

GNSS – THE RACE TO BE THE PARTNER OF CHOICE FOR GPS

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Abstract

This paper addresses, head on, the race between the different global GNSS systems and highlights the critical importance of being second to market after GPS. It will present evidence based upon our discussions and interviews with leading global chipset and receiver manufacturers and how the downstream supply chain is eager to pass onto users the benefits of multiple constellations. At a time when the Galileo programme is experiencing further delays and funding obstacles, this paper will attempt to illustrate the impact in the downstream market of not reaching full operational capability until after 2015.

Today's shortcomings of GPS are well understood. The competition between today's chipset and receiver suppliers is fierce and they are constantly on the lookout for new ways of differentiating their products and achieving new performance margins. At the same time, many users have now been depending solely upon GPS for over fifteen years and are looking forward to the benefits of multiple constellations.

- Consumers in urban areas will reach far higher levels of service availability, enabling personal navigation applications to be fully realized.
- Those providing critical public infrastructure will be able to build higher resilience solutions from more than one system.
- Safety of life users will be able to construct cost effective RAIM integrity solutions without the need for local or regional infrastructure.

There can be no doubt therefore that, with the gift of hindsight, the market has been awaiting multiple inter-operable GNSS for many years. Indeed, the benefits are so great, that today's chipset manufacturers are desperate to be given the chance of supplying the world's first truly mass market dual constellation receivers. All of this is great news for users and great news for the supply chain for whom these developments offer a trigger for system replacements or upgrades. It is also great news for the system that becomes the 'partner of choice' for GPS since their future will be guaranteed and cast into the existing mature user base. But for those that arrive third or fourth, the added value to users is severely diminished and the timescales for market entry are likely to be delayed.

Whilst institutions such as the EC and ESA are doing their best to stimulate a young and growing European GNSS industry, there is little sign of any loyalty to Europe amongst today's leading GPS contenders. This small, and ever decreasing group of chipset suppliers control an ever increasing proportion of the market and they are unlikely to care which part of the globe, future GNSS systems emerge from first. GLONASS is already available in a large proportion of high end receivers and delivering real added value. Its incompatible modulation scheme has, to date, made it an uncomfortable partner for GPS and one that incurs too great a cost in a consumer receiver. However, that looks set to change as the eagerness for more satellites could potentially overcome such cost concerns.

Despite the inevitable concerns in schedule, Galileo remains the most natural choice for GPS – for as long as it shares the same carrier frequency and same signal structure (in the future) as GPS and whilst the level of interoperability between COMPASS and GPS remains unknown. Despite the small extra cost of upgrading to GPS/Galileo and the additional silicon real estate required, the churn rate should be high in most markets. Indeed, the evidence from our analyses point towards a conversion rate in line with receiver replacement rate in each user domain.

As soon as the Galileo OS ICD is frozen and published for all to commercially exploit, then the starting gun will be fired. Even if full operational introduction is delayed further, those platforms with long life times will be seeking to future proof their capability towards Galileo. Indeed, in some markets this is already happening. . .If in the meantime, confidence in the system wanes, then others will be quick to take advantage and today's GPS supply chain will think nothing to changing direction.

Finally, this paper concludes how the planned public benefits of Galileo depend wholly upon being the first choice partner to GPS and achieving the earliest possible introduction of the L1 Open Service (OS).