Economic Commission for Europe

Inland Transport Committee

Working Party on the Transport of Dangerous Goods

Joint Meeting of the RID Committee of Experts and the
Working Party on the Transport of Dangerous Goods   **4 January 2016**
Bern, 14–18 March 2016
Item 6 of the provisional agenda
Reports of informal working groups

Report of the informal working group on telematics
(Bordeaux, 6 – 8 October 2015)

Presentations made during the workshop – European GNSS role in
logistics and management of dangerous goods

EUROPEAN GNSS ROLE IN LOGISTICS AND MANAGEMENT OF DANGEROUS GOODS

Bordeaux, 6.10.2015

This presentation can be interpreted only together with the oral comment accompanying it

GNSS have made a huge impact in our society...

We are not alone !
The Multi - GNSS concept

What is "European GNSS"

- Satellite Based Augmentation System (SBAS)
- Better accuracy than GPS only (ionosphere and system errors)
- Operational since 2009

- Global Satellite Navigation System
- Currently under deployment (10 satellites launched)
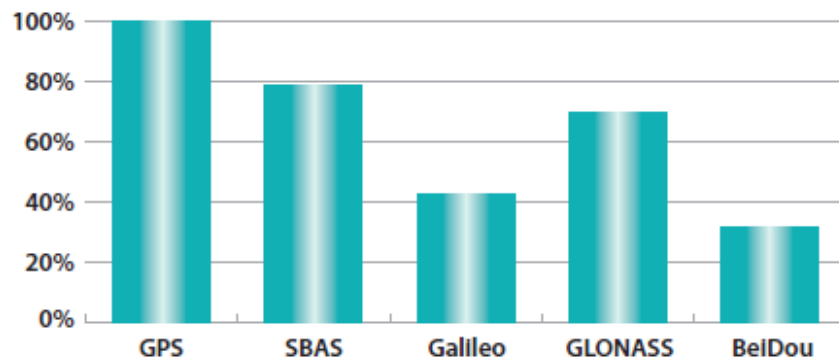- All **Made in Europe**
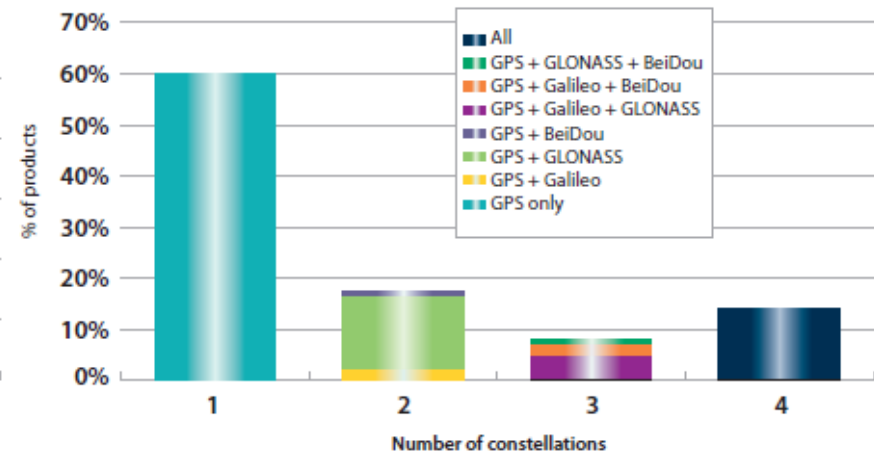
Good news from up there !

- **Galileo 9 & 10** successfully launched on September 10th

- **2 additional Galileo satellites** planned to be launched **by the end of 2015**

- **Orbit manoeuvres** completed for satellites 5 &6, recovery plan under study

- Ariane launches (**4 satellites per launch**) to be started in 2016

Independent analysis of the GNSS receivers' capabilities confirms the multi-constellation trend
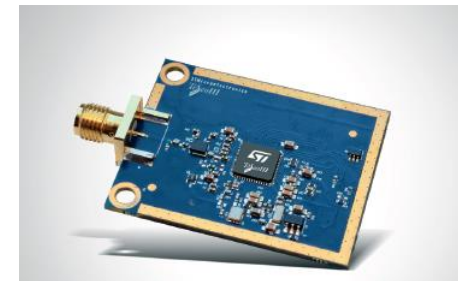
Capability of GNSS receivers – All segments

Supported constellations by receivers – All segments

Legend:
- All
- GPS + GLONASS + BeiDou
- GPS + Galileo + BeiDou
- GPS + Galileo + GLONASS
- GPS + BeiDou
- GPS + GLONASS
- GPS + Galileo
- GPS only

Capability assessment of more than 300 receivers, chipsets and modules currently available on the market

What's next in GNSS? The main drivers

- **Multiple frequency (Galileo - GPS):** e.g. E1 and E5 ; immediate benefits in terms of accuracy and robustness. Essential for ITS and especially autonomous connected vehicles. When it will arrive in automotive?

- **Authentication of the signal (Galileo):** to assure that the signal is really coming from the satellites and not spoofed. More and more important in ITS, especially for payment and safety critical applications

- **Signal of opportunities and sensor fusion (GNSS + other techniques):** users require a seamless transition outdoor/indoor, new techniques are emerging to complement the main GNSS-based positioning. This is essential for all intermodal applications and new "mobility as a service concept"

- **Very High Accuracy services (Galileo)**: cm accuracy via corrections transmitted via satellites; now only for professional applications, may become a standard also in ITS. Galileo contribution with its commercial service.

E-GNSS applications for logistics

- ✓ **Asset management**
  - ▪ Determination of exact position of transport equipment enables better planning and more operational efficiency
- ✓ **Stock-in-transit management**
  - ▪ Better capacity and service demand planning for logistics centers
- ✓ **Supply chain visibility**
  - ▪ Time of arrival
  - ▪ Delay alerts
- ✓ **Corridoring and Geofencing**
  - ▪ Virtual perimeter for monitoring of goods movement

Value proposition of European GNSS for dangerous goods transport

- Increased overall **accuracy and reliability** of the timing and positioning for end users

- Increased **availability** in urban environment,

- Increased **resiliency** achieved by the use of different/independent constellations,

- **Integrity** of the signal
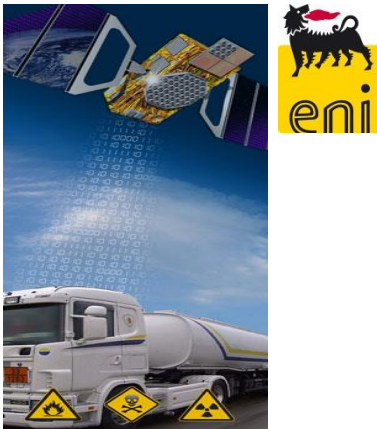
- Possibility of **authentication**

http://www.srcbelgesi.com/main.asp?pg=page&id=23

GSA FP7 & H2020 contribution to dangerous goods topic

MENTORE

Demonstration and validation of Tracking and Tracing (T&T) technologies and services **making the most of EGNOS/Galileo characteristics**: signal integrity, service warranty, signal encryption and authentication, interoperability with others GNSS providers for

http://www.gnsstracking.eu/

SCUTUM

Scutum is the **European best practice for the operational adoption of commercial services based on EGNOS, especially in the area of dangerous goods transport.** eni, a leading oil company, adopted EGNOS to monitor its operational fleet transporting dangerous goods throughout Europe, and to benefit from EGNOS proven enhanced accuracy and position guarantee.
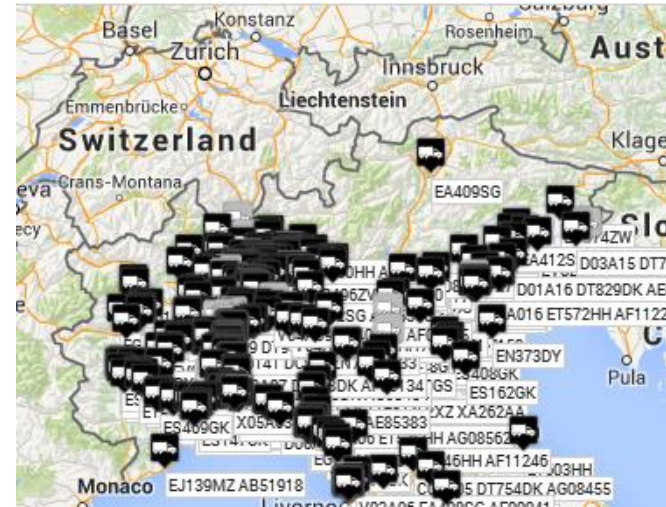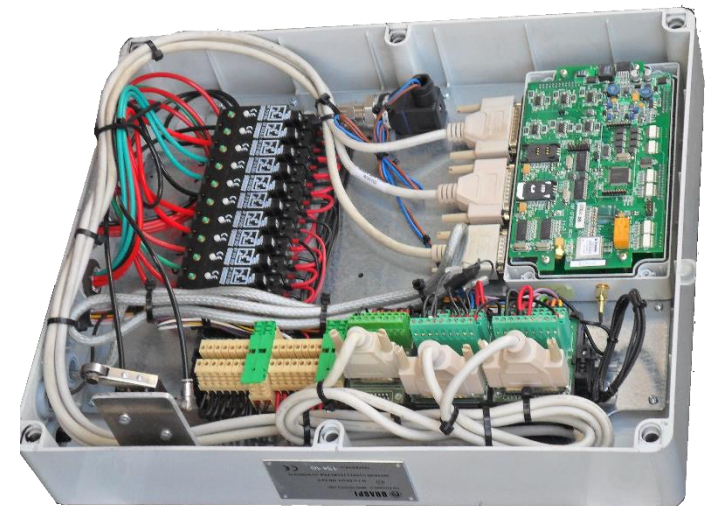
http://www.scutumgnss.eu/

The SCUTUM legacy

- In Europe: real-time remote supervision of fuel transportation on tanker trucks

  – Over 1,200 tanker trucks monitored in real-time!

- Companies:

  – 8 Oil Companies,

  – 40+ Fuel Hauliers,

  – 10+ Fuel traders

Project focused on use of E-GNSS for precise track and trace & security

GALENA funded by GSA in H2020 1st call is offering an innovative, accurate and affordable hybrid system (Galileo/RTLS) will be developed for this purpose ensuring a seamless, robust and continuous handover indoor/outdoor localization and continuous, real-time, reliable, accurate and available Position, Velocity and Time (PVT) of carriers and high value parcels.

http://www.galenaproject.eu/

CONTAIN project funded under FP7-SECURITY is aimed at specifying and demonstrating a European Shipping Containers Surveillance system in a global context which will encompass regulatory, policy and standardisation recommendations, new business models and advanced container security management capabilities. E-GNSS is providing an added value, delivering precise and reliable PVT function.

http://www.containproject.com/

CONTAIN

MoU with GS1 in Europe focusing on further promotion of E-GNSS within logistics applications

- GS1 in Europe & GSA **13-11-2013,** Prague

  - Demonstration of **EGNOS** capabilities in frame of Avanti-Pronto project focused on port call optimisation will take place in Q4 2015

  - **Galileo** endorsed by the Pronto platform for precise localisation of the service events. (http://dox.gs1.eu/download.php?id=712)

Promote geo-location operationalisation through GS1 & GSA

GSA will continue to support E-GNSS adoption in dangerous goods and logistics

Knowledge

- Monitoring of GNSS use on the supply chain & logistics market
- Participation at major logistics events promoting GNSS

Application development

- Leveraging results achieved in FP7
- Key technologies development in Horizon 2020

Cooperation with member states and industry

- Federate user needs and support of standards development
- Cooperation with other pilots and initiatives (CORE, PRONTO)
- Identify and support early users

THANK YOU

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