes are described in the GIOVE-A public document and with knowledge of them the GIOVE-A signals can be used for code and carrier phase tracking in precisely the same way the future Galileo signals will be used. All GIOVE-A signal spectra are identical to the future Galileo navigation SIS spectra.

The navigation data symbol rates are identical with the nominal Galileo data rates for all public signals, and the same principles as in the final Galileo navigation signal are used for message encoding. The navigation message structure of GIOVE-A is different from the future Galileo navigation signal, but the low level elements of the message differ only in minor details. The content of the GIOVE-A navigation message is complete with all ingredients such as, for example, ephemeris and clock correction, that are needed for pseudo-range calculation and further

positioning processing, thus leading to a full set of navigation signals.

The time for simulation is over, so the ESA Galileo project team is putting at the disposal of the user community the information needed to support the validation of demanding Galileo user applications with a real satellite.

Source: European Space Agency

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