Barcelona: goods traffic regulation & QND

Some 10,000 on-street spaces are reserved for unloading between the hours of 08.00 and 20.00, handling a high % of the 100,000 roadside deliveries made daily in the city.

Supermarket operators have a special interest in supplying fresh foodstuffs ready for when the stores open.

To allow this, the Municipality introduced experimental exemption (6 months) to the noise regulations.

Initially traffic police collaborated to measure noise levels in residences close to the supermarket sites, now the Noise Unit and Mobility Department work with the Districts to manage the QND (Quiet Night Delivery) programme.

* Residential commercial mixed: 22:00 – 07:00: 60 dB(A)

The programme has so far involved 3 operators, and 5 of the 10 Districts, making some 15 tests.
Barcelona demonstration

- Condis Supermercats uses Renault Truck’s prototype Midlum 12T truck for Quiet Night Delivery & Direct daytime delivery (2 outlets, plus measurements around depot)
- A first set of measurements with a prototype vehicle / collaboration with manufacturer
- A first experience with telematic tools with special focus on noise abatement.

The aim of this trial, both for the Municipality and Condis, is to consolidate the night delivery experience, and to examine how the low pollution mode can work as part of a scheme for serving controlled access areas.

Intensive trials - overview

Condis used the Renault truck intensively (day & night) during March, except during the peak pre-easter delivery period, with additional measurements at the depot

Incidents:
- 1 day lost for repairs
- Tracking difficulties:
  - Kaputt power & UMTS re-boot
  - Entry / exists not always registered at Platform
  - Renault registrations (1 day)
  - Handy as ‘Kaputt’ alternative

BCN QND scenario: Bruc

The scenario consists of a journey from Condis logistic platform, 15 km outside Barcelona, to one of the outlets authorised to make night deliveries: carrer Bruc. where a small, zone is defined to operate under Low Noise Mode (LNM). The itinerary is realised in 60-75 min at night, compared to 90-120 min during the day

Basic standard trip:
- Merchandise: dry goods (+ fruit)
- Time schedule: 23:00 to 00:00
- Frequency: daily (5 trips per week)
- Load (average): 7 8T (19 combis)

Combi type of roll-container with a platform of 80x60cm – half a standard pallet – and an average height of 180 cm when loaded.

BCN Direct daytime scenario: St Andreu

For the daytime scenario the vehicle runs in Low Pollution Mode for the whole itinerary from Condis depot to the supermarket and the way back. The route includes sections with 3 different speed limits: 80 Km/h on the motorway from Condis depot to Barcelona, 50 Km/h from the entrance to the city until arriving Sant Andreu district and 30 Km/h for the trip inside this area.
Barcelona noise test
26 March 2008
locations

Not at night
Not in city center
No delivery stress
No risk

Location 1
Location 2
Location 3
Condis
Regional Distribution Centre

Evaluation

- Noise:
  - Pass-by noise measurements around depot (Uni.Westminster)
- Delivery performance
  - Logs of fuel consumption, journey times, emissions (Renault / Condis)
- Operator acceptance:
  - Drivers’ views of driving / unloading performance & dual-mode interface (Renault / Condis)

LNM Zone Entry / Exit Registrations

- The Platform registers clusters of entries and exits (Av. Diagonal)
- The relationship with vehicle speed requires further data analysis

QND (L_{eq}) test measurements

- Need for reduction of noise on arrival
- Noise of arriving 16T lorry exceeds the level when unloading with adapted ro-ro container (Condis)
Some preliminary conclusions from BCN test

- High noise recorded in last test days in Lyon - solved in BCN; multiple site test design + quick reaction of vehicle manufacturer (classical trial and error produces measurable improvements at the next stage).
- Activated Low Noise Mode reduces truck noise
- Fideus truck is less noisy than other trucks of the same category
- Lower speed reduces vehicle noise and have positive side effects (emissions, security, traffic)
- Vehicle + equipment + driver behaviour = low noise
- Equipment can register that dual mode vehicles are operating using the correct mode
- High efficiency in logistics and less traffic in the night leads to (preliminary) positive results for energy intensity and CO₂ emissions per delivery

Thanks for the team collaboration & for your attention!

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