



# OPUS RSE

## Traffic emissions control with Opus Remote Sensing Devices



# About Opus RSE

## and

# Remote Sensing Technology

# Opus Remote Sensing Europe

**OPUS RSE is worldwide the only ISO-17025 accredited laboratory for the remote measurement of real traffic emissions**

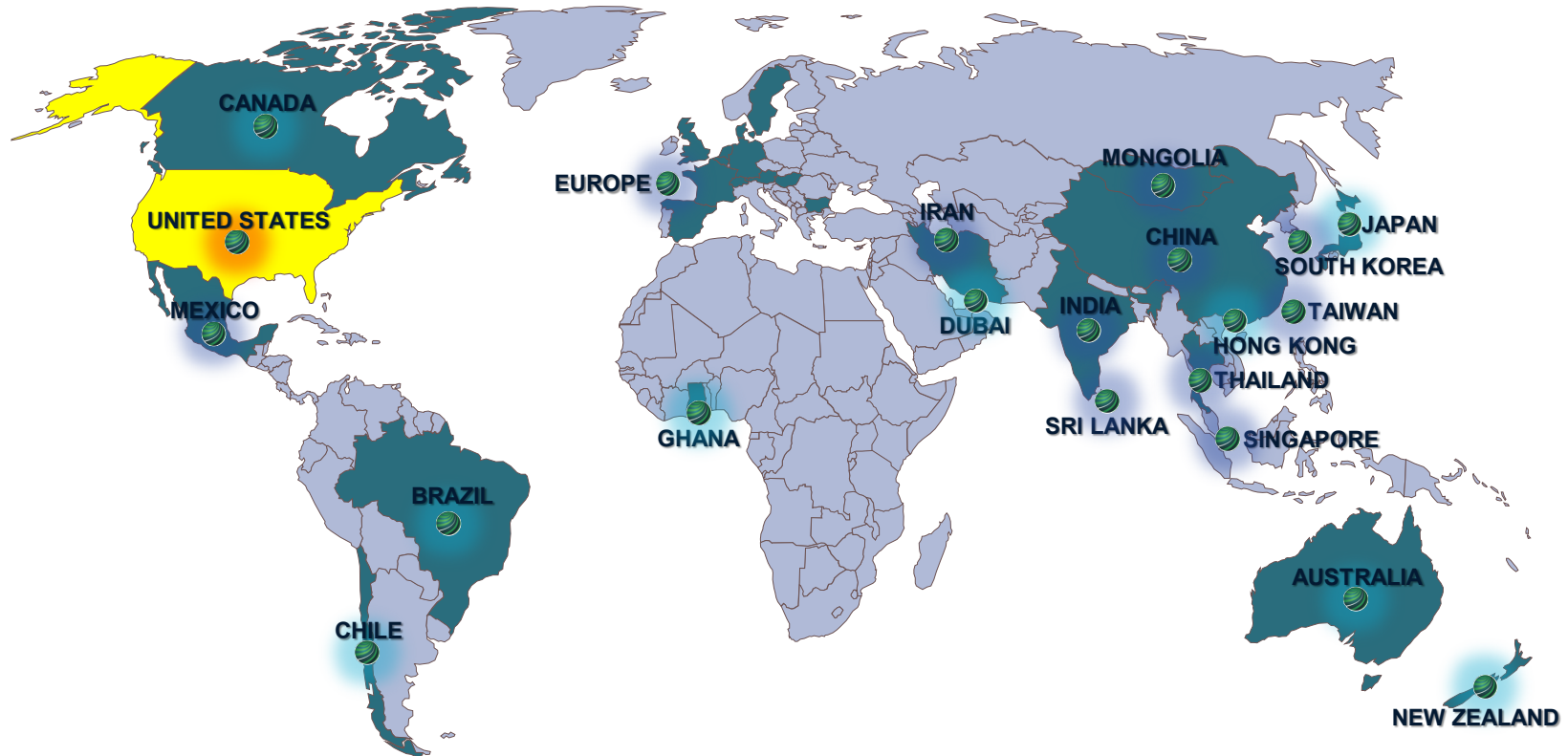


- European partner of **OPUS Inspection**
- The only **ISO-17025** certified laboratory
- HQ in Madrid. Responsible for the business in **Europe**
- **12 years of experience** in Europe



# Worldwide usage of Opus RSDs

Our technology has been used worldwide for decades



And it keeps growing...

# Experience in Europe

12 years measuring the real-driving emissions



- **1.3 Million** vehicles
- The most reputable partners and customers
- **LIFE, C-ROADS, H2020...**



Kanton Zürich  
Baudirektion  
Amt für Abfall, Wasser,  
Energie und Luft

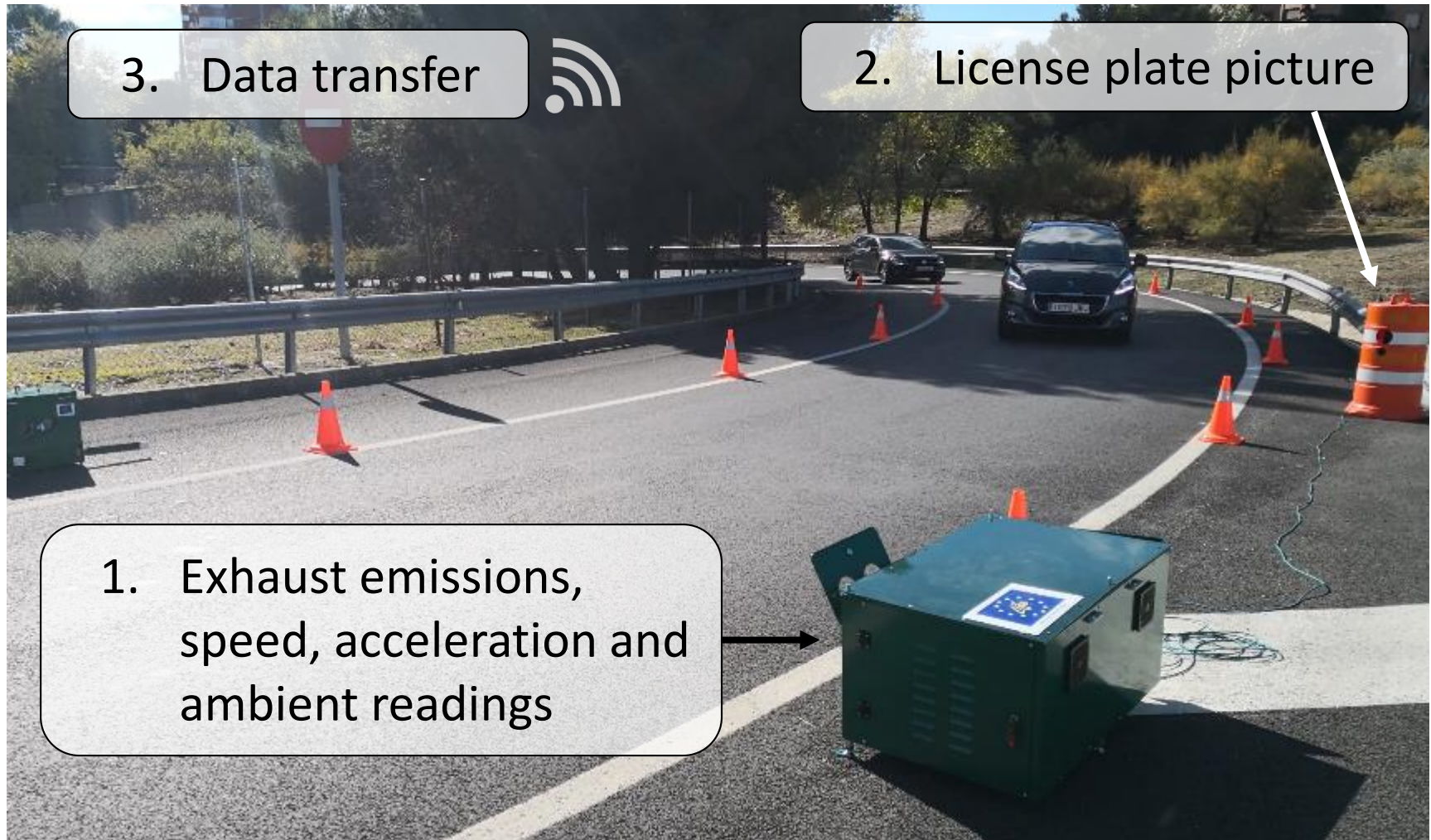


UNIVERSITY  
of York



# What is Opus RSD?

The Remote Sensing Device (RSD) is like a “super-radar”



# Validated technology

- 1 Proven for 30 years
- 2 ISO-17025, audits as laboratory
- 3 Performance tests to all RSDs
- 4 Validation from independent entities
- 5 Continuous analysis from the scientific community

# Easy operation

## Designed for different urban environments

- Portable, small, autonomous
- Deployed and collected in minutes
- No modification to the road or infrastructure
- Non-intrusive and versatile





# Real-time analysis

Session statistics

Speed  
Acceleration  
VSP

Emissions

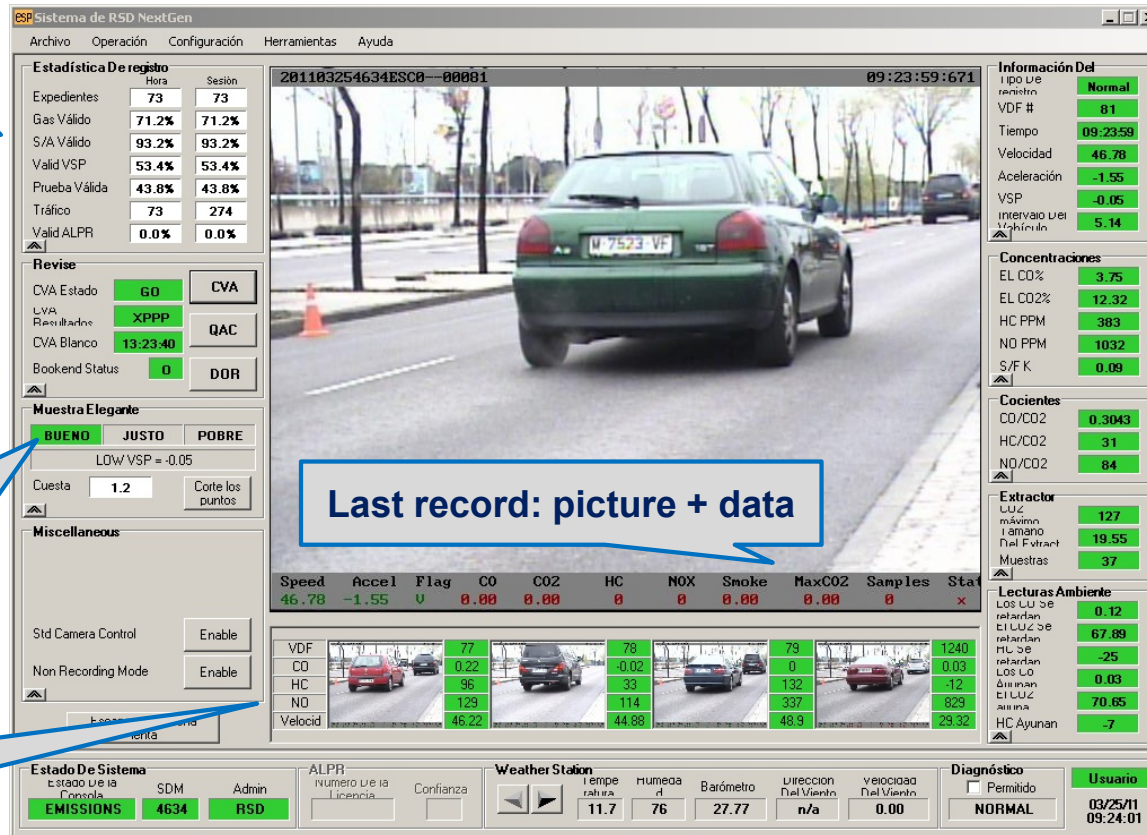
Emission profile:

Low/ Medium/ High

Last record: picture + data

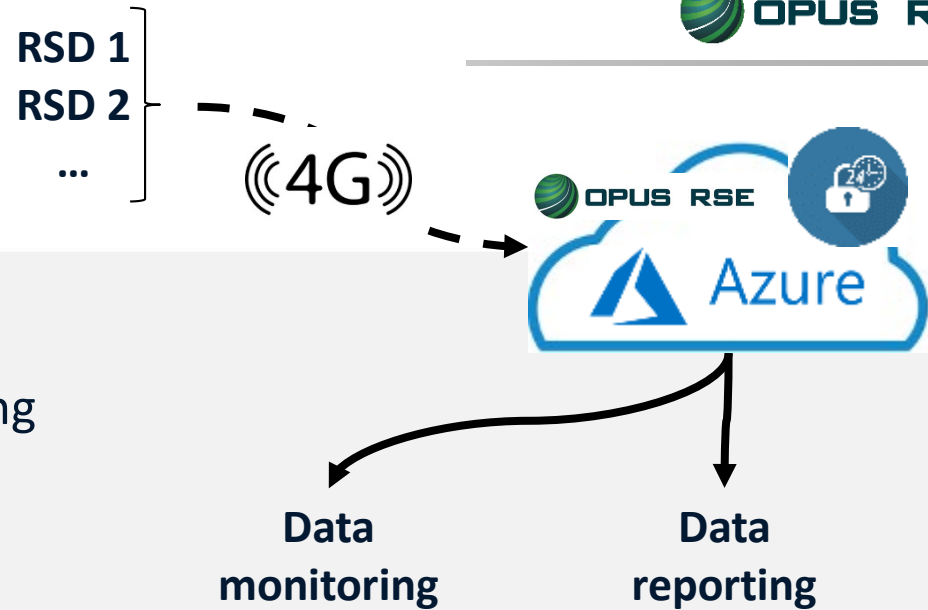
Weather conditions

Previous records

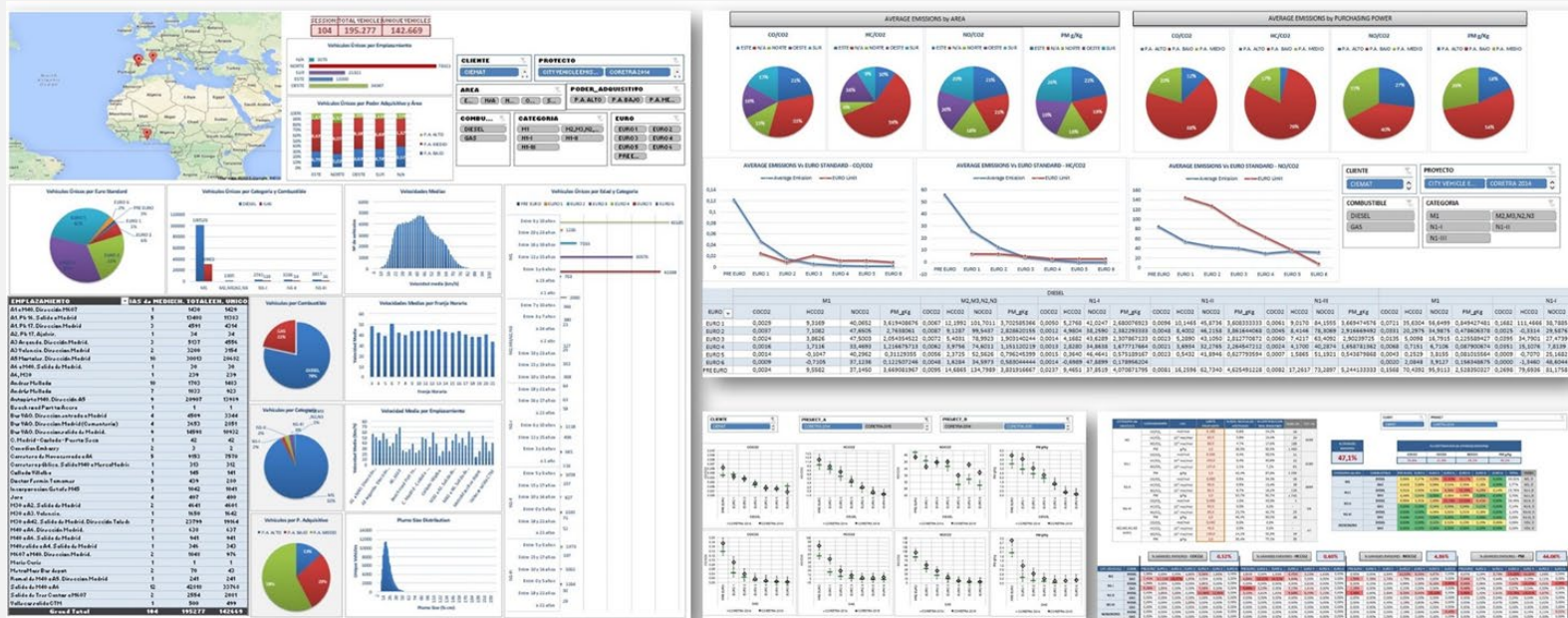


# Big Data Analytics

## Cloud-based ecosystem



- Massive amount of data
- 4G transfer, automatic processing
- Web-based reporting
- Connection to traffic databases.



# Total Versatility

## Mobile units



## Fixed units



## Surprise inspections



## On-road traffic and fleets



# **Opus' vision for the future of Remote Sensing in Europe**



# Legal background

## European Legislation exists to use the RSD with commercial vehicles

### Commission Directive 2010/47/EU

of 5 July 2010 adapting to technical progress Directive 2000/30/EC of the European Parliament and of the Council on the **technical roadside inspection** of the roadworthiness of **commercial vehicles** circulating in the Community.

“Technical roadside inspections [...] measurement using **remote sensing equipment** and confirmed by standard test methods”

“**Remote sensing measurement showing significant non-compliance**”

The directive details that significant non-compliance of emissions measured by the RSD is by itself a proof of defect of the vehicle.



# The advantage of mobile units

## Finding NOx-cheaters on the spot with Opus Remote Sensing Devices

- Disconnection of the **AdBlue** injection that reduces **NOx** emissions
- Very hard to find. The only option is **catching the cheaters in the act**
- **Surprise checks.** Drivers warn each other
- **Real-time** alerting system



# Mixed-LEZ emissions monitoring

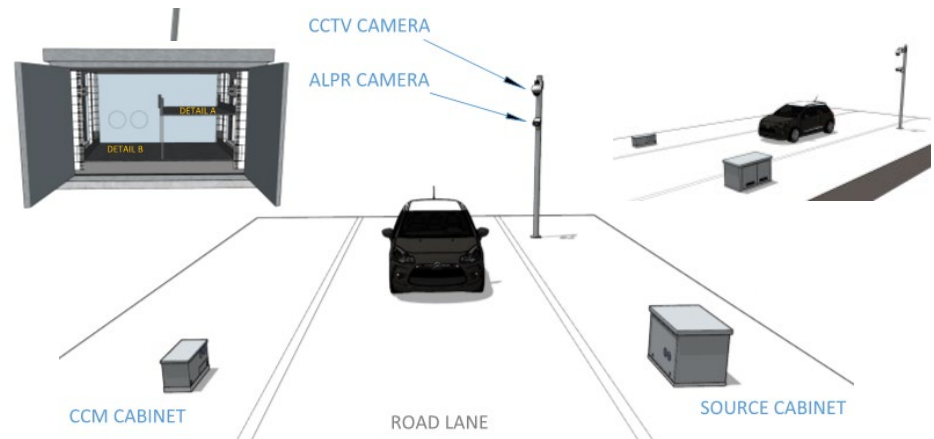
Theoretical models

Generic policies to reduce traffic emissions

Real-Driving Emissions

Identification of High-Emitters and intervention

Identification of Clean Vehicles and rewarding

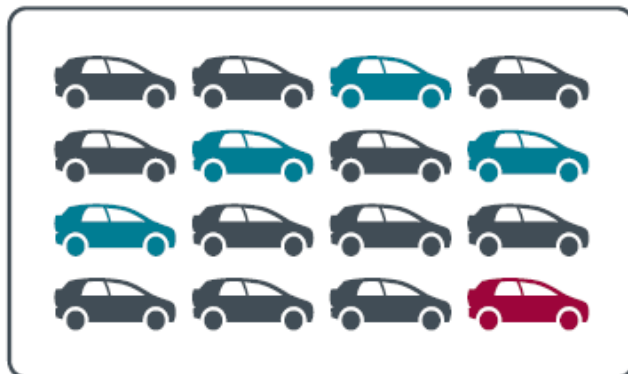


**Fixed deployment**

# Market surveillance

## Remote Sensing

- Fleet screening
- Fixed monitoring network or targeted sampling campaigns
- Hundreds of thousands to millions of individual vehicle emissions measurements



Suspicious vehicle model



Individual high emitter

## Chassis dynamometer



- Controlled testing to ascertain causes of high emissions

## PEMS



- Limited number of vehicles tested
- Basis for enforcement actions

High numbers of the same vehicle model identified as high emitters may be indicative of systematic flaw and would warrant follow-up testing



- Follow-up actions to encourage vehicle repair

## CONTACT

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