Case Study: Particle Accelerator

Shipment tracking through Europe.

The city of Uppsala, in Sweden, have a long history within science (the university was founded in 1477). Today physicists and engineers work on the development of particle accelerators and other scientific instruments. They cooperate with leading research sites around the world, such as CERN and ESS. Uppsala has a facility for performing high power tests on particle accelerator components (e.g. superconducting radio frequency cavities).

Challenge

The particle accelerator components are extremely sensitive to mechanical shocks, the challenge is to ship the components without exposing it to large shocks. To minimize the exposure to shocks, the components are placed on a rig standing on bumpers, absorbing the shocks. The rig is placed inside the wooden box.
To assure the quality, the sender and receiver must show that the components haven't been exposed to any shocks during the shipment. Also, to change the route if a certain one turns out to be too bumpy, they also want to have the possibility to track the shipment position to see where the potential excursions occur.

Solution

A tracking device, OnAsset Sentry 500, was mounted onto the components. The tracking device is capable of continuously monitoring temperature, pressure, light, shock, motion and position data. The shipment data was reported and analyzed using an interactive web-service, BRiGHTiNTEL. This set-up allowed the shipper, forwarder and receiver to follow its shipment status and position along the entire transport and receive reports.

Contact:
info@brightintel.com
+46 36 – 15 00 04
www.brightintel.com

ExportPak LUND AB

Forwarder of the shipment.

OnAsset Sentry 500 device.

Results

The equipment was loaded onto a contracted truck at the test facility in Uppsala, Sweden. The transport continued through Denmark, Germany, Netherlands, Belgium and France by truck and ferry until the gods was delivered at its destination outside Paris, France 3 days later.

By utilizing BRiGHTiNTEL it was possible to:

- Perform a transparent and quality assured transport from origin to destination.
- Continuously monitor the status of the gods and determine that no excursions occurred during the entire transport.
- Notify the personnel at the destination of the upcoming delivery.

Summary

With the use of a tracking device placed on the sensitive components in combination with the powerful BRiGHTiNTEL application, the shipper could guarantee the quality of the delivered gods by knowing that it did not exceed set thresholds for shocks. In addition, the shipper can also stay informed about any deviations from the shipment plan and be well prepared upon arrival of the components.

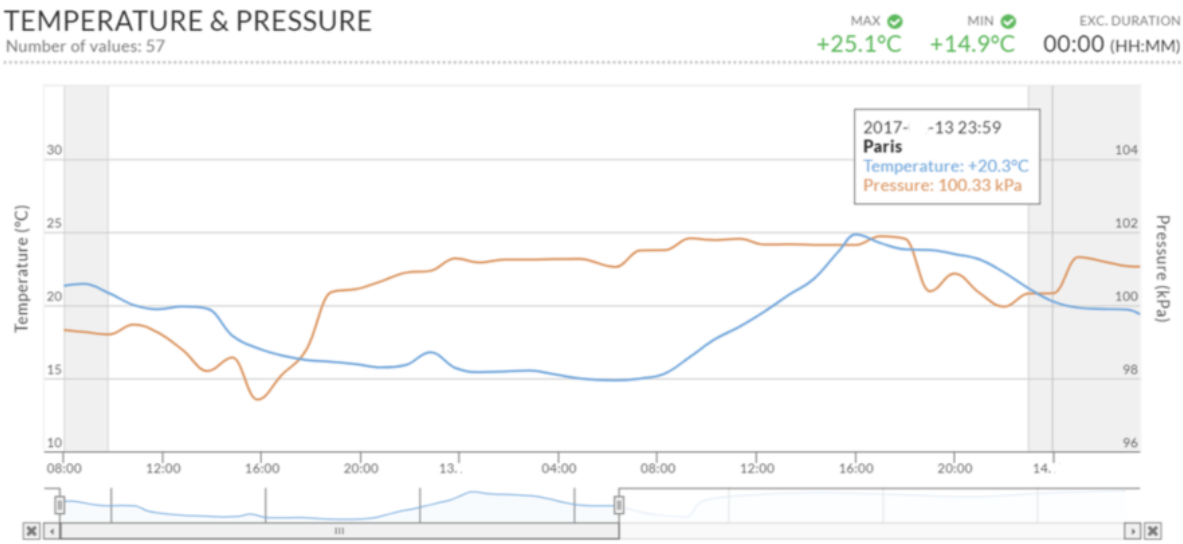

CHART LEGEND

Temperature (°C) — Pressure (kPa)

GEOGRAPHICAL AREA TRANSITS

#	Area	Arrival	Departure	Dwell time
1	Uppsala	2017- -12 08:01	2017- -12 09:48	1 hour, 46 minutes
2	Paris	2017- -13 22:59	2017- -15 18:40	43 hours, 41 minutes

BRiGHTiNTEL helps shippers to meet supply chain-related demands and to understand how products and assets are being handled during transportation by automatically monitoring, structuring and analyzing data from products and assets in transit.

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