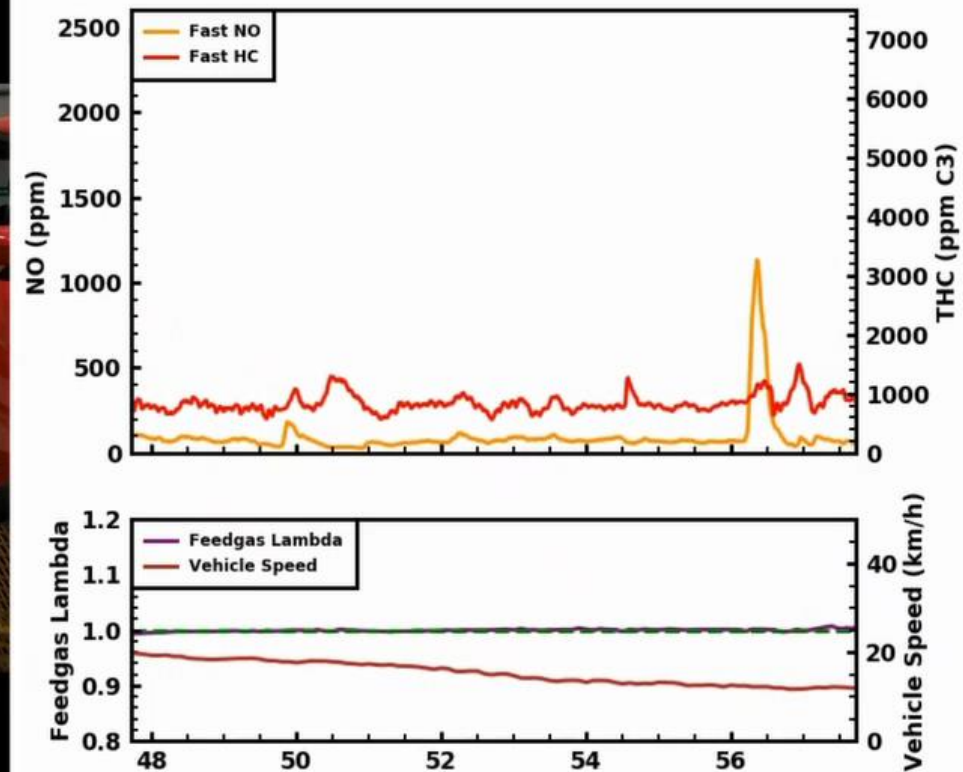


Measurement of real time NO & NO₂ in cabin inlet air flow in a “chase” vehicle

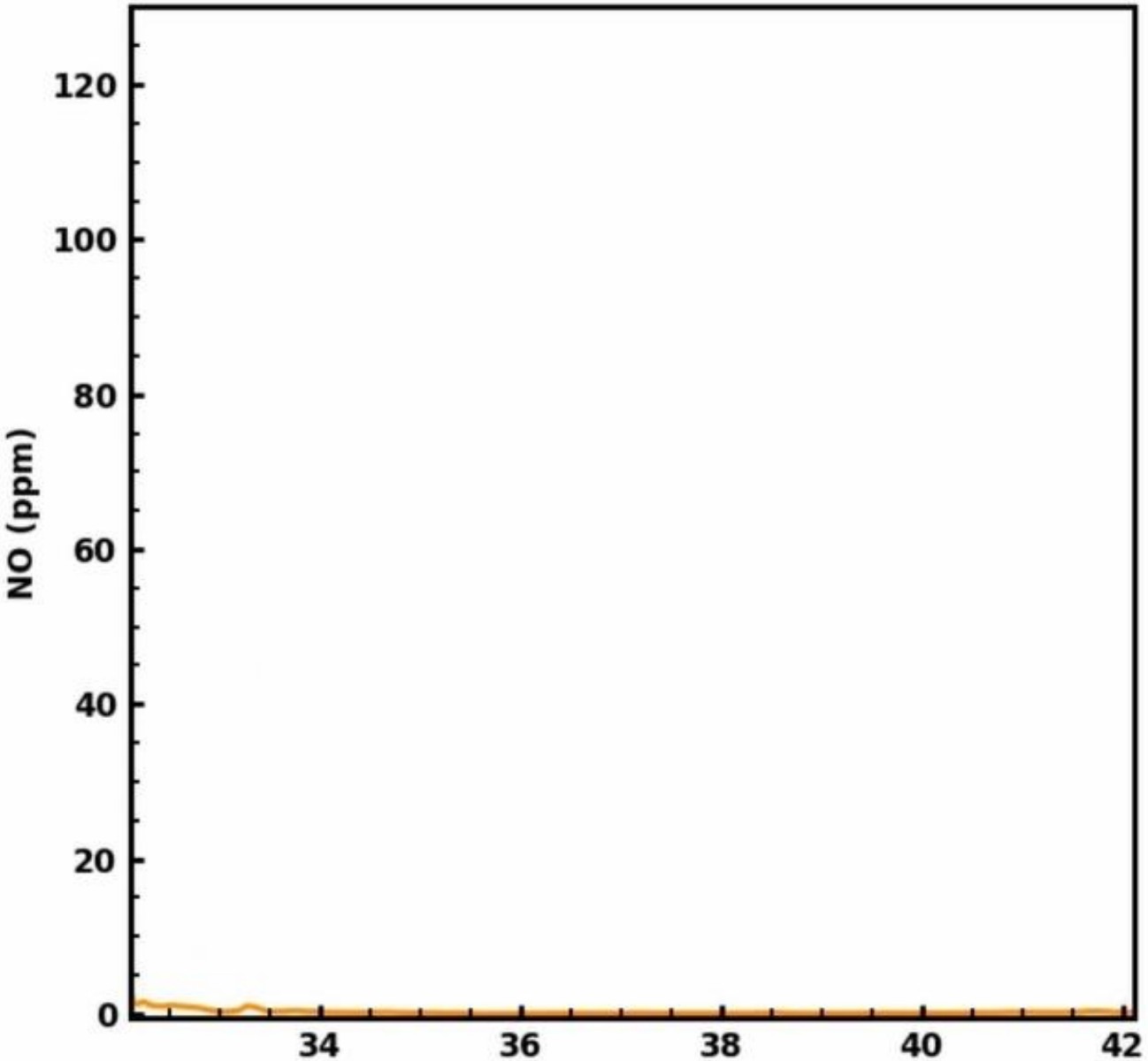
Mark Peckham & Jamie Parnell

Cambustion's background (founded 1987)

- Fast response analyzers to measure transient emissions (cold start, gear changes etc)
- Development work with engine companies to develop catalytic converter systems
- Recent adaptation of products to measure transient ambient air quality



Roadside measurements of passing gross emitter



Portable ambient NO&NO₂ detection system



Pursuit / chase studies

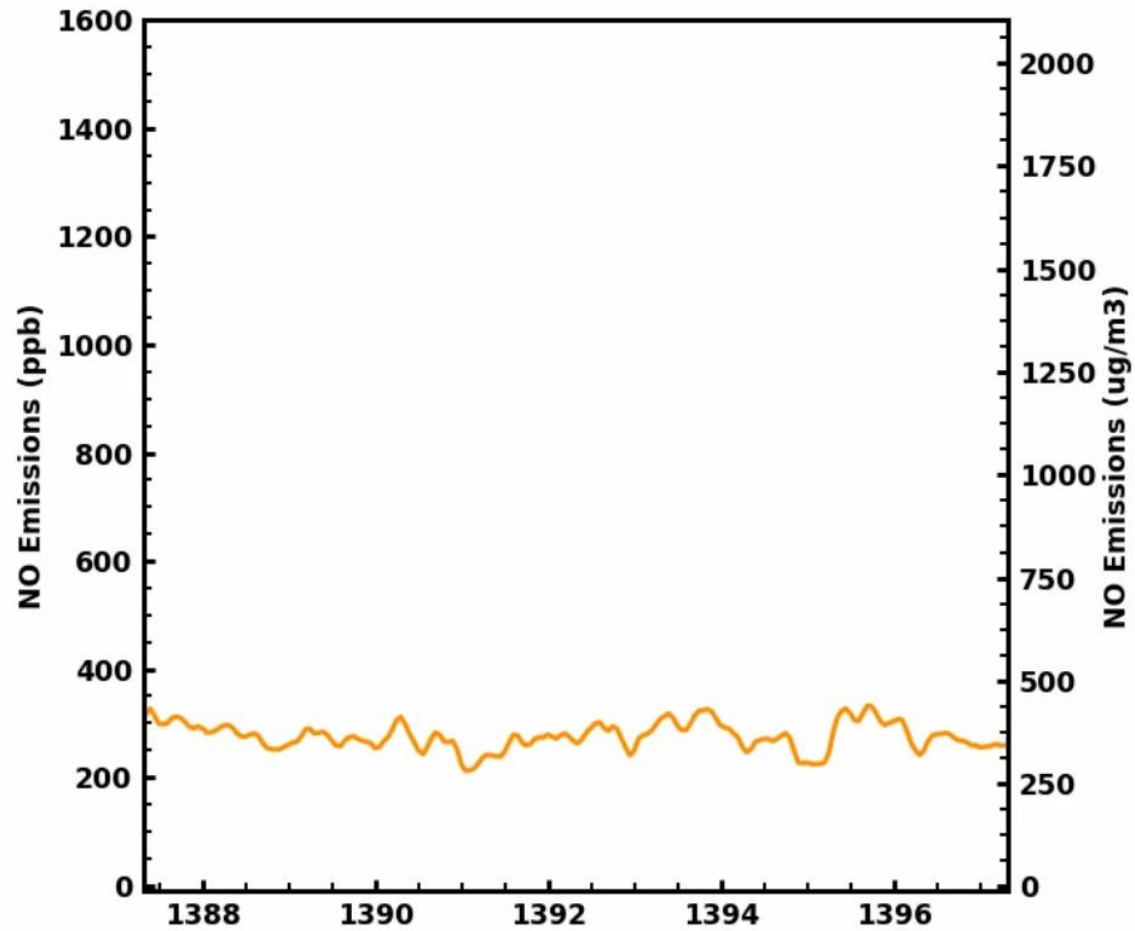


Sampling method

- Combustion real time portable CLD+LIF used to measure [NO] & [NO₂] with response time of **~20 milliseconds**
- Sample probe tip 15cm inside open cabin air vent
- Other vent outlets closed
- Fan speed set to “1”

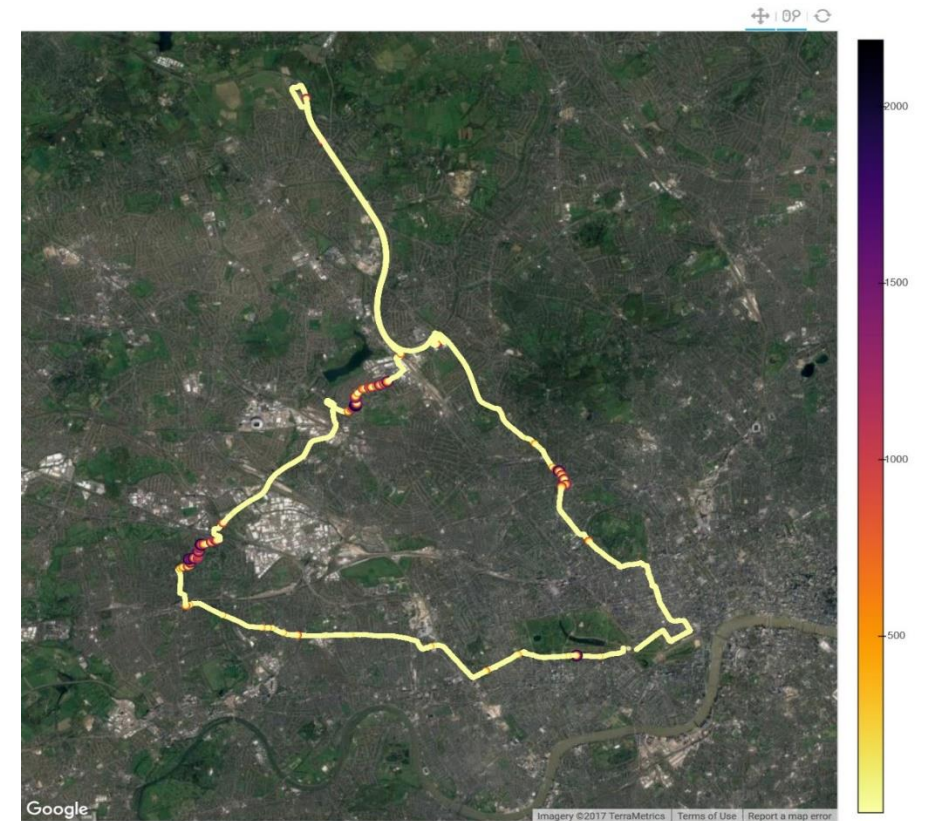


Following truck on motorway



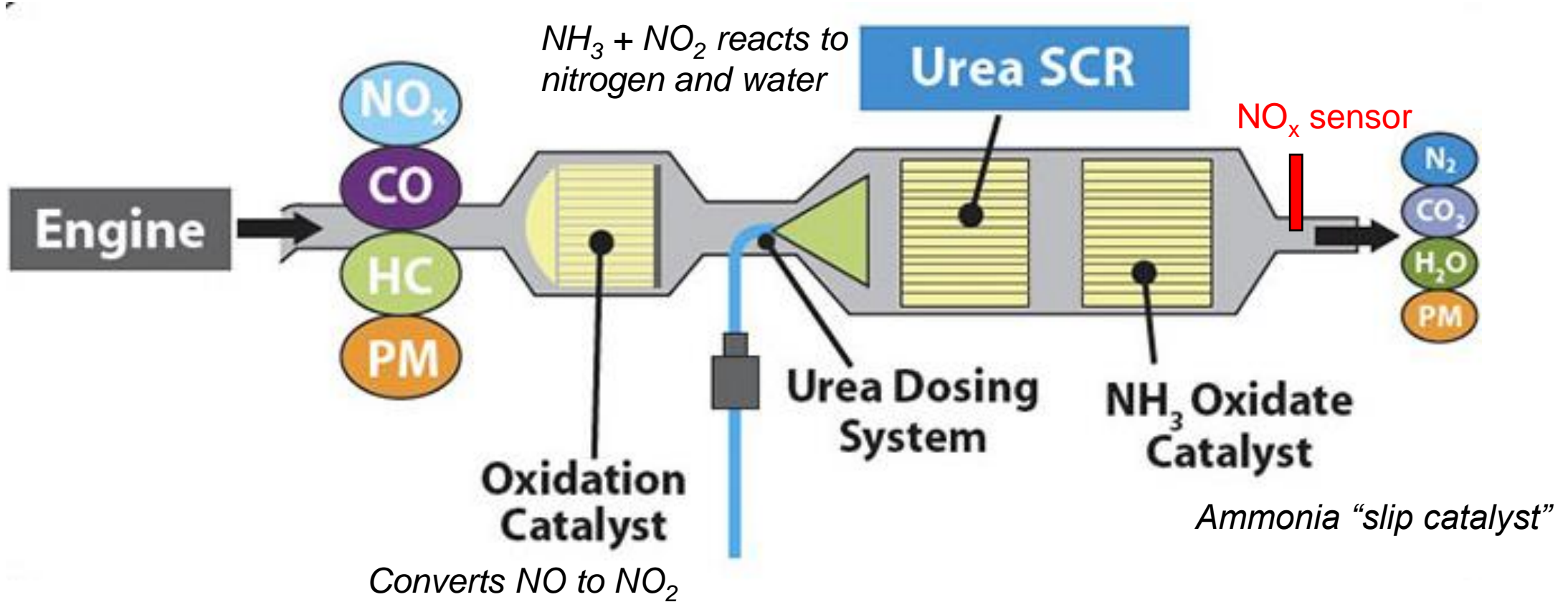
Interest in identifying “gross emitters”

- Local government to check which vehicles are polluting the most (in Clean Air Zones)



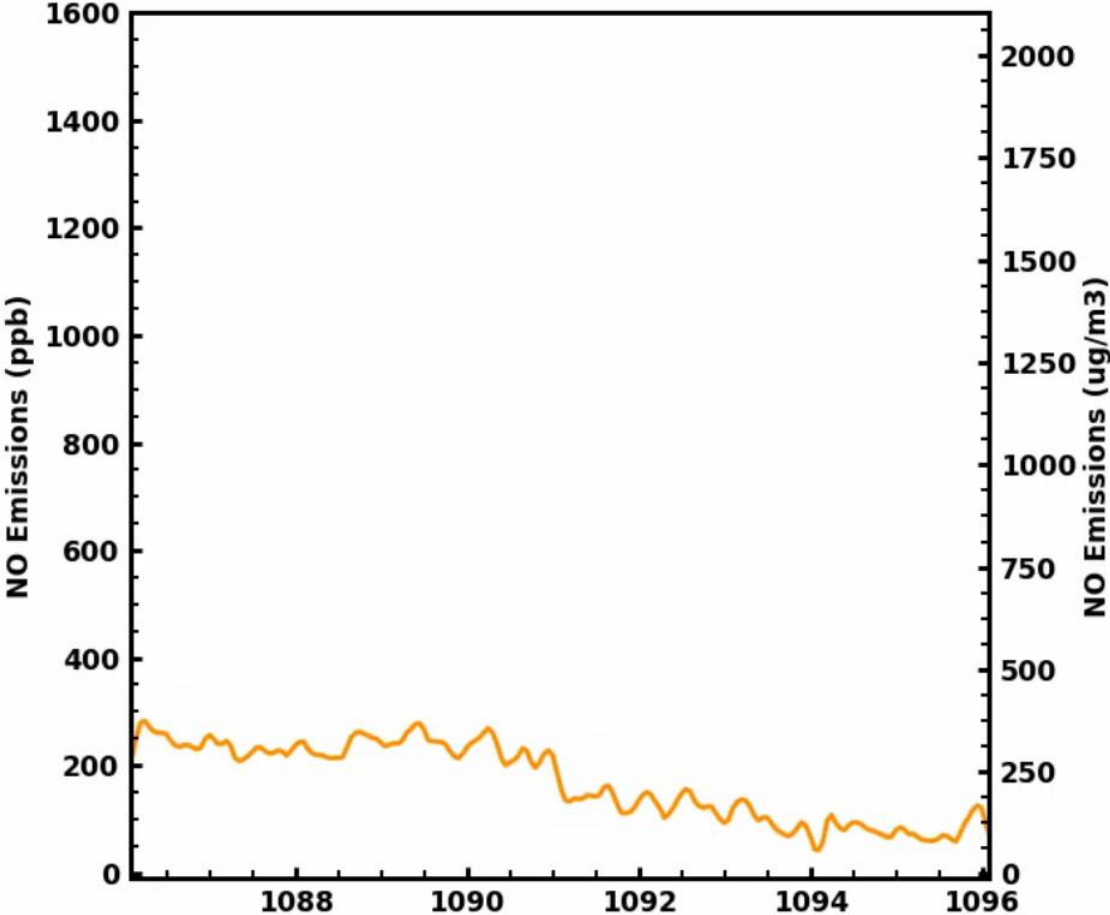
- Law enforcement and government to catch SCR system “defeat devices”

SCR (Selective Catalytic Reduction) for lowering diesel NOx

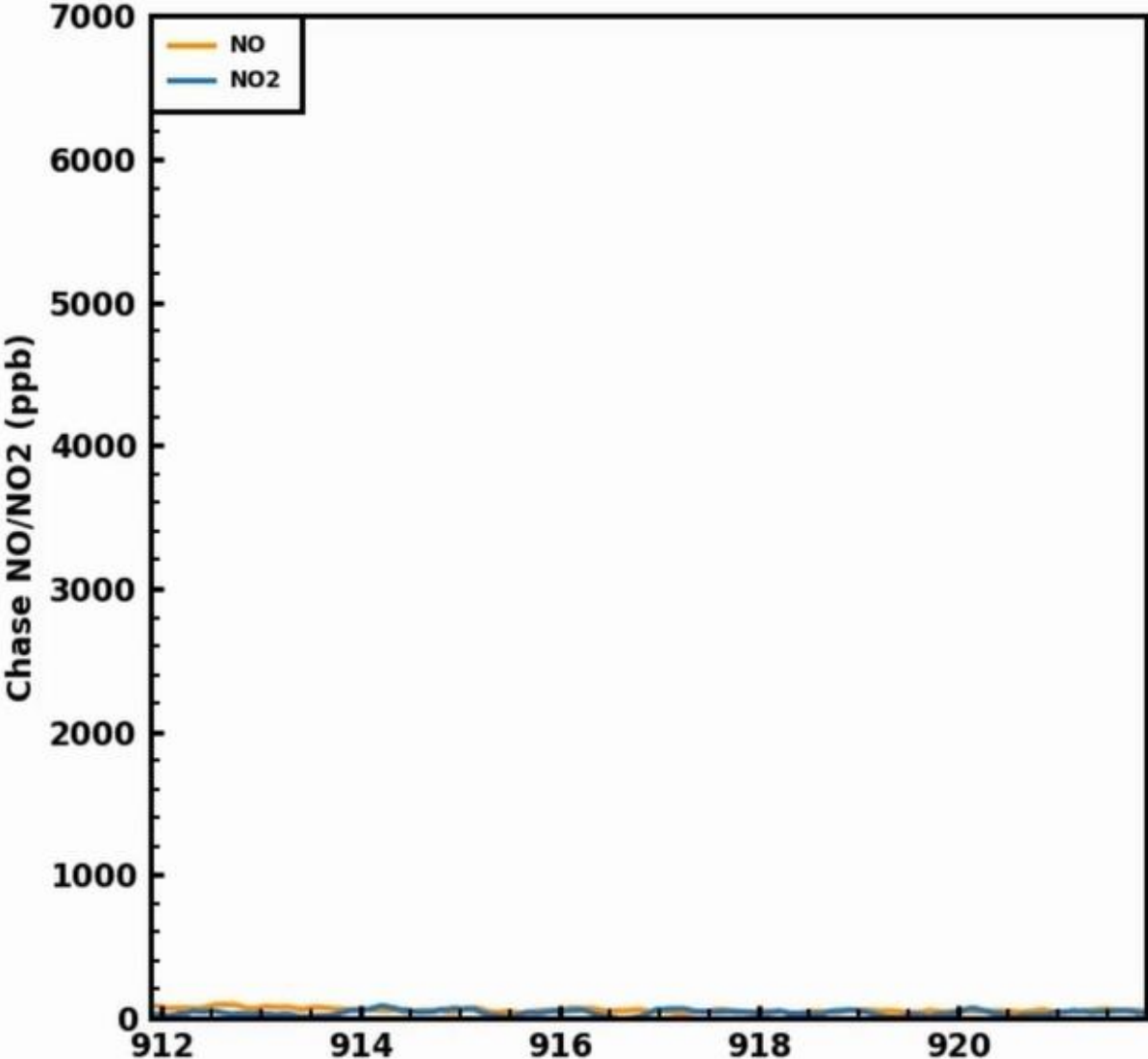


Must be *hot* (>~180C) to work efficiently

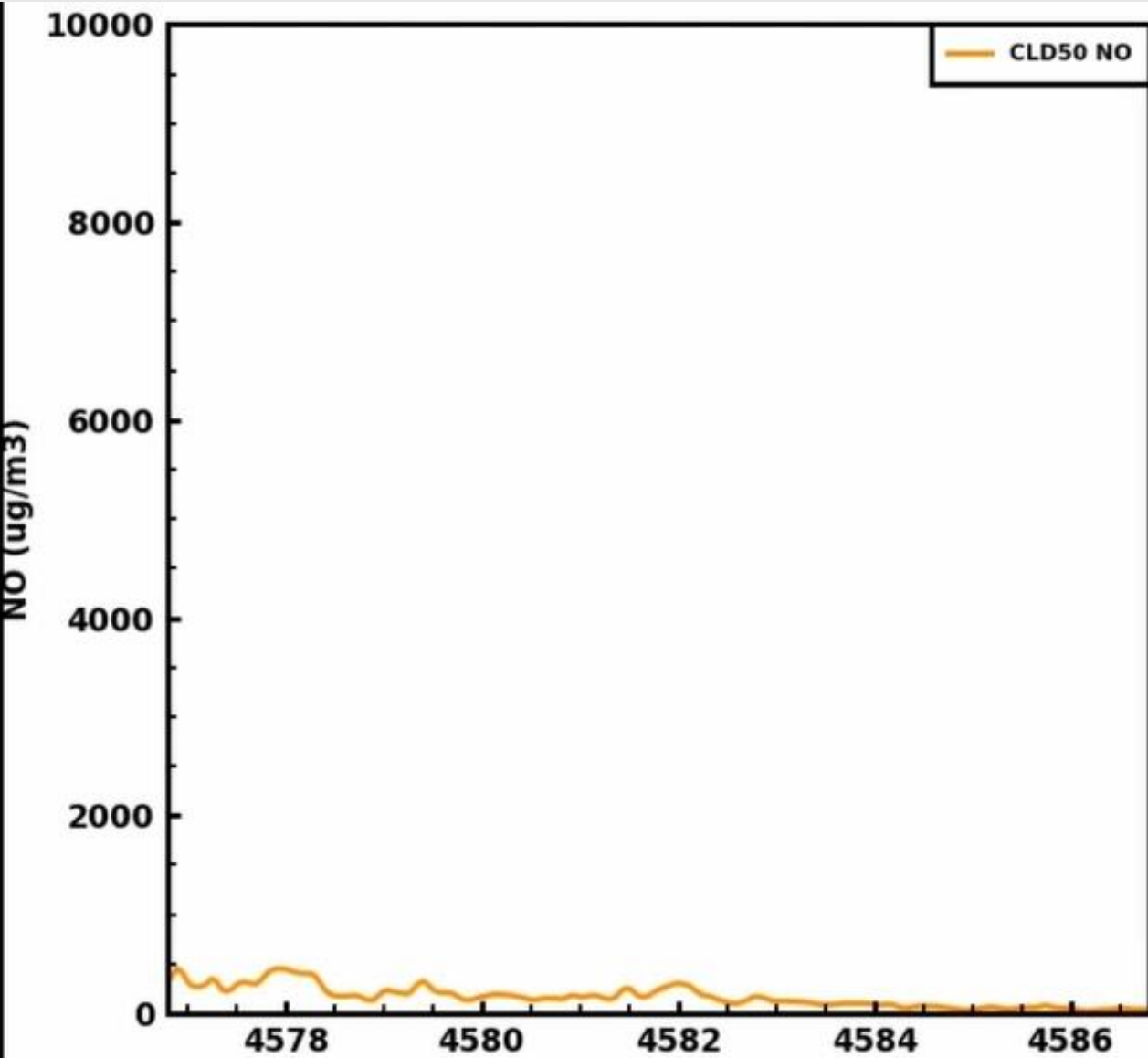
Air Vent – Van Emissions



In-service bus pursuit – traffic lights



Bus stop manoeuvre



NO_x from “the vehicle in front”

- Plug-in Hybrid producing NO after each speed bump





Thank you

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<https://www.cambustion.com/industries/air-quality>