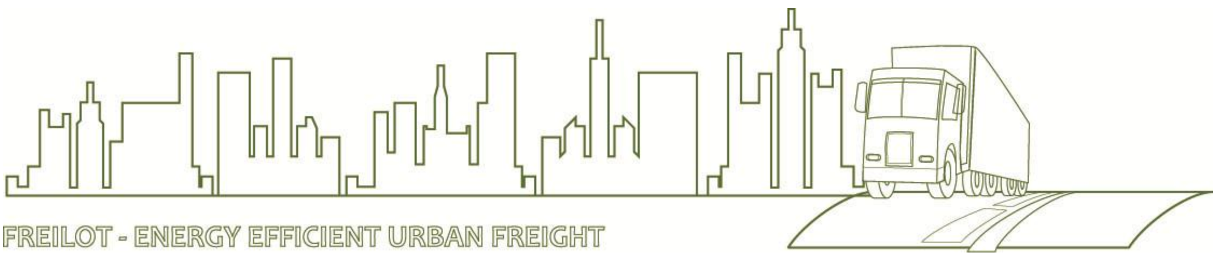
FREILOT

Urban Freight Energy Efficiency Pilot

D.FL.3. 1 Final operation report



Version number	Version 1.0
Main author	Eric Koenders, PEEK Traffic
Dissemination level	PU
Lead contractor	ERTICO – ITS Europe
Due date	31.08.2012
Delivery date	11.09.2012

Information and Communications Technologies Policy Support Programme (the "ICT PSP")
Information Society and Media Directorate-General
Grant agreement no.: 238930
Pilot type B

Revision and history sheet

Version history			
Version	**Date**	**Main author**	**Summary of changes**
0.1	22.09.2011	Eric Koenders	Initial document
0.2	30.04.2012	Dominique Gaymu	Update from Volvo
0.3	25.05.2012	Fernando Zubillaga Elorza	Update DSB Bilbao
0.4	11.07.2012	Gilles Vernoux	Update IC Lyon
0.5	01.08.2012	Eric Koenders	Update Helmond/Krakow
0.6	30.08.2012	Eric Koenders	Version updated according to review comments
1.0	03.09.2012	Linda Blancher	Final update of in-vehicle systems and review

	Name	Date
Prepared	Eric Koenders	03.09.2012
Reviewed	Zeljko Jeftic, FREILOT Management Team	04.09.2012
Authorised	Zeljko Jeftic	11.09.2012

Circulation	
Recipient	**Date of submission**
European Commission	11-09-2012
Project Partners	11-09-2012

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Abbreviations and Definitions

Abbreviation	Definition
AL	Accelerator Limiter
CG	Consultant Group
DSB	Delivery Space Booking
EDS	Eco Driving Support
EEIC	Energy Efficient Intersection Control
FTP	File Transfer Protocol
GPRS	General Packet Radio Service
HMI	Human Machine Interface
LED	Light Emitting Diode
PG	Plenary Group
SIM	Subscriber Identification Module
SL	Adaptive Speed Limiter
WP	Work package

Executive Summary

This document describes the work done in work package (WP)3, the operational part of the FREILOT.

The entire duration of this work package was 24 months, from the start of baseline data collection for the first service implemented until the end of the operational service period for the last one. Vast majority of service implementations in pilot cities (8 out of 9) have been in operation for more than one year and delivered vast amounts of data. As an example, the vehicles using one of the three in-vehicle functionalities (Acceleration limiter, Speed limited or Eco Driving Support) have crossed 2,5 milion Km's during this period.

At the start of the pilot information and education were provided to the users, if necessary accompanied by workshops to explain the benefits, the functionality and optimal use of the FREILOT services and their components to the users and local stakeholders.

During the operational part reference measurements have been executed, collecting baseline data on the four trial sites that reflect the situation without the FREILOT functionality. According to the evaluation plan from WP4 the FREILOT functionality was enabled and disabled. Evaluation data have been collected and were provided to WP4.

During the pilot phase the systems and the data collection were maintained to ensure the availability of the services. Local 'hotlines' were provided to assist the users when needed.

During WP3 many practical issues had to be solved. By putting in a lot effort the WP3 partners managed to make the services run for over a year in a real-life environment. Ultimately the systems operated in a very reliable way, showing their readiness for deployment.

Lessons learned

Having the real-life users and road operators as project partners is very important. This ensures efficient and open communication in all directions. During the pilot the fleet and road operator project partners were very helpful, even if this interrupted their operational business, for example to allow system installation.

Regular meetings with users and local stakeholders are important to share information and to increase engagement. Support in the local language by a local partner is essential to handle a variety of local issues like legislation, permits, installation, training and support.

The pilot operation has generated huge amounts of data for the evaluation work package. Due to the size processing takes a lot of time, and consequently the quality of the data can only be validated at a later stage, leaving not much time for corrective actions. For future pilots and field trials, wherever possible real-time automated indicators which show the quality of the collected data immediately should be implemented.

It can be difficult to diagnose issues in remote systems. Even if users recognise that something unexpected happened it is not easy to pinpoint the cause. This especially holds true if the systems are operated over 1000 Km away. Even though this was taken into account during the design phase of the systems there is still space for improvement.

Training users and explaining the systems is very important. As much as possible systems should be self explanatory, and integration into existing displays can help to integrate their use with the normal driving tasks.

The FREILOT systems are very new, and consequently are not yet embedded in the service organisations of the technology providers. This lead to additional maintenance effort for the system's developers.

The planning of the activations and the de-activations of the on-board systems changed a lot during the entire period of the project. At times the requirements of the project conflicted with the real-life activities of the end-users so the project activities need to be flexible to accommodate this.

The fleet operators have shown interest in the Delivery Space Booking system and that key stakeholders are keen on continuing the cooperation on finding the optimal solutiuon.. This shows that Delivery space occupancy is a real problem waiting for a good solution. For Delivery Space Booking enforcement is a key issue; it is required to make sure a booked delivery space is really available.

Introduction

This document is divided into four parts, one for each pilot site. The WP3 events per pilot site are described using the following subjects:User education; Hotlines; System operation; Baseline data collection; Operational data collection; Processes; Maintenance; Availability; Lessons learned

The five FREILOT serices have been piloted in four different cities. An overall pilot timing view is presented below:

Pilot operation	Helmond EEIC	Krakow EEIC	Lyon EEIC	Bilbao DSB	Lyon DSB
Baseline	Jan 2011 – Mar 2011 Oct 2011 – Nov 2011	Apr 2011 – Feb 2012	Dec 2010 – Apr 2011 Mar 2012 – Apr 2012	Jul 2012 – Oct 2012	Feb 2012 – Apr 2012
Service operation	Mar 2011 – Aug 2011 Dec 2011 – Apr 2012	Feb 2012 – Jun 2012	Apr 2011 – June 2011 Jul 2011 – Oct 2011 Oct 2011 – Mar 2012	Nov 2010 - Nov 2011	?
Combined duration (baseline and service operation)	14 months	14 months	15 months	14 months	

	Bilbao AL, SL, EDS	Helmond AL, SL, EDS	Krakow EDS	Lyon AL, SL, EDS	Total
Baseline	Apr 2010 – Nov 2010	Apr 2010 – Jun 2010	Jun 2011 – Sep 2011	Apr 2011 – Jul 2011, Jun 2011 – Oct 2011 Sep 2011 – Jan 2012	Jul 2010 - Jun 2012
Service operation	Dec 2011 - Jun 2011	Jun 2011 - Apr 2012	Sep 2011 – Jun 2012	Jul 2011, Oct 2011, Dec 2011, Jan 2012 – Jun 2012	
Combined duration (baseline and service operation)	15 months	12 months	12 months	14 months	24 months

1. Bilbao

1.1. Overview

Bilbao pilot site has executed the following FREILOT services:

- **Delivery Space booking** service
- **In-vehicle services**, such as Acceleration Limiter, Adaptive Speed Limiter and Eco Driving Support with different variations.

These two systems are not interconnected and have been executed in different phases although some companies are taking part in both services.

Delivery Space Booking

The FREILOT DSB System was implemented in Bilbao in four different locations offering 9 loading and unloading spaces from 8’00 a.m. to 13’30 p.m. The Figure 1 shows the general location of the 4 FREILOT DSB spaces:

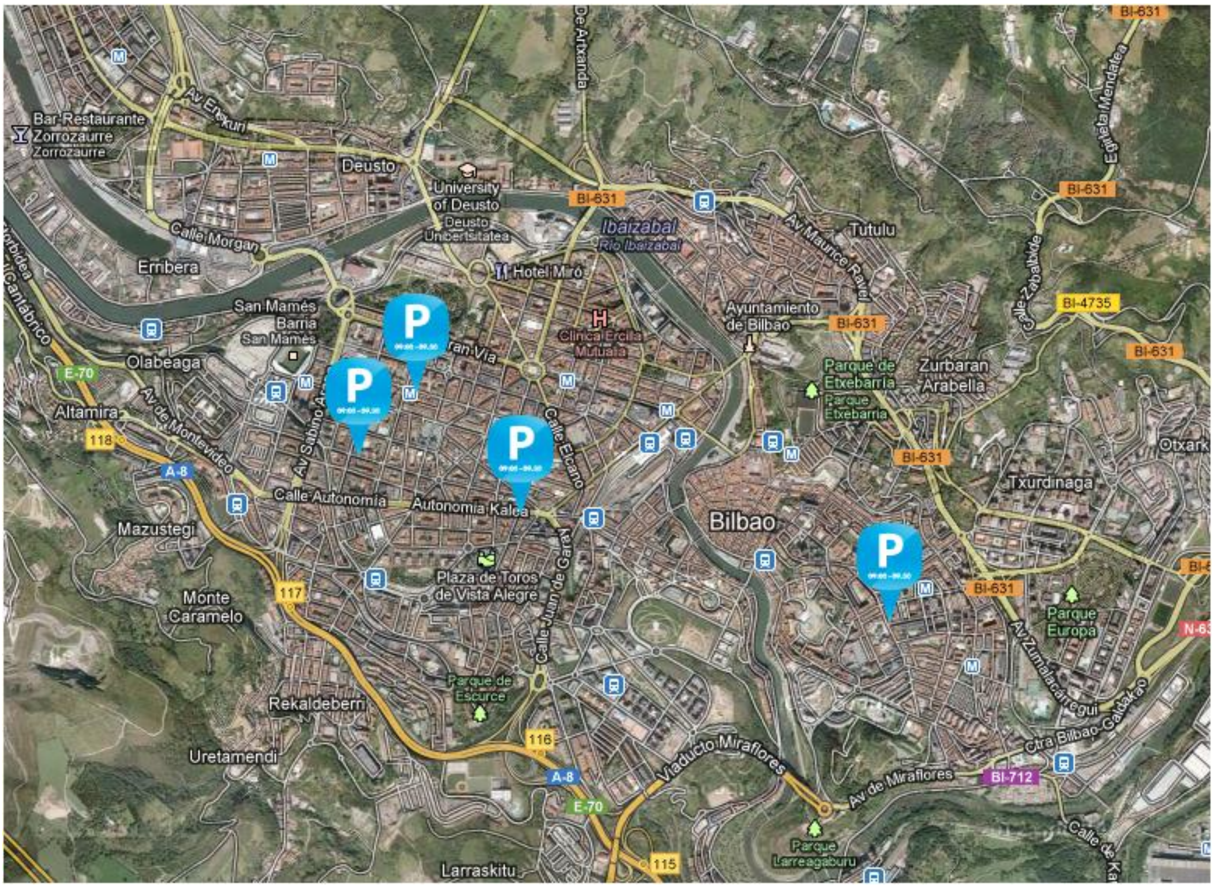


Figure 1: Bilbao DSB location, general view

The following diagram summarise the main events performed in the DSB pilot in Bilbao. These events will be further explained in the following sections, although below the diagram a short description is done:

		2010	2011	2012
1	Working Strategy	★	★	★
2	Selecting locations	★		
3	Design delivery spaces	★		
4	DSB design & approval	★		
5	Base Line Start	★		
6	Infrastructure preparation	★		
7	Communication actions	★	★	★
8	Pre booking schedule	★		
9	Implementation & improvement	★	★	
10	Operational Phase	★	★	★
11	End of the Pilot			★

Figure 2: DSB chronological diagram

The main events performed in Bilbao DSB pilot:

1. Composed working strategy in the DSB Bilbao pilot, which was based on two major groups:
   a. Consultant working Group (CG), composed by the Bilbao City Council, the technological Provider (GERTEK) and the pilot coordinator (MLC). This group will deal with operational events like problems, user necessities and hotline.
   b. Plenary group (PG), composed by the consultant group and the system users, mainly fleet operators. This group will provide their requirements and problems to the consultant group and also study and accept their propositions.

      This group was alive along the entire Pilot and depending on the needs it took part in different actions as it will be explained more precisely in each event described below.

Figure 3: Plenary Group meeting

2. Selecting locations →
    a. Participants: Bilbao City Council, MLC and fleet operators
    b. Process:
        i. The CG sent an EXCEL form to all users (PG) in order to receive propositions associated to the location of Bilbao pilot delivery areas.
        ii. 10 spaces were nominated and the PG selected 4 definite locations by open vote system performed with an excel form. This form can be found in Annex I together with the dossier where the ten target locations detailed study (features, commerce characteristics, estimated cost) was performed in order to choose the most adequate delivery spaces.
3. Design of the Delivery spaces →
    a. Participants: Bilbao City Council, Gertek, MLC and fleet operators
    b. Process:
        i. PG proposes design measures, time frame, operation days.
        ii. CG study and accept the design.
4. DSB system Design and approval →

    Participants: Fleet operators, Bilbao City Council, Technology provider and MLC
5. Base line data start →the baseline period in Bilbao began the 7th of July 2010 and finished the 28th of October 2010. August data are not considered because in this month the traffic is different.
6. Infrastructure preparation phase →August-September 2010

Figure 4: Bilbao DSB infrastructure preparation

7. Communication actions
   a. Media
   b. Regular usage reports for users
   c. Meetings
8. Pre booking schedule done by users, in order to see the expected use. September 2010. (See Annex II)
9. Implementation of the system and improvements:
   a. The pilot period began in November 2010, although the the system was launched on the 14th October 2010. The system is still in operation although the Pilot period finished in November 2011.
   b. Along the Pilot different corrective actions related to three main areas (Improve use, improve web use and improve enforcement) were established, in order to improve the Pilot implementation. These actions are more precisely explained in Section Processes1.4
10. Operational Phase: The system users have been added in three phases, with totally 62 companies and 125 vehicles registered, over reaching all expectations.
    a. First Phase ➔ October 2010 (15 companies and 35 vehicles)
    b. Second Phase ➔ January-February 2011 (37 companies and 79 vehicles)
    c. Third Phase ➔ April 2011 (10 companies and 11 vehicles)

11. End of the Pilot: The Pilot official end was done the 31th November 2011. Action: A Plenary Group physical meeting :

a. Formalise the end of the Pilot. Last conclusions.

b. Public recognition to the best three Bilbao FREILOT DSB users.

c. Discussion about future improvements and a new possible urban distribution system´s conception.

Figure 5: Public Recognition to DSB best users.

In-vehicle systems

The in-vehicle systems (AL, SL and EDS) were piloted by Nanuk, one of the official partners of the FREILOT projects. The company itself is based near Bilbao, but the selected trucks are operating as regional distributors in Madrid; thus opening the experience to other cities and therefore achieving one of the objectives of the project.

Three Nanuk trucks were selected to be equipped with the tested systems; Accelerator Limiter (AL), Adaptive Speed Limiter (SL) and Eco Driving Support (EDS), as shown in the following table:

Truck ID	Operator	Reg #	VIN	SL	AL	EDS
B04	Nanuk	8594GHY	VF624GPA000027238	YES	YES	YES
B05	Nanuk	8602GHY	VF624GPA000027573	NO	YES	YES
B06	Nanuk	8970GHY	VF624GPA000027574	YES	NO	NO

The main events:

Event	Date	Description
Installation of the in-vehicle systems	01-2011	During the week of installation, vehicle B05 was activated in order to have a pilot truck to present at the FREILOT Review in February 2011. The truck operated with the on-board systems activated until 04/2011.
Activation of the data server	04-2011	The baseline data collection started

Activation of the on-board systems	11/12-2011	The data collection started
Pilot end	04-2012	Pilot end
Systems removed	08-2012	Disabling of all the tested truck systems and removal of FREILOT specific equipment from the trucks

1.2. User education

Delivery Space Booking

The user education and training task was conceived to be an active tool, teaching users the use of the service but also offering a communication channel in order to find out users doubts, needs, and propositions. The educational phase was executed in three periods:

1. Each user was provided with 3 documents, explaining all relevant information about the system (See Annex III for the documents details).
    a. Adhesion Rules: This document described service provider and users rights and responsibilities.
    b. Operational Rules: This document explained the operation of the system and the expected behavior in each of the reservation options.
    c. Parking meter Manual Use: User manual on how to register or book a slot.
2. Physical meeting with different fleet operators was performed in October 2010 (Phase I) and January 2011 (Phase II). In these meetings the above documents and the system use was explained via a basic tutorial. However this meeting was not performed in the third phase because it was replaced by a very simple but precise power point presentation, where the most important and critical aspects were commented in an easy way (See Annex IV for the power point presentation done).
3. An active education phase was first executed by a physical training from people that were standing in each of the delivery spaces for 3 months. These people explained the system and assisted drivers. A a phone was also available in each of the delivery spaces to be used in case of any doubt.

In-vehicle systems

For each truck a handbook was provided, describing the corresponding system(s) and how to use them.

During the activations each driver recieved a personal training in the vehicles with the systems operating. They were informed about the functionality of the systems, why we are testing them and how to use them. This also gave the opportunity to answer any questions or doubts that the drivers might have.

The fleet manager in charge of the Alovera site was also trained on the on-board systems, the FREILOT website, and how to check and analyse the data.

1.3. Pilot operation

1.3.1. Hotlines

Delivery Space Booking

The only direct contact for Bilbao DSB system inscriptions, doubts, use problems, chip cards losses or other use necessities is the Mobility and Logistic Cluster represented by Fernando Zubillaga and Garoa Lekuona, who depending on the needs redirected the request to Bilbao City Council or Gertek.

The contact details were available in each of the delivery spaces at the park meters machines, in order to be used in case of any doubt. See the figure below for more detail:

Figure 6 Contact details at Delivery spaces in Bilbao

In-vehicle systems

The customer had a number to contact Volvo Field Tests Team, represented by Carlos Fernandez and Dominique Gaymu in case of failures, doubts, or need for further information on the on board systems.

The hotline was used several times:

- In case of inappropriate behaviour of the trucks.
- To obtain further information about the systems
- To obtain further information about the FREILOT website.

1.3.2. System operation

Delivery Space Booking

Construction Works ➔ Santutxu, 28 January

The system operation was interrupted due to works in front of a building near the delivery space booking space, located in Santutxu. Consequently the delivery space was not available as the scaffolding and the construction materials were occupying most of its area. This event was communicated by a user to the Hotline and it was directly communicated to the City Council. The construction materials were moved, but it was not enough to allow a normal use. Therefore, although the system was working, the delivery spaces were not useful during the works period.

No other significant event to report, apart from those indicated in the section 1.5.

In-vehicle systems

In January 2011, vehicle B05 was activated in order to be presented at the FREILOT Review Meeting, and it remained activated until April. During this period the drivers complained about the behaviour of the truck during the acceleration phases. To solve the problem, a mission in Madrid was organised to meet the drivers and together with them see what the problem was. To better understand the problem data was recorded , and after analysis, it was clear that the topography is stronger in Spain than in the other regions and that the calibrations of the limiters were maybe too severe.

In conclusion, the calibration was re-worked according to the recording made in April and new limiters more adapted to Nanuk's use were activated in December 2011.

In order to secure the second activation and not front a rejection of the in-vehicle systems, a recorder of truck data was installed in the vehicles to have data in case the adjustments were not correct.

During both baseline and operation the following distance has been travelled by the pilot vehicles:

Bilbao	**669726 Km**
Nanuk	**669726 Km**
B04	161032 Km
B05	193994 Km
B06	314700 Km

1.3.3. Baseline data collection

Delivery Space Booking

During the baseline data collection, data was collected without any problems

In-vehicle systems

Even for the in-vehicle systems, there were no problems.

1.3.4. Operation data collection

Delivery Space Booking

In the same way, as for the baseline both DSB and In-vehicle operation data collection was without problems

In-vehicle systems

See above

1.4. Processes

Delivery Space Booking

Along the Pilot state, different actions and decisions were taken in order to improve the implementation of the system. These actions or decisions, depending on the case, were taken in three main areas, as the figure below shows:

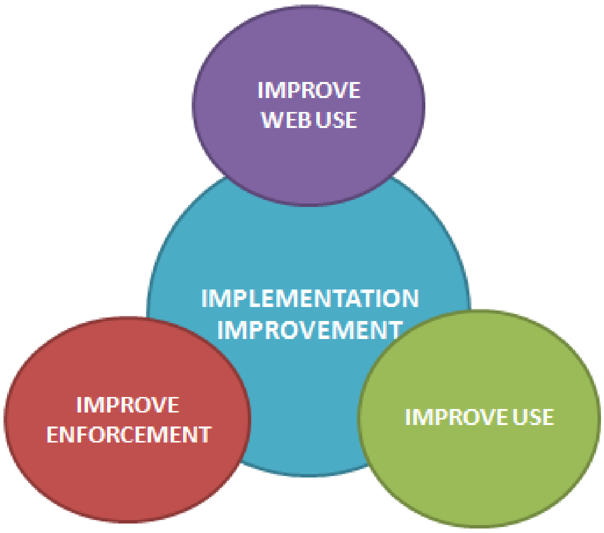


Figure 7: Implementation improvement in three main areas

The actions carried on in each of the identified areas are explained below:

AREA 1: IMPROVE THE USE

Action 1.1 (Weekly): Weekly study of the system performance producing a detail graph of the system use and users behaviour. This document is distributed among the CG and actions are studied or roused with the CG depending on the obtained use data.

Action 1.2 (January 2011): PG Physical meeting → done (week 9) → The weekly studies were not achieving the expected use according to the Pre booking schedule done by fleet operators in September 2010. Therefore, the CG presented to the PG the poor performance of the system asking the users input to improve the functionality and performance of the pilot → Results: three meetings were prepared by user sector, which main conclusions are listed below:

- Packaging sector: The stops of this type of fleet operators are very short and reservation is complicated due to the dynamic behaviour of this type of transporter. Therefore it was agreed that this sector will mainly focus on real time use, using the spaces when they are free. Some slots reservations might make sense depending on the location of the delivery space.
- Bar /Restaurants sector: The use of the reservation for this category seems to be very low and it was agreed that they will try to increase reservations and use them properly.
- Supermarket sector: The supermarkets were not registering their reservations properly at the delivery space. Therefore, it was agreed that they will always register properly when a reservation was used. Also the food delivery vans were included in the pilot; these vans will mainly use the system on a real time basis.

Action 1.3 (March 2011): CG decision. Limit given card to a maximum of 3 → done (week 17) → the cost of card production is reduced and more cards are offered only if quality use is done.

Action 1.4 (March 2011): CG decision. Only companies interested in the system will be allowed. Eliminate companies who up to 31 March NEVER used the system → done (week 19) → 12 companies and 17 vehicles leave the pilot and 3 start using it - due to new customers, previous lack of interest.

Action 1.5 (March 2011): CG decision. Improve the involvement of the companies in the pilot. To inform the FREILOT users about the use of the system and new actions → done (since week 19) → in a newsletter format, a communications channel was open with the users. Totally 9 newsletter were sent at the following dates (See Annex V for more details):

- 30/03/2011
- 13/04/2011
- 18/04/2011
- 17/05/2011
- 30/05/2011
- 15/06/2011
- 21/06/2011
- 03/10/2011
- 13/03/2012

Action 1.6 (May 2011): PG Physical meeting by category → done (week 27) →Inform the PG about the Pilot status (See Annex VI for the presentation done) and inform physically about the correct actions decided in March by the CG, although they were already communicated in the newsletters → Feedback from the users related to the improvement of the web use (see Action 3.3 below).

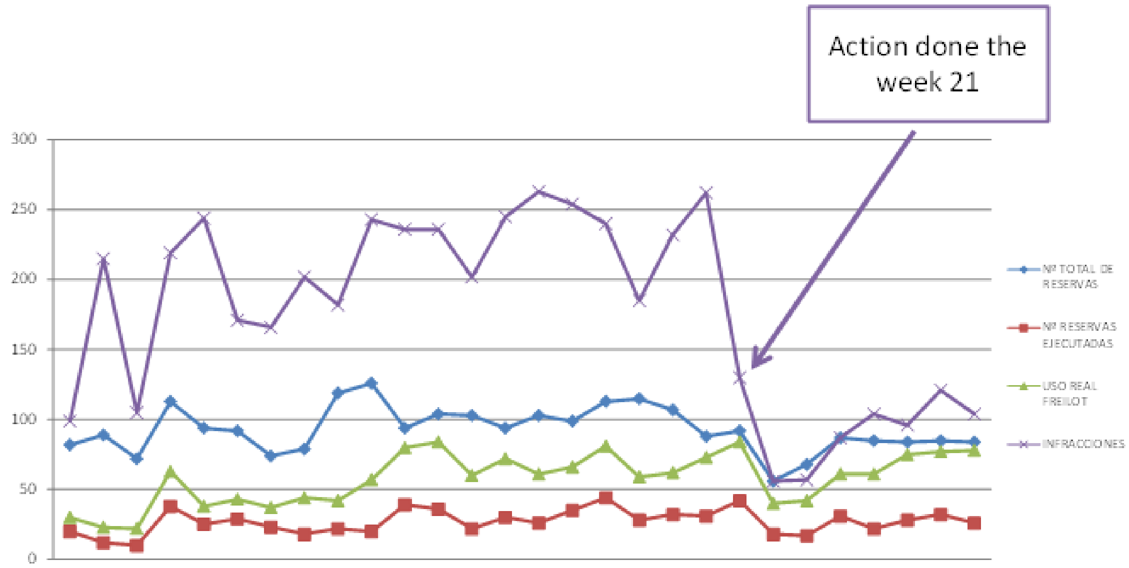
AREA 2: IMPROVE ENFORCEMENT

Action 2.1 (January 2011): PG Physical meeting → done (week 9) → improve police enforcement, identifying legal and illegal users' vehicles. → FREILOT users´ vehicles will be identified with a sticker. → done (week 9). See below for the sticker design:

Figure 8: Designed sticker to improve enforcement

Action 2.2 (March 2011): Reduce infractions. Actions:

- 2.2.1: Reduce the 25 minutes time. → postponed → Requires a changed of the system and working philosophy - too complex and expensive
- 2.2.2: Consider only infractions when the bay/slot is already booked, most critical→ done (week 21) → a reduction of 77 infractions per week – reduction of 58%.



Graphic 1 Effect of the Action 2.2.2

Action 2.3: Measure impact of infractions. Check if the infractions don´t permit a normal use of the reservation at Licenciado Poza (the most difficult space) → done (week 25) → the illegal parking's are constant (50 per week) but most of them very short (less than 5 minutes) – 1.8 infractions per booking.

However if the reserved vehicle arrive the illegal vehicle leaves the place without a problem.

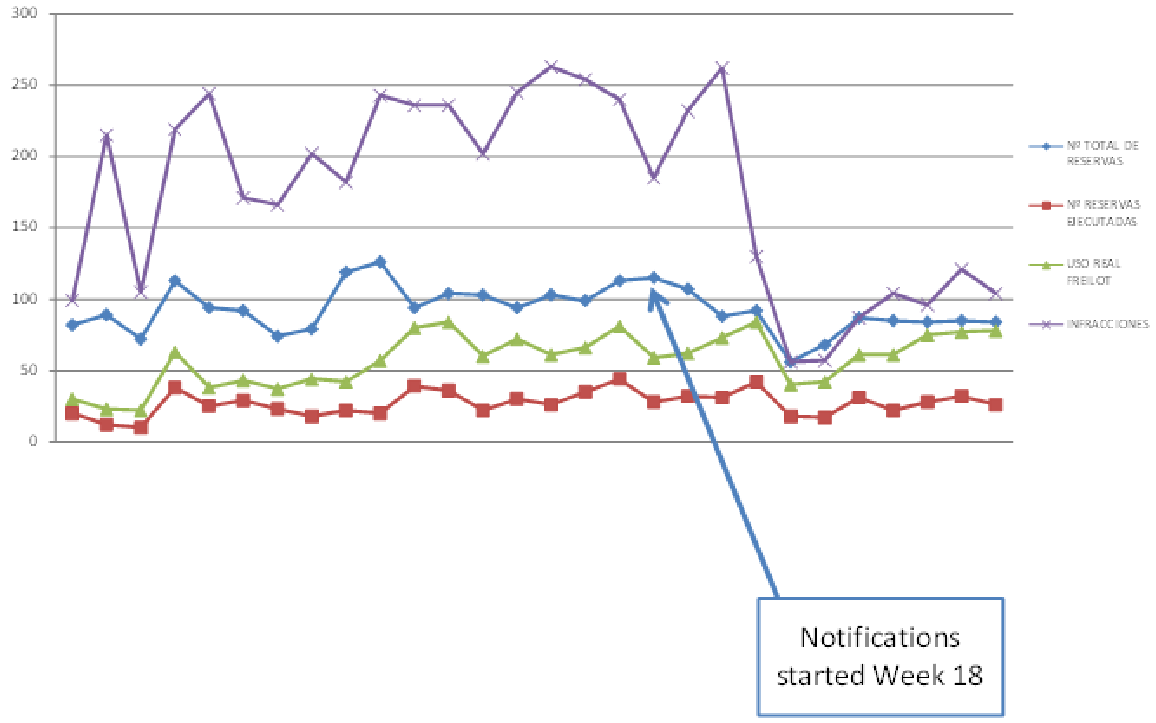
AREA 3: IMPROVE WEB USE

Action 3.1: To increase web reservations. Contact 32 companies (telephone and mail) to find out why they are not doing WEB bookings (they say they will) → done (week 23) → Results:

- Day to day delivery is very variable and difficult to plan → if they do not use a booking other fleet operators will be affected.
- Companies from the same sector use the system differently → Consolidated freight deliveries work OK (e.g. Food delivery from central warehouse) and customer fleet operator time agreement (E.g. Bars/restaurants provide access or keys).

Action 3.2: Carrots / Stick strategy to companies. Actions:

- 3.2.1: To publicize a TOP TEN Ranking in the web site → done (week 26) → create 3 types of users according to the percentage of execution (>60% ; 59-30%; < 29%)
- 3.2.2: To take away slots that are used less than 25% → done (since week 18) → first week 40 slots notification. Second week 5 slots taken away and 20 slots cancelled → 15 increased use.



Graphic 2 Effect of the Action 3.2.2

- 3.2.3: To give priority to renewed periodic bookings (3 months) to companies that use the system → done (since week 18) → effect 1st June 2011 for reservations of July-September 2011.

Action 3.3 (May 2011): PG Physical meeting. Identify which were the users' real needs and why the reservation of the DSB places were not so much used as the "real-time" options. → Results:

- Day to day delivery is very variable and difficult to plan → if they do not use a booking this will have a negative impact on other fleet operators.

- The DSB places are normally empty when they arrive, so there is not a need to reserve it before.

In-vehicle systems

The on-board systems modified some specific and delicate parts regarding the homologation of the vehicle: a special authorisation from the corresponding authorities was required to modify the truck for the FREILOT Project with a prototype system. This process is not very common and is quite delicate because the selected trucks are not owned by Renault Trucks and they need to transport commercial goods. Thanks to the great work of the local team in Spain, all the mandatory authorisations were obtained and the customer's trucks could operate without any problem or breakdowns.

1.5. Maintenance

Delivery Space Booking

The technology Provider for Bilbao DSB service, GERTEK, has detailed records of all the relevant maintenance actions or events which are listed below:

Table 1 Bilbao DSB maintenance events

Event	Date	Description
Launch	14-10-2010	Delivery space bookings starts working
Bookings do not match with real reservations	27-10-2010	The Logical validation algorithm does not work with real use. Reservation places are different from the real ones. A more flexible validation algorithm is needed.
Problem with truck's loading platform	15-11-2010	Reservation validation does not consider truck's loading platform at the backside. It is not detected by loops during validation.
Water inside machine	25-11-2010	Water entering inside the machine located in General Concha after some rainy days. As result the PLC broke.
Gap in the logic validation	09-02-2011	The system does not verify if the user is still an authorized user.
GPRS coverage problem	22-03-2011	The Mobile supplier has a technical problem and there is no GPRS service in Bilbao.
Web and logic host change	19-05-2011	Host
Duplicate reservations in the database	20-07-2011	Duplicate reservations in the database that avoid correct validation in the delivery zones.
Communication problem in the machine	01-12-2011	Communication problem in the machine located in Perez Galdós. Problem detected in the converter (PLC-machine head).

In-vehicle systems

No maintenance actions were executed.

1.6. Availability

Delivery Space Booking

The system started October 2010 and although the pilot was ended in November 2011 the Delivery spaces are still fully functional and the City has decided to maintain the system operational after the project life time although new expansions are not planned.

In Bilbao the system has been operational over 80% of the time. To assure a correct service different ways of tracing have been implemented:

- Every day Gertek's personnel checked the website to see if the delivery zones were working correctly. For this purpose, they consulted special logs of communication, place detection and done bookings.
- A file containing information related to the operations was sent by email automatically every day .
- An operational report was obtained weekly, which permitted to verify that the system was working correctly and therefore available for interested users.

In-vehicle systems

The on board system was installed on the 3 trucks in January 2011 and the baseline collection started in April, once the evaluation server was ready for the collection and transfer of data. The data collection began in November 2011. The systems have been running until August 2012.

1.7. Lessons learned

Delivery Space Booking

- The fleet operators have shown interest in the system and even when its performance is not optimal they want to carry on improving the system. Delivery space occupancy is a problem and a solution is needed – current implementation of the DSB is not the ultimate solution.
- This system has many different stakeholders with very different needs, which makes it difficult to develop a complete solution.
- The last-mile delivery-planning is done by truck drivers, who normally do not participate in the meetings. Therefore, their real needs are not always represented by the fleet operators' managing directors.
- The technology that permits delivery space reservations should be very flexible, as the real delivery planning is very changeable. Communication mechanisms that are more easy to use should be developed.
- Enforcement is a key issue that must be improved, making it efficient and very accurate.

In-vehicle systems

- **The importance of training and explaining the systems**: The systems were perceived differently by the drivers; many of them were very sceptical to the AL and SL, both systems that inhibit the truck power/speed. Limiting the engine seemed to be difficult to imagine, perhaps more here than on other sites. As for the Eco Driver Support system the concernes were rather around the multitasking "*we already have the radio, GPS etc. Now there is yet another display to look at*". (Hence also the big importance of taking the HMI into account when creating the system)
- **Testing the pilot at a project partner** As Nanuk was a real project partner the work was facilitated. The trucks were at the technicians disposal at a maximum. Also, the fact that the partner was well known and close to the Volvo garage helped a lot. The communication was easy because the trainer/hotline spoke the same language. There were no hesitations to

contact in case of the slightest doubt.

2. Helmond

2.1. Overview

Energy Efficient Intersection Control

In September 2010 EEIC On Board Units were installed in the trucks of van den Broek Logistics (4 units, 3 additional ones were delivered early January), the Helmond fire brigade (4 units) and Helmond ambulances (2 units).

A well visited kick-off event was held in Helmond on 28 October 2010, where the EEIC priority service was demonstrated on the streets of Helmond with five trucks, two fire trucks and two ambulances.

Shortly after the installation two major problems were found with the EEIC vehicle display units. It turned out that the internal power supply in the displays could not provide enough power for the radio card (it does not conform to the miniPCI standard). This was solved by placing the radio card into a separate processor board mounted as a 'rucksack' at the backside of the display. In the ambulances it was found that the display disturbs GPS reception on some commercial navigation systems. Immediate measures were taken to reduce this, but the only real solution was to replace the displays completely.

In January 2011 all EEIC on-board units were installed in the trucks of van den Broek Logistics (7 units), the Helmond fire brigade (4 units) and Helmond ambulances (2 units). After initial tests the EEIC installation was switched to baseline collection on 15 January 2011 and two months later, 9 March 2011, the installation was switched to operational mode.

In the first quarter of 2011 the disturbance of the GPS reception (by the EEIC units) on some commercial navigation systems occurred on more vehicles. In the Dutch SPITS project an Android based display solution had been developed, it was decided that this solution will be used to solve the GPS reception problems in FREILOT.

Starting at April 2011 logging data from the EEIC trucks is collected on a server at Peek Amersfoort. The log files are pre-processed and the result is made available for evaluation on an FTP server. At the same time the database server at Volvo was activated and the baseline data collection started for the in vehicle systems.

In June 2011 an Android widget was developed which replaced the GPS-interfering EEIC display units. After successful tests the new equipment were ordered for 11 replacement systems.

In September the new Android based EEIC units have been installed in the vehicles, replacing the old units. At 1 October 2011 the second baseline period started. Special care was taken to make sure enough data from the trucks has been collected before ending the second baseline period at 22 November 2011 and moving to the second operational phase.

The EEIC second operational phase ended at 30 April 2012, after producing 232 MByte of pre-processed data files. The EEIC equipment at the roadside and in the vehicles is not removed and remains active after the pilot as a part of the continued, after project operation.

In-vehicle systems

In February 2011 Volvo on-board systems (Acceleration and Speed Limiters and Eco Driving Support) were installed in 6 vehicles of van den Broek Logistics, a national and international dry tranporter. An overview over the tested systems are shown in the following table:

Truck ID	Operator	Reg #	VIN	SL	AL	EDS
H14	Van den Broek	BT-BR-21	YV2JL40A17B477715	NO	YES	NO
H15	Van den Broek	BT-BX-25	YV2JL40A97B479079	YES	NO	NO
H16	Van den Broek	BT-DB-24	YV2JL40A77B479047	YES	YES	YES
H17	Van den Broek	BT-NZ-86	YV2ASG0A18B501808	NO	NO	YES
H18	Van den Broek	BT-NZ-87	YV2ASG0A68B501979	NO	NO	YES
H19	Van den Broek	BV-JT-43	YV2ASG0AX9B536719	NO	NO	YES

The main events:

Event	Date	Description
6 trucks installed	02-2011	On-board systems were installed in 6 vehicles of van den Broek Logistics
Baseline start	04-2011	On-board server activated and baseline started
Pilot start	06-2011	EDS, AL and SL activated
Pilot end	04-2012	Pilot end
Systems removed	06-2012	Removed Volvo equipment from the trucks

2.1. Preparation

Before installation the impact of the FREILOT pilot vehicles was analysed in a micro-simulation environment. Based on the simulation the priority parameters have been chosen such that the impact on the other traffic, e.g. from side roads, is minimal.

Results of the simulation study are shown in Figure 9. In the relatively quiet morning rush hour a clear trend can be seen: when the priority increases the average speed of the FREILOT member trucks also increases. At the same time the study shows that the impact on the other road users is limited. In the busier evening rush hour the traffic network loses its stability when the priority of the FREILOT vehicles increases. This effect results in an increased travel time for the other road users, especially within the city centre.

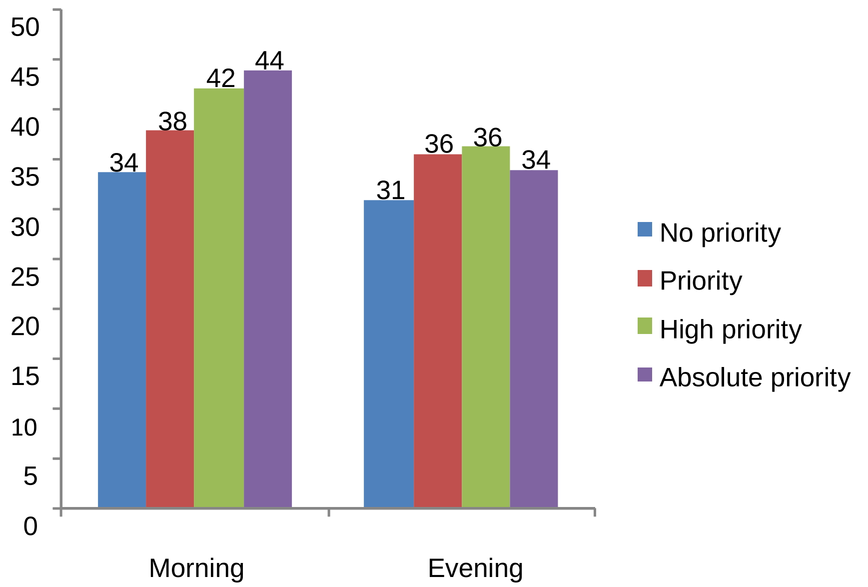


Figure 9 - Average speed (km/h) of a FREILOT truck for four priority variants

The simulation study shows that the priority for FREILOT scheme members is beneficial, and the impact on the other road users is limited. At very busy hours high priority has a negative impact on the network, which even leads to no advantage for the FREILOT trucks at all. Using the appropriate priority for FREILOT scheme members will lead to a reduction in fuel consumption and emissions because the travel time and the number of stops will be reduced significantly, without reducing the network performance. The priority level has been set to different values depending on the time of the day and the location in the network; this is shown in Table 2.

Table 2 Advised priority levels for FREILOT scheme member trucks

Location	Morning rush hour 7:00-9:00	Evening rush hour 16:00-18:00	Other periods 9:00-16:00 18:00-7:00
Centre	Very High	Low	Very High
West	Very High	Very High	Very High
East	Very High	High	Very High
South	Very High	Low	Very High

To validate the business case of the system the same simulation has been executed with larger penetrations of prioritised vehicles. The aim of these simulations was to find the maximum number of vehicles that could be given priority. As for the initial study different results were found for the morning and evening rush hour. Again the city centre is found to be the most susceptible to disturbances in the traffic control.

In Table 3 it can be seen that in the morning rush hour high priority can be given to at least 90 trucks per hour on all intersections. Only in the evening rush hour, shown in Table 4, priority must be limited quickly, especially for the city centre.

Table 3 Acceptable number of prioritised trucks during morning rush hour

Morning rush	No priority	Low priority	High priority	Very High priority
6 trucks/hour	all	all	all	all
50 trucks/hour	all	all	all	West, East
90 trucks/hour	all	all	all	West, East
125 trucks/hour	all	all	West, East	West, East

Table 4 Acceptable number of prioritised trucks during evening rush hour

Evening rush	No priority	Low priority	High priority	Very High priority
6 trucks/hour	all	all	West, East	West, East
50 trucks/hour	all	West, East	West, East	West, East
90 trucks/hour	all	West, East	West	-
125 trucks/hour	all	West, East	West	-

Overall, the number of prioritised trucks can be increased to about 100 trucks per hour without much impact on the other traffic. From a business case perspective this means that a significant part of the trucks with local binding could be equipped with an EEIC system.

2.2. User education

Energy Efficient Intersection Control

A Dutch presentation for the drivers was created. This presentation was given to a first group of users and was provided to the fleet operators to educate new users. This presentation can be found in Annex VIII.

In-vehicle systems

Each truck was equipped with a handbook, describing the corresponding service(s) and how to use them. The handbook was translated to Dutch.

The fleet managers also received a user manual on how to use the FREILOT website.

The English version of the manual can be found in Annex IX.

2.3. Pilot operation

2.3.1. Hotlines

Energy Efficient Intersection Control

For EEIC the email address and telephone number of Eric Koenders was spread to allow the drivers and fleet operators to report any issues.

It must be said that in only a few cases reports about malfunctions were reported via the hotline. The malfunctions mostly were reported on personal request from the pilot site leader, on the questionnaires or during physical meetings.

In-vehicle systems

The customer had a telephone number to contact the Volvo Field Tests Team, represented by Allan Laursen, in case of failures, doubts, or further information on the on board systems.

The hotline was used several times for:

- inappropriate behaviour of the trucks,
- further information about the systems,
- further information about the FREILOT website.

2.3.2. System operation

Energy Efficient Intersection Control

In the first quarter of 2011 the disturbance of the GPS reception on some commercial navigation systems has occurred on more vehicles. At that time it became clear that action had to be taken, as the GPS disturbances affected the work of the drivers.

Measurements of the emitted radio spectrum of the on board unit revealed that the GPS disturbance was caused by the display/computer unit. Based on good experiences in the SPITS project the decision was taken to replace the computing platform of all on board units with new units based on Android tablets or phones.

Figure 10 : The Android based EEIC on-board unit

Once all units had been replaced the GPS disturbances were gone. After that an unexpected issue with the new units appeared in the trucks. The new units are based on HTC mobile phones. To avoid theft the truck operator mounted the phones close to the ceiling of the truck, which in about half of the trucks hampered the GPS reception of the phone, disabling the operation of the FREILOT service for these trucks every now and then. The only way to resolve this issue would have been to add a rooftop GPS antenna to the trucks. This solution was not implemented because the project was running out of both time and hardware budget. Nevertheless a sufficient number of trucks were operating correctly, supplying enough measurement data.

During the spring of 2011 heavy thunderstorms in Helmond damaged three host PC's. One spare PC was available, leaving two intersections disabled. After a long time, the PC's were repaired by the supplier in Taiwan, and reinstalled in Helmond.

During the pilot the priority mechanism for the fire brigade was adapted to support the higher vehicle speeds during emergencies. To accommodate these the sign-in point for absolute priority was moved further away from the stop line, and the on-board unit was modified to request priority from all upcoming intersections (and not only from the first upcoming intersection like the trucks do).

In Helmond the EEIC system collected 6.95 GByte of raw data, which was preprocessed into 326 MByte of data for the evaluation in WP4.

In-vehicle systems

There were technical problems with truck H19 during the entire test period. The drivers could not use the systems, when arriving in a SL zone and activating the system it was only activated for a couple of seconds. Different solutions were tested: change of tachograph card, increase of the parameters to increase the programmation, but the problems could never be solved, and the data collection for this truck could not be done correctly .

During both baseline and operation the following distance has been travelled by the pilot vehicles:

Helmond	**553304 Km**
Van Den Broek	**553304 Km**
H14	65577 Km
H15	44507 Km
H16	71773 Km
H17	125415 Km
H18	110428 Km
H19	135603 Km

2.3.3. Baseline data collection.

Energy Efficient Intersection Control

No issues were encountered during the baseline periods. During the second baseline the log files have been closely monitored to make sure enough baseline data was collected.

In-vehicle systems

No issues were encountered during the baseline periods, apart from the one mentioned for truck H19 in section 3.3.2 System operation above.

2.3.4. Operation data collection

Energy Efficient Intersection Control

Vast majority of the operation period has been successful but there have been some disturbances as well. During both data collection phases various problems were encountered. Besides equipment failures the most important issue has been the GPS disturbances. Because of these disturbances many drivers switched off the FREILOT on board unit when driving outside Helmond, and many times they forgot to enable the systems when driving through Helmond again. The only way to solve this problem was by replacing the display units, which was done before the second baseline.

In-vehicle systems

No issues were encountered during the data collection periods, except the above mentioned truck H19

2.4. Processes

Besides the hotline a number of meetings were held with the Helmond partners to inform them about the operation and to collect feedback on the systems. These meetings were hosted by the local partners in Helmond (the city of Helmond, the fire brigade). The following meetings were held:

12-7-2010	Local partners meeting
9-10-2010	Drivers education meeting
28-10-2010	Kick-off event
29-6-2011	Local partners meeting
9-11-2011	Local partners meeting
16-5-2012	Local partners meeting

Based on the user feedback the fire brigade handling was adapted and the GPS problems were solved.

2.5. Maintenance

Energy Efficient Intersection Control

Event	Date	Description
Intersection 101 cable defect	1-10-2010	Ethernet ground cable from earlier projects not working anymore. Intersection 101 cannot provide priority.
Intersection 903 is not using Utopia	22-10-2010	No priority can be given if Utopia is not used, fixed by the city of Helmond
GPS disturbance by OBU reported	1-11-2010	The On-board Unit disturbs the GPS reception of some navigation systems. Drivers will switch off the units when driving outside Helmond
Intersection 704 CPU defect	2-12-2010	PC of XP704 defective, removed
Intersection 704 CPU repaired	11-1-2011	PC of XP704 repaired
Baseline 1 start	15-1-2011	Data collection without active FREILOT services has started
Operation 1 start	9-3-2011	FREILOT services start
GPS receiver at intersection 903 defect	5-4-2011	Solved by using a fixed location in the configuration
Intersections 702, 704 and 102 CPU defect	29-4-2011	Thunderstorms in Helmond have damaged the host CPU units.
Intersections 702, 704 and 102 CPU removed	8-8-2011	Units have been sent to the supplier for repair.
Intersection 102 repaired	8-8-2011	Spare replacement unit placed in Intersection 102
Operation 1 end	9-8-2011	
Intersection 702 and 704 repaired	20-9-2011	Replacement units placed
Replaced on-board unit fire brigade	20-9-2011	Replaced 1 on-board unit of the fire brigade, software update installed on 3 on-board units fire brigade
New control algorithm 101, 102 and 103 up and running	27-9-2011	The control algorithm has been replaced to improve the traffic handling, the new system is compatible with FREILOT
Replaced on-board units trucks	28-9-2011	7 On-board Units delivered for the van den Broek trucks
Baseline 2 start	1-10-2011	
Replace on-board units in 2 ambulances	12-10-2011	2 on-board Units delivered for the ambulances
Operation 2 starts	22-11-2011	
Measurements done on underground cable of intersection 101	6-12-2011	Found that all wires are connected, but high frequency data cannot pass. City of Helmond will replace the cable.
New cable placed on intersection 101	01-2012	New cable is ordered by the city of Helmond

Intersection 101 activated	6-02-2012	New cable works and FREILOT activated
Ambulances removed systems from the vehicles	1-2-2012	From the log files it could be seen that the ambulance units stopped reporting data. No malfunctions have been reported by the ambulances.
Operation 2 ends	30-4-2012	

In-vehicle systems

There were no maintenance activities during the pilot tests.

2.6. Availability

Energy Efficient Intersection Control

The baseline and operational phases for EEIC took 418 days. The following table shows the number of days the roadside systems were down during this period due to defective host PC's or underground cable.

#	Name	Intersection	Down time	Availability
1	XP701	Europaweg / Hortsedijk	0	100%
2	XP702	Europaweg / Boerhaavelaan	102	76%
3	XP704	Europaweg / Prins Hendriklaan	102	76%
4	XP101	Kasteel Traverse / Zuid Koninginnewal	334	20%
5	XP102	Kasteel Traverse / Zuideinde	102	76%
6	XP103	Kasteel Traverse / Tiendstraat	0	100%
7	XP104	Kasteeltraverse / Burgemeester van Houtlaan	0	100%
8	XP106	Deurneseweg / Lagedijk / Wethouder van Wellaan	0	100%
9	XP504	Lagedijk / Engelseweg	0	100%
10	XP901	Rivierensingel / Deurnseweg	0	100%
11	XP902	Weg door de Rijpel – West / Deurnseweg	0	100%
12	XP903	Weg door de Rijpel – Oost / Deurnseweg	0	100%
13	XP904	S24 West / Deurnseweg	0	100%
14	XP905	S24 Oost / Deurnseweg	0	100%

On average the roadside systems were up 89% of the time.

In-vehicle systems

The onboard systems were installed in February 2011 and the baseline collection started in April, once the server was ready. The data collection begun in July and the systems were running until June 2012, when the equipment was removed.

2.7. Lessons learned

Energy Efficient Intersection Control

The following lessons have been learned from the operational period:

- The roadside host computers need protection against high voltages caused by thunderstorms.
- The roadside router platform has shown to be very reliable and maintenance free.
- The logging has been designed to provide the data for the evaluation. The design was not focussed on detecting user problems, which would have helped to detect problems in an early stage.
- In a pilot the users are focussed on their daily work. Therefore problems with the system are not reported immediately, if at all. The users tend to find a work around (e.g. switch the system off) and continue their work. Pilot systems could be designed with this in mind and could for example be equipped with automatic failure reporting mechanisms.
- Regular meetings with users and local stakeholders are important to share information and to increase engagement.

In-vehicle systems

- **Having fleet operator as the consortium partner makes most things easier**. As van den Broek Logistics was an active partner in the consortium the operating work was facilitated. For the installations the trucks were at the technicians disposal at a maximum, and it was easy to establish a good and interested contact.

3. Krakow

3.1. Overview

Energy Efficient Intersection Control

After agreement from the GDDKiA, the Polish National Road Administration, the EEIC roadside systems were installed at all 8 intersections in March 2011. The control programs of all traffic controllers were modified to support priority requests, and five on-board units were delivered for installation in vehicles.

In March 2011 two trucks from Omega were equipped with an EEIC on-board unit. These trucks drove regularly on the road with the FREILOT intersections.

On 6 April 2011 the EEIC installation has been switched to baseline mode. Logging data was collected on a server at Peek Amersfoort.

A part of the additional EEIC on-board units in Krakow was Android based, the delivery of these units depended on their manufacturing as described in section 2.1.

On 27 February 2012 EEIC priority was enabled on all Krakow intersections and the operational phase started. The operational phase ended in June 2012.

In-vehicle systems

The selected in-vehicle system user in Krakow was Temperi, a transporter operating more long hauls. They are not an official partner of the FREILOT project. Five trucks were selected to test the Eco Driving Support system, as shown in the following table:

Truck ID	Operator	Reg #	VIN	SL	AL	EDS
K01	Temperi	KR 763CY	YV2AS02A27B480115	NO	NO	YES
K02	Temperi	KR 655CY	YV2AS02A57B480027	NO	NO	YES
K03	Temperi	KR 864CR	YV2AS02A37B472542	NO	NO	YES
K06	Temperi	KR 785CR	YV2AS02A47B472551	NO	NO	YES
K07	Temperi	KR 195EA	YV2AS02AX8B488545	NO	NO	YES

In the first quarter of 2011 the installation of Volvo equipment in trucks from Temperi has been supported locally by the Peek organisation to overcome language problems.

The main events:

Event	Date	Description
EDS units installed	23-06-2011	5 Vehicles from Temperi are up and running.
Baseline start	23-06-2011	As the server was already working, the baseline data collection could start immediately
Pilot start	09-2011	The collection of data starts
Pilot end	06-2012	The system was running until June when the EDS units were removed from the trucks

3.2. Preparation

Before the agreement with GDDKiA it was requested to perform simulation study to evaluate possible effect of the system on the FREILOT vehicles, and to approximate the side effect on the other road users. After the simulation an extensive report has been prepared that also described the technical aspects of the FREILOT hardware (installed on all pilot intersections).

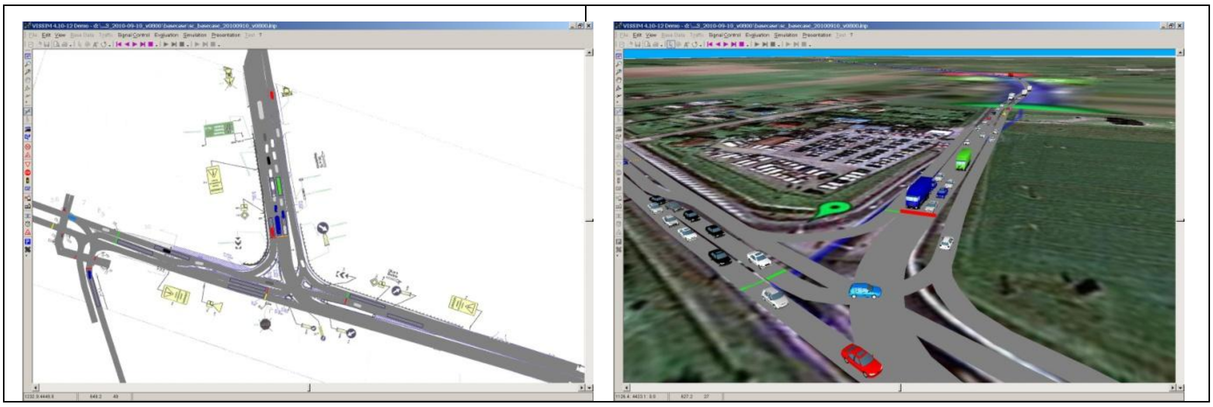


Figure 11: Simulation model in Vissim of the pilot installation in Krakow (green trucks are the Freilot trucks)

The report investigated two different simulation scenarios, with the worse values of traffic at the rush hours. Special on-site traffic measurements were performed on request of GDDKiA to identify the actual traffic intensities.

Variant 1 – "Baseline": the actual situation at the Krakow pilot route (with current traffic plans and current traffic intensities).

Variant 2 - "Freilot: special extensions (max 20 sec) of the green signal into current traffic plans were added; only the FREILOT vehicles could request these extensions.

A thorough comparison of the results obtained from the two scenarios above was presented in the mentioned report.

As comparable parameters within the simulation model following values were chosen:

a) the travel time for private and FREILOT vehicles

b) the total number of stops for private and FREILOT vehicles

c) the total delay in network for private and FREILOT vehicles

A summary of the obtained results can be found in the tables below. In addition diagrams of the number of stops and average queues of vehicles on the side entries of all intersections were prepared (and have been presented in the report). Those diagrams were requested by GDDKiA to show the simulated influence of priorities on traffic from the side roads.

The results show the following benefits of the FREILOT scenario:

a) Travel time on main road (for both FREILOT and private vehicles) was enhanced by 2-4%

b) Total delay (for both FREILOT and private vehicles) was decreased by 5%

c) Number of stops of FREILOT vehicles were decreased by 25%

In the report it was also explained that the simulation has been executed with some simplifications of the control algorithm and network mode; and that the results of the real implementation of the system would get much better results.

Table 5 : Travel times for vehicles passing through the simulation model

	Baseline scenario [s]	Freilot scenario [s]	Change [%]
Travel time of FREILOT vehicles (West-East direction)	668,29	657,50	-4%
Travel time of FREILOT vehicles (East-West direction)	726,41	706,99	-3%
Travel time of private vehicles (West-East direction)	703,75	688,61	-2%
Travel time of private vehicles (East-West direction)	730,94	716,01	-2%

Table 6 : Total delay and number of stops of vehicles in simulation model.

	Baseline scenario	Freilot scenario	Change [%]
Total delay of private vehicles [h]	39,06	37,03	-5%
Total number of stops of private vehicles [quantity]	3069	3145	+2%
Total delay of FREILOT vehicles [h]	1,98	1,88	-5%
Total number of stops of FREILOT vehicles [quantity]	34	25	-26%

Concluding, the simulation study has confirmed that priority for FREILOT vehicles is beneficial, and the impact on the other road users (especially side road users) is limited. Significant decreasing of the number of stops of FREILOT vehicles will automatically lead to a reduction in fuel consumption and emissions.

Acceptance of the prepared report by GDDKiA allowed finalizing of an agreement that regarded installation issues.

3.3. User education

Energy Efficient Intersection Control

The EEIC users in Krakow have been instructed during installation of the systems.

In-vehicle systems

The drivers where informed about the installation and usage by Marcin Tatka from Volvo Poland. The handbook, as shown in Annex IX ,was translated to Polish to support the use of the EDS system.

Mr Wojciech Rosa at Temperi had the instruction delivered on how to use the FREILOT website.

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3.4. Pilot operation

3.4.1. Hotlines

Energy Efficient Intersection Control

Peek Poland employee Mariusz Karp acted as the contact for any questions or problems in Krakow. One issue has been reported via the hotline.

In-vehicle systems

In case of failures, doubts, or need for further information on the on board systems the customer could contact the Volvo Field Tests Team, represented by Allan Laursen. The hotline was never used.

3.4.2. System operation

Energy Efficient Intersection Control

After agreement from the GDDKiA the EEIC roadside systems were installed at all 8 intersections in March 2011. The control programs of all traffic controllers were modified to support priority requests. Five on-board units were delivered for installation in vehicles.

In March 2011 two trucks from Omega were equipped with an EEIC on-board unit. These trucks drove regularly on the road with the FREILOT intersections. It turned out to be very hard to find more trucks.

On 6 April 2011 the EEIC installation was switched to baseline mode. Logging data was collected on a server at Peek Amersfoort via a GPRS connection which was not always reliable, making it hard to collect the log files.

In June 2011 priority was enabled for all the units, and the pilot period could start. This also allowed a demonstration of the system to the reviewers.

A part of the additional EEIC on-board units in Krakow were Android based; the production of these units was done at the same time as the new units for Helmond. The Android based units were available in October 2011.

No other trucks were found where the available on-board units could be placed. During the search it was discovered that a local bus company was interested in FREILOT. Since busses are an opportunity for deployment it was decided to place some units in busses. In December 2011 and January 2012 three units were installed in busses.

In February 2012 it turned out that even though priority was enabled at all intersections the traffic controllers did not provide priority. This had previously been disabled on request from the GDDKiA and could only be turned on after agreement from the GDDKiA. Unfortunately this fact was lost in communication. Effectively this meant that even though the on-board units reported that priority was requested no priority was given. Consequently the real pilot phase could only start as soon as priority was enabled in the traffic controllers, which happened on 27 February 2012.

In Krakow the EEIC system collected 1.2 GByte of raw data, which was preprocessed into 68 MByte of data for the evaluation in WP4.

In-vehicle systems

One onboard system, EDS, was tested in the Krakow pilot. The installation proved difficult as there were communication difficulties between the Polish transporter and Volvo’s English speaking team. To overcome language problems in the first quarter of 2011 the the Volvo team had great local support from the Polish Peek organisation. Being that the transporter operated long haul it was also difficult to have access to the trucks, as they were away from the site for two weeks and just back on site for short intervals, often only one day.

During both baseline and operation the following distance has been travelled by the pilot vehicles:

Krakow	**550299 Km**
Temperi	**550299 Km**
K01	87942 Km
K02	80102 Km
K03	106681 Km

K06	139583 Km
K07	135990 Km

3.4.3. Baseline data collection

Energy Efficient Intersection Control

No issues were encountered during the baseline period.

In-vehicle systems

No issues were encountered during the baseline period.

3.4.4. Operation data collection

Energy Efficient Intersection Control

No issues were found in the equipment. However, as described before in February 2012 it turned out that even though priority was enabled at all intersections the traffic controllers did not provide priority. Consequently a second operational phase started as soon as priority was enabled in the traffic controllers on 27 February 2012.

In-vehicle systems

No issues were encountered during the data collection period.

3.5. Processes

Energy Efficient Intersection Control

A hotline was available to report any issues.

3.6. Maintenance

Energy Efficient Intersection Control

Event	Date	Description
RSU installation	01-2011	Installation of RSUs on all intersections
Update of RSU configurations	02-2011	Updates of configurations of RSUs (OSGI, XML-files)
Installation of two OBUs	5-04-2011	Delivery and installation of the two OBU in trucks of OMEGA company
Baseline start	5-04-2011	Baseline collection started
Priority enabled	7-06-2011	RSU units configured for all intersections, priority enabled
Demo	11-06-2011	Demo for the reviewers
Added priority support to all traffic controllers	13-06-2011	Reprogramming of all traffic controllers – implementation of the Freilot algorithms (but green extension are set to 0 in traffic controllers)
Omega data missing	08-2011	Data from OMEGA trucks is missing, reported to OMEGA
New OBU units arrived	26-10-2011	New units arrived in Krakow
Installation of one OBU in bus	12-12-2011	Delivery and installation of the one OBU (Archos) in bus of TRANSUSŁUGI company
Installation of two OBUs in busses	20-01-2012	Delivery and installation of the two OBUs (Archos) in busses of TRANSUSŁUGI company
Priority not working in traffic controllers	23-01-2012	Found out that priority operation is still disabled in the traffic controllers
RSU configuration problem	23-01-2012	Fixed configuration problem
Operation Start	27-02-2012	Priority functionality has been enabled in all controllers (after approval from GDDKiA)
Operation End	30-6-2012	Operation end

In-vehicle systems

There were no maintenance activities during the pilot.

3.7. Availability

Energy Efficient Intersection Control

Only a few small problems have been found and corrected in the road side systems. In August 2011 the data from the OMEGA trucks was missing, this has been solved after contacting OMEGA.

In-vehicle systems

Five trucks were equipped with EDS in July 2011. The collection of baseline data started immediately, as the baseline server was already working. In September the EDS system was activated, and in June 2012 the system was disabled and removed from the trucks.

3.8. Lessons learned

At times the lack of local partners complicated the work in Krakow. Even though the people from Peek Poland put in a lot of effort it still was not possible to use all the available EEIC on-board units because a local fleet operator partner was missing. Similarly, a local partner would have overcome the communication difficulties between the Polish transporter and Volvo’s English speaking team.

4. Lyon

4.1. Overview

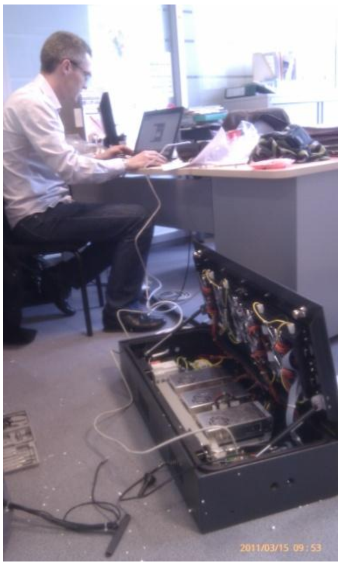
Delivery Space Booking

4 delivery spaces have been implemented and piloted in Lyon, for one or several time slots of 15 minutes each. Users log in a web portal that allows them to book a maximum of 4 times slots per user and per space.

Because the local team had many difficulties to implement the system, it has been fully operational since February 2012 only.

Table 7 : main events of operation report

Dates	Operations / difficulties
Summer 2009	Test sites selection: 4 delivery spaces could be equipped. Ville de Lyon and Interface Transport chose 2 areas (Croix Rousse, which is a very dense commercial zone with difficult delivery conditions, and Presqu'Ile, which is the commercial central area of Lyon), and selected 2 delivery spaces in each of these areas. The delivery spaces in Croix Rousse are located on Place de la Croix Rousse, and those in Presqu'Ile are in Rue de la Charité. 3 delivery spaces were finally chosen in Charité, very close to each other.
September 2009 - April 2010	Telephone contact with fleet operators to identify possible users for the application. Several days of on-site observation were organized: all operators performing deliveries in the selected sites were identified, and main shop owners were interviewed to determine which operators deliver goods to them. Every operator identified this way was contacted. Direct contacts from local partners were asked for participation. The logistics work group of Grand Lyon was used as a gate to possible participants. The Lyon Chamber of Commerce was also involved, and through them their members, fleet operators or shop owners Professional representatives (TLF, FNTR) were directly asked. Local associations, such as LUTB, were also contacted. **Finally, 4 operators showed interest and goodwill to test the system: Chropost, Coliposte, France Express, and STEF**. UPS first showed interest, but finally decided not to test the system.
March-November 2010	Investigation on possible technical solutions: Thetis, as partner of the pilot, was in charge of creating the web portal. On-site equipment (sensors, poles, displays) was still to be defined and manufacturers to be identified. Mainly 5 technical providers were contacted (Sereca, Technolia, Solari, Sensys and Geoloc System). The definite solution was a connected panel displaying information for each delivery space, without any sensor. The panels were obtained from a company named Solari Udinese, in Italy.
November 2010	Panels order to Solari. Once delivered in Ville de Lyon, they were transferred to Interface Transport for configuration work.
November 2010 – July 2011	Poles on order
February 2011	Baseline survey on parking behaviours on delivery spaces.
16 March 2011	**Communication events: FREILOT Press conference: the truck with the**

<table>
<tr><td></td><td>cooperative system is shown to the journalists. Many press articles were written about Freilot services in few days after the conference.</td></tr>
<tr><td>March – June 2011</td><td>LED panel configuration: all panels needed to be connected to GPRS network, and then configured to establish connection with the web portal server, located in Italy. In June 2011, all 4 panels were connected and could display booking information.

</td></tr>
<tr><td>July 2011</td><td>Panels and poles installation on both sites.</td></tr>
<tr><td>July – November 2011</td><td>Electric linking of the panels (first in Charité, second in Croix Rousse)</td></tr>
<tr><td>November 2011 – February 2012</td><td>Additional on-site maintenance due to connection loss</td></tr>
<tr><td>February 2012</td><td>System operational</td></tr>
<tr><td>March - April 2012</td><td>Experimental line survey on behaviours on delivery spaces.
On-site distribution of flyers to promote the use of DSB application.

</td></tr>
</table>

Cooperative intersection control system

The cooperative Intersection Control system was piloted on “Route de Lyon”, which is an important stretch to Lyon from the south.

This area was chosen because it already had a cooperative system for public transport (on a special lane) installed and was used by buses. At rush hours, a lot of cars cross this road. The goal was to trial the cooperative system in different traffic conditions.

The following intersections were used for the trial:

Table 8 : Intersections Lyon for cooperative system

Identification	Name	Comments
VN 039	De Gaulle Clos Verger	
VN 052	De Gaulle RVI	
VN 067	De Gaulle Amadeo	
VN 068	De Gaulle RVI	
VN 006	De Gaulle Parilly	
SP 027	CD 518 Germain	
SP 026	CD 518 Condorce	
SP 78	**CD 518 BUE**	**Added at august 2011, because a new road was opened 6 months ahead of schedule and the Freilot pilot was extended for 6 months. The new intersection was added to the FREILOT system at 1 October 2011.**
SP 025	CD 518 Alouettes Perrier	
SP 016	CD 518 Jaurès	

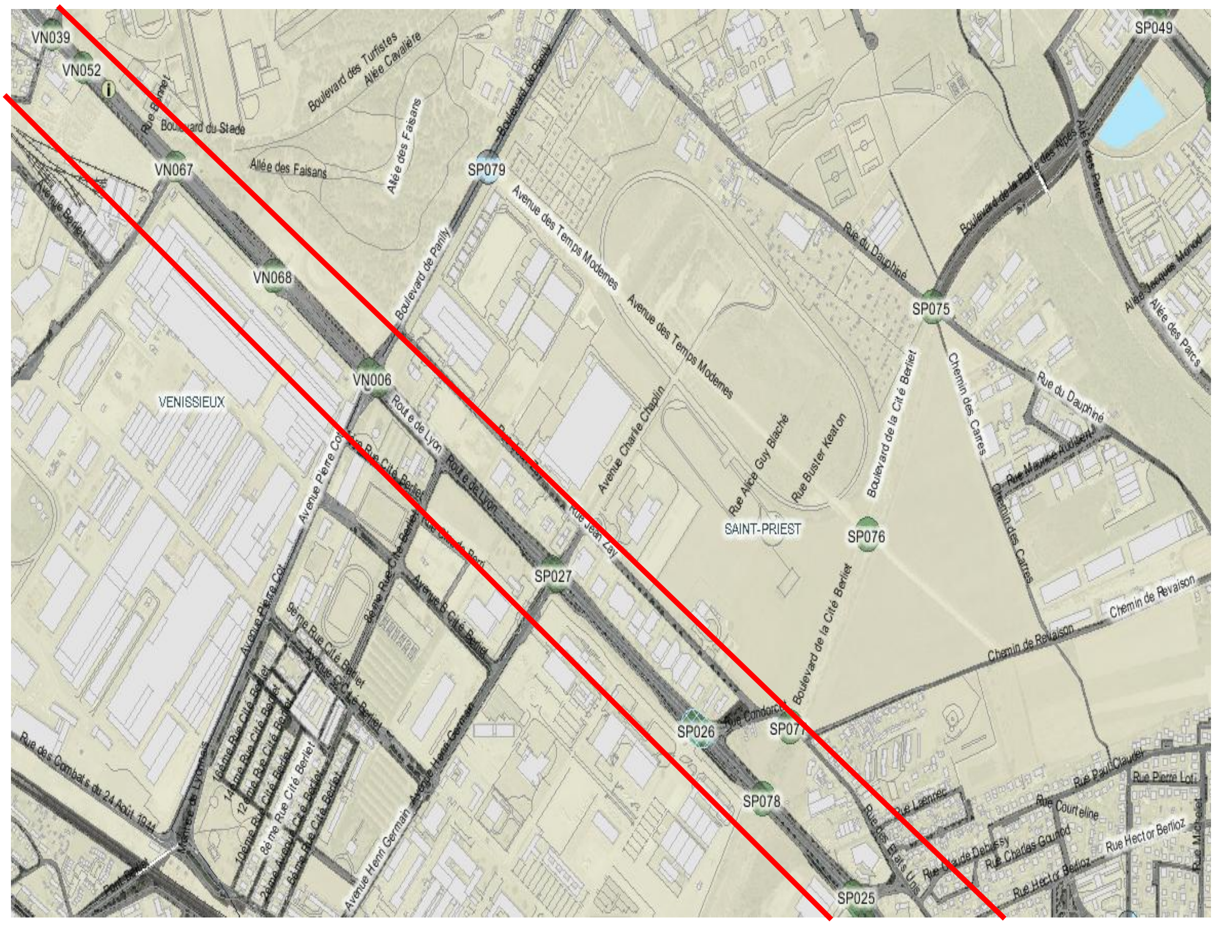


Figure 12: Area of Cooperative Intersection Control system operations

Table 9 : main events of operation report

Dates	**Operations / difficulties**
October-December 2009	Find a subcontractor to develop the cooperative system. The corporation SPIE was chosen to develop the system. No subcontractor was identified before the start of the Freilot project.
January-March 2010	Definition of technical solution, writing and validation of functional specification, After a study, the CVIS (Qfree) platform was discarded because of the expected radio range, existing antennas, the limitation of 1 W radio power in French law and the need to detect the truck about 700 meters before the intersection.
March - July 2010	Writing hardware and software specifications, starting software developments. Launching studies of intersections management, with priority for Freilot trucks. Changing part of the intersection controllers of the test area, more intersection controllers shall be changed than foreseen, because of software resources used by the new system of priority.
July - September 2010	Definition of a first set of approach curves for the configuration of the embedded part of the system, before adjust them during tests. End of software developments and first tests in laboratory. End of studies on intersections management

	Modification of embedded software in intersection controllers to support Freilot functionalities.
October - December 2010	Installing and configuring devices in intersection controllers and testing the cooperation system in real conditions during three sessions. In each session, improvement of intersection priority system and HMI for the driver. Fixing bugs and implementing improvements. Preparing the evaluation with our partners. Implementing the system for the provision of data files (via GPRS) and providing the first data files to LET, the partner in charge of evaluation. Finding a truck from Grand Lyon which collects garbage and doing study in order to install in the truck the embedded part of the system for real experimentation. Three embedded part of the system were foreseen, only one is installed, because of lack of trucks. Despite many requests, no trucks fleet managers in Lyon area are interested to test the system within the project schedule.
January - March 2011	The IC cooperative system is working. Training is provided to the driver to use correctly the system and work with the embedded HMI. The first set of data are provided to LET. After the baseline, the Freilot cooperative intersection control is activated.
16 March 2011	**Communication event: FREILOT Press conference. The truck with the cooperative system is shown to the journalists. Many press articles are written about Freilot services in few days after the conference.**
End of March	The first results show that the system is not efficient at rush hours and has a negative impact on general traffic (the system disrupts the real time traffic lights management, with green waves, etc.). The Freilot service is shutdown between 6:30 to 9:00 and 16:30 to 19:00. It is activated the rest of the time.
August 2011	A new road, called BUE, is opened 6 months ahead of schedule. This road has an intersection, with the test road (Route De Lyon) for cooperative intersection control system. The Freilot project schedule is extended by six months. Decision to change this new traffic lights intersection in a Freilot intersection is made.
October 2011	The new intersection becomes a Freilot intersection. A new device for the new intersection was bought and installed. New studies and configurations were done, uploaded and tested.
March - December 2011	Different meetings with LET to analyse the results and improve the efficient of Freilot priority.
December 2011	A new embedded intersection control system is installed in a truck of STEF/ TFE company. This truck regularly crosses Route de Lyon for deliveries. After few days of work with the embedded system, a power failure happened in the truck. The truck was old, and it wasn't very clear if the power failure was due to the system or not. Finally, after many exchanges, the cost of repair was taken in charge by insurance of the subcontractor of Grand Lyon (SPIE).
March 2012	A note is written about barriers of intersection control by a cooperative system. Because of a new intersection in test area, the LET needs a new baseline. Decision is taken to do a new baseline. The system is shut down for a month. The service is disabled but logged data are sent to LET, when trucks cross the test area.
April 2012	The system is reactivated.

October 2012	End of the FREILOT project. The IC will be left activated for the moment. A decision to keep the IC system or not will be taken at the next round of preventive maintenance, in 2013.

Coordinated intersection control system

The coordinated intersection control system was tested on avenue Jean Jaures, in Lyon, seventh district. The coordinated system is based on special settings and a common time base given by the central system called “CRITER”, where all controllers are connected through optic fibre. By these means, the traffic lights are coordinated. If the truck drives at the right speed, green light is applied at each traffic light exactly when the truck is approaching the traffic light in order to avoid stops. The succession of green on each intersection looks like a green wave.

The following intersections were used for tests:

Table 10 : Intersections Lyon : avenue Jean Jaures

Identification	Name	Type and manufacturer	Traffic measurement stations
L 7136	Jaurès Lagrange	SEA / CLP	
L 7088	Jaurès Lortet	SEA / CLP	Direction Centre towards Periphery
L 7051	Jaurès Balançoires	SEA / CLP	
L 7029	Jaurès Gaudry	SEA / CLP	
L 7081	Jaurès Marot	SEA / CLP	
L 7085	Jaurès Bollier	SEA / CLP	
L 7073	Jaurès Debourg	SEA / CLP	Direction Centre towards Periphery
L 7086	Jaurès Challemel Lacour	SEA / CLP	
L 7033	Jaurès Garnier	SEA / CLP	Direction Centre towards Periphery

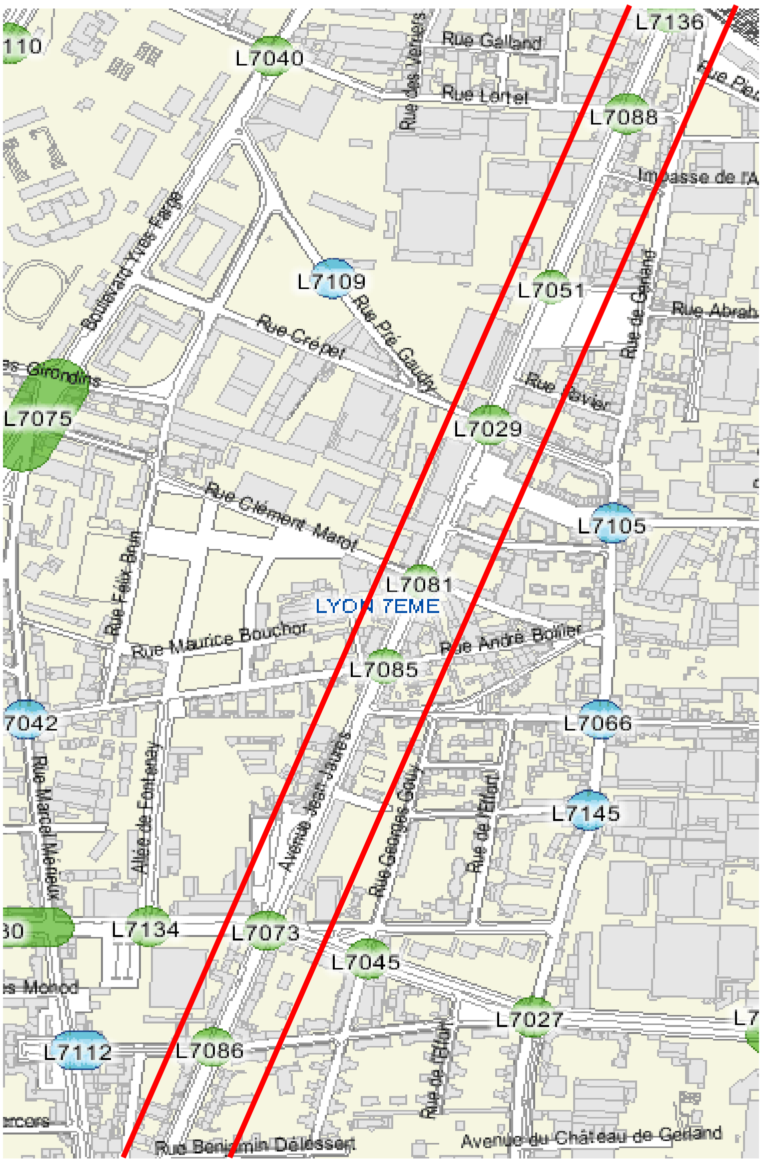


Figure 13: Area of Coordinated Intersection Control system operations

Table 11 : main events of operation report

Dates	Operations / difficulties
October-December 2009	Beginning of studies to find the best speed for the green wave. Specification for green wave.
January-March 2010	Implementation of green wave on each intersection controllers. Test of settings.
March - June 2010	Because of smaller speed of special green waves for trucks, the traffic jams slightly increase at rush hours. The special green wave for trucks is not applied between 6:30 to 9:00 and 16:30 to 19:00. It is activated at any other time.
September 2010-June 2011	Different meetings with Lyon Freilot partners in order to find means to evaluate the coordinated system.
January 2011	Grand Lyon counts trucks using pneumatic counters on Jean Jaures road. The results are provided to LET, in order to evaluate the fuel economy by projection of numbers of trucks that benefit from the Freilot service.

March 2012	A document describing a dissemination plan of the special green waves for trucks outside rush hours and particularly early in the morning (4:00-6:30), is proposed to the public authorities of Grand Lyon in order to improve deliveries in the town.

In-vehicle systems

In Lyon, two different final customers were selected: Pomona Passion Froid and STEF.

Pomona Passion Froid is operating as a regional distributor. Their trucks run in five different regions around Lyon: Lyon, Annecy, Valence, Clermont-Ferrand and Dijon.

They had 13 trucks equipped with the three on-board systems, as shown in the following table.

Truck ID	**Operator**	**Reg #**	**VIN**	**SL**	**AL**	**EDS**
L16	Pomona	829XP21	VF629AHA000001918	NO	NO	YES
L18	Pomona	9220XH21	VF629AHA000000260	NO	NO	YES
L19	Pomona	9222XH21	VF629AHA000000268	NO	NO	YES
L28	Pomona	P45406	VF629AHA000006635	YES	NO	NO
L29	Pomona	P45407	VF629AHA000006636	YES	YES	NO
L30	Pomona	P45408	VF629AHA000006641	YES	NO	NO
L31	Pomona	P45409	VF629AHA000006642	YES	YES	NO
L32	Pomona	P45411	VF644AHL000006034	NO	NO	YES
L33	Pomona	P45412	VF644AGD000006054	NO	NO	YES
L34	Pomona	P45413	VF644AGD000006023	NO	NO	YES
L35	Pomona	P45414	VF644AHL000006022	NO	NO	YES
L36	Pomona	P45415	VF644AHL000006011	NO	NO	YES
L37	Pomona	P45410	VF629AHA000006721	YES	YES	NO

STEF also operates as regional distributors, but in larger zones than Pomona. They had five trucks equipped with the Accelerator Limiter, and three more trucks were also used for the recording fo baseline data.

Truck ID	Operator	Reg #	VIN	SL	AL	EDS
L22	STEF	BE 154 BY	VF624GPA000040784	NO	YES	NO
L23	STEF	BE 356 BX	VF624GPA000040731	NO	YES	NO
L24	STEF	BE 444 FG	VF624GPA000040785	NO	YES	NO
L25	STEF	BE 794 BW	VF624GPA000040668	NO	YES	NO
L27	STEF	BE 829 BY	VF624GPA000040851	NO	YES	NO
L P 1	STEF	BJ028QV	VF629AHA000006566	NO	NO	NO
L P 2	STEF	BJ934QT	VF629AHA000006567	NO	NO	NO
L P 3	STEF	BJ846QT	VF629AHA000006556	NO	NO	NO

The main events:

Event	Date	Description
Dijon - Installation of the in-vehicle systems	02-2011	The on-board systems were installed in the three trucks of Pomona Dijon
Activation of the data server	04 2011	The baseline data collection started
Lyon - Production of trucks and on-board system installation	04-06 2011	Especially for the pilot, or rather thanks to the pilot, Pomona Lyon ordered 10 new trucks. The installation of the systems was difficult to synchronize with the delays of the production line and the body-builders
Dijon - Activation of the EDS	07 2011	The EDS system was activated on the 3 trucks of Pomona Dijon
STEF – installation of the in-vehicle systems	09 2011	Installation of the on-board systems on the trucks of STEF
Lyon – Activation of the EDS	10 2011	The EDS System was activated on 5 trucks of Pomona Lyon
Lyon - Activation of the AL & SL	12 2011	The AL and SL systems was activated on 5 other trucks of Pomona Lyon
STEF – Activation of the system	01 2012	Activation of the AL on the 5 trucks of STEF.
Pilot end	04 2012	Pilot end
Systems removed	06-08 2012	Disablement of all the tested truck systems and removal of FREILOT specific equipment from the trucks

4.2. User education

Delivery Space Booking

All fleet operators involved in the Delivery Space Booking application were met physically. A demonstration of the web portal was made, involving operation managers, and sometimes drivers.

A user manual for the web portal was also produced (in French), and left to the operators to support them in their bookings.

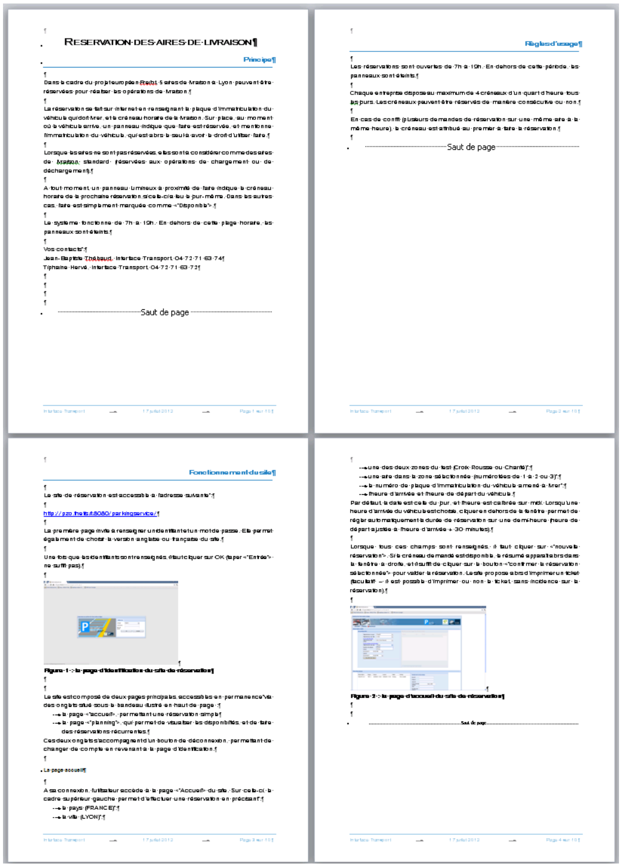

RESERVATION DES AIRES DE LIVRAISON

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Figure 14 : the first 4 pages of the user manual on Delivery Space Booking

Independently from the training, the web portal has a user friendly interface (menus and actions are extremely simple, pictures and maps can be shown), and was fully translated in French (users can switch language at any time).

A. Cooperative intersection control system

The user education for cooperative intersection control system consisted of training the driver to use the system through its HMI. The main goal was to adapt the speed of the truck to avoid stops, using the recommendations given by the HMI.

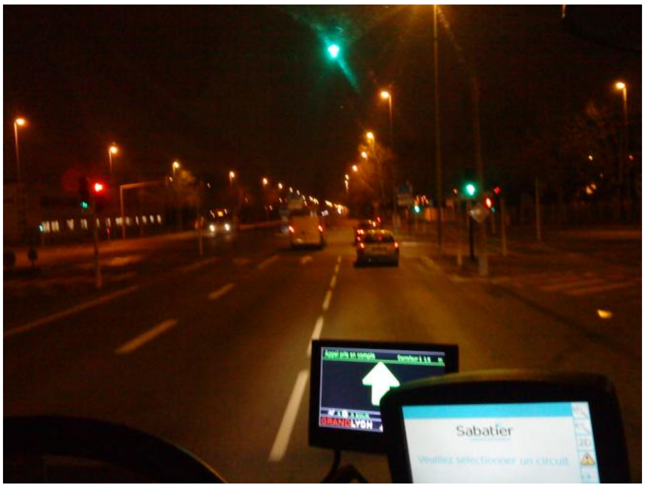
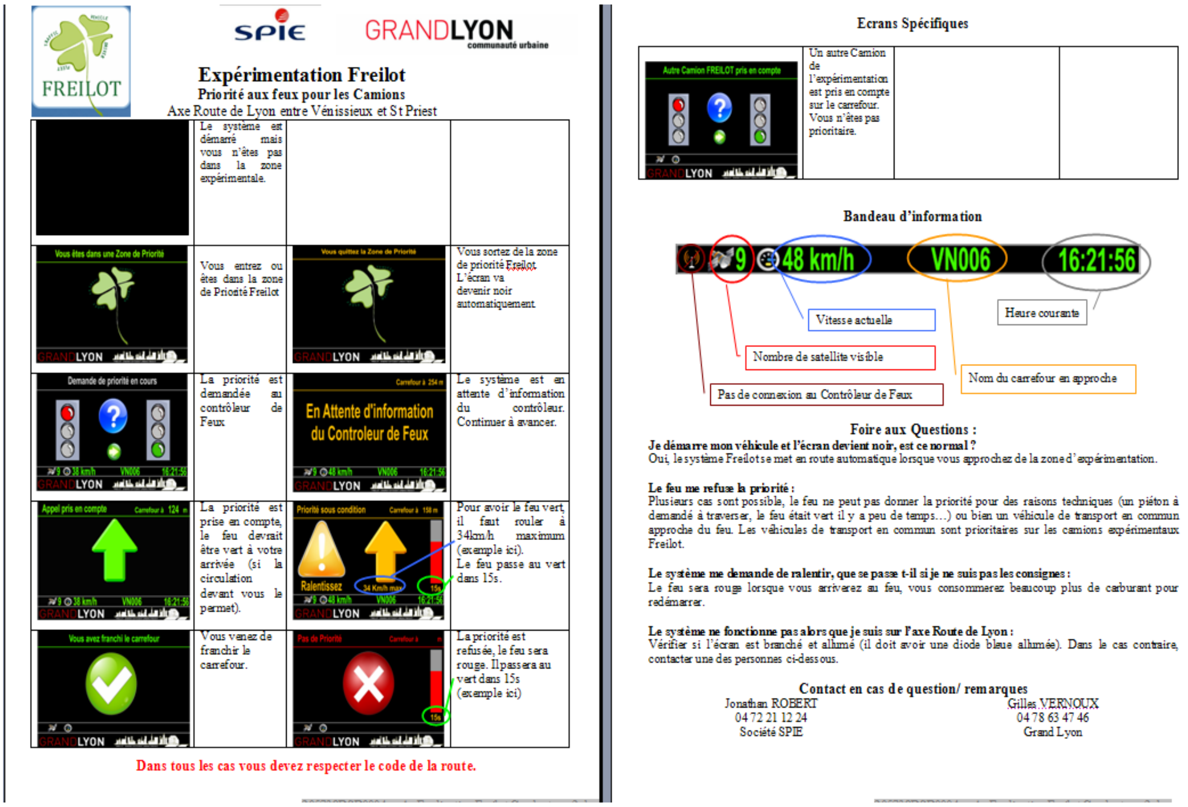


Figure 15: Pictures of HMI for the driver

The HMI was designed to be very simple. Consequently, only few crosses of the test area with the driver were necessary for the training.

To help the driver a reminder was created and left in each FREILOT IC truck.



FREILOT

SPIE

GRANDLYON communauté urbaine

Expérimentation Freilot

Priorité aux feux pour les Camions

Axe Route de Lyon entre Vénissieux et St Priest

	Le système est démarré mais vous n'êtes pas dans la zone expérimentale.		
Vous êtes dans une Zone de Priorité	Vous entrez ou êtes dans la zone de Priorité Freilot	Vous quittez la Zone de Priorité	Vous sortez de la zone de priorité Freilot. L'écran va devenir noir automatiquement
Demande de priorité en cours	La priorité est demandée au contrôleur de Feux	Carrefour à 254 m En Attente d'information du Controleur de Feux	Le système est en attente d'information du contrôleur. Continuer à avancer.
Appel pris en compte Carrefour à 124 m	La priorité est prise en compte, le feu devrait être vert à votre arrivée (si la circulation devant vous le permet).	Priorité sous condition Carrefour à 158 m Ralentissez 34 Km/h max 15s	Pour avoir le feu vert, il faut rouler à 34km/h maximum (exemple ici). Le feu passe au vert dans 15s.
Vous avez franchi le carrefour	Vous venez de franchir le carrefour.	Pas de Priorité Carrefour à m 15s	La priorité est refusée, le feu sera rouge. Il passera au vert dans 15s (exemple ici)

Dans tous les cas vous devez respecter le code de la route.

Ecrans Spécifiques

Autre Camion FREILOT pris en compte	Un autre Camion de l'expérimentation est pris en compte sur le carrefour. Vous n'êtes pas prioritaire.		

Bandeau d'information

9 48 km/h VN006 16:21:56

Vitesse actuelle

Heure courante

Nombre de satellite visible

Nom du carrefour en approche

Pas de connexion au Contrôleur de Feux

Foire aux Questions :

Je démarre mon véhicule et l'écran devient noir, est ce normal ?
Oui, le système Freilot se met en route automatique lorsque vous approchez de la zone d'expérimentation.

Le feu me refuse la priorité :
Plusieurs cas sont possible, le feu ne peut pas donner la priorité pour des raisons techniques (un piéton à demandé à traverser, le feu était vert il y a peu de temps…) ou bien un véhicule de transport en commun approche du feu. Les véhicules de transport en commun sont prioritaires sur les camions expérimentaux Freilot.

Le système me demande de ralentir, que se passe t-il si je ne suis pas les consignes :
Le feu sera rouge lorsque vous arriverez au feu, vous consommerez beaucoup plus de carburant pour redémarrer.

Le système ne fonctionne pas alors que je suis sur l'axe Route de Lyon :
Vérifier si l'écran est branché et allumé (il doit avoir une diode bleue allumée). Dans le cas contraire, contacter une des personnes ci-dessous.

Contact en cas de question/ remarques

Jonathan ROBERT
04 72 21 12 24
Société SPIE

Gilles VERNOUX
04 78 63 47 46
Grand Lyon

Figure 16: Reminder of use of IC cooperative system for truck drivers

Coordinated intersection control system

The coordinated system is a standalone system. There was no interaction with the truck and consequently no need for user education. When the drivers saw the green wave, it was natural for them to drive at the right speed to avoid having to stop. To inform the users a map (on paper or digitally) with roads where special green waves for trucks were deployed was provided to the fleet operators.

In vehicle systems

- **Pomona**: Each driver recieved a personal training in order to give him an introduction and a presentation of the project and of the vehicles, as well as an on-board training in the vehicles with the systems operating. They were informed about the functionality of the systems, why we are testing them and how to use them. This also provided the opportunity to answer any questions or doubts that the drivers might have had.

  Also, a handbook describing the corresponding system(s) and how to use them was provided for each truck.

  Last, the fleet managers were also trained on the on-board systems, the FREILOT website, and how to check and analyse the data.

- **STEF**: For STEF another approach was tested: the training was only supplied to the fleet manager because the customer wanted to see if the system would be easily accepted by his drivers.

4.3. Pilot operation

4.3.1. Hotlines

Delivery Space Booking

Interface Transport (mainly Jean-Baptiste Thébaud and Tiphaine Hervé) was the key contact for maintenance. Their contact details were mentioned on the user manual distributed among the users, who met both of them several times.

Interface Transport created accounts on the web portal (through an administrator login), and could also help with the use of the website. It happened once that Interface Transport logged in the site with the ID of an operator to book slots (he could not manage to reach the site).

Interface Transport was also the key contact for questions about the use of blackberries (see below the evaluation part).

Cooperative intersection control system

The cooperative intersection hotline was provided by Grand Lyon and its subcontractor SPIE.

The questions came from:

- Drivers, who wanted information about operating of the system,
- LET, who was in charge of analysing the data, and needed information about the data, about the operation of the system and about lack of data in case of failure.
- Teams in charge of the maintenance of intersection controllers, requesting information about the new devices installed inside the cabinets and connected to the controllers.
- Teams in charge of traffic management because of extra traffic jams at rush hours and management of new rules to operate the traffic lights within the test area.

Coordinated intersection control system

The coordinated intersection hotline was provided by Grand Lyon.

The questions were coming from:

- LET in charge of evaluation.
- Teams in charge of traffic management because of extra traffic jams at rush hours and management of new rules to operating the traffic lights within the test area.

No special training was necessary in order to use the green wave for drivers. It is natural keeping the right speed with a green wave to avoid stopping for red.

In vehicle systems

The customer could contact the Volvo Field Tests Team, represented by Dominique Gaymu in case of failures, doubts, or if they required further information on the on board systems.

The hotline was used several times for:

- inappropriate behaviour of the trucks,
- further information about the systems,
- further information about the FREILOT website.

4.3.2. System operation

Delivery Space Booking

Nothing to report.

Cooperative intersection control system

Table 12 : A few problems among others encountered during tests

Dates	Operations / difficulties	Actions
July 2011	After a storm, which had rebooted devices in controller box, some of devices didn't work.	After analysing the problem, it was a software bug in the device reboot sequence. The bug was fixed and a new software version was installed on each intersection.
August 2011	A new intersection managed by traffic lights inside the test area.	The new intersection was equipped with Freilot devices and included in the experimentation plan. A new baseline was done and data was collected included the new Freilot intersection.
December 2011	A new embedded intersection control system was installed in a truck of STEF/TFE company. After few days of work with the embedded system, a power failure happened in the truck. The truck was immobilized for several days.	The main problem was to determine responsibilities. Finally, after many exchanges, the cost of repair was taken in charge by insurance of the subcontractor of Grand Lyon (SPIE). STEF / TFE took in charge the lack of operating.
For all operation time	Improvement of efficiency of priority for trucks.	In several cases, the LET reported a small decrease of priority efficiency. In each case, and the problem was analysed to find solutions. The whole system is technically complex and requires experts for its maintenance. Sometimes, the decrease of priority efficiency was due to special events as for example road works. The road works induce more traffic jams and the system is

		less efficient during traffic jams hours. Improvement and optimisation of efficiency of priority is a complex and highly technical work.

Except some software bugs fixed at the beginning of tests, the system is technically very reliable. The main difficulty is to find the best settings. It's a difficult work because some of the settings are enclosed in the embedded system part in the truck, others settings are located within the controllers.

Coordinated intersection control system

Table 13 : Main problem encountered during tests

Dates	Operations / difficulties	Actions
September 2010- June 2011	The main difficulty with coordinated system was to find a mean to evaluate the system. Many meetings were organized on this subject with all project partners in Lyon.	Solutions using Smartphone embedded in trucks were mentioned and launched, but no fleet operators which crosses regularly Jean Jaures road for deliveries were interested to use such specific Freilot devices. The system was finally manually evaluated by LET: people stand on the road to set up the base line and collect data counting manually trucks and stops of trucks.

In vehicle systems

On the Lyon test site, several disturbances were encountered during the collection of data:

- **Pomona**: Truck L33 had an accident on the 20th of July 2011. It was stopped for approximately two months. Another of their trucks had technical problems, the clutch had to be changed among other things; it was finally decided to take this truck off the pilot as the result would not be representative.
- **STEF**: Initially three more trucks were selected to be equipped for testing, but after the fuel reduction simulations, and rig tests, it soon became clear that the FREILOT systems would not be relevant in terms of fuel saving for the regional rigid distribution trucks of STEF. Nevertheless, the equipment was already installed for the recording of baseline data.

L P 1	STEF	BJ028QV	VF629AHA000006566	NO	NO	NO
L P 2	STEF	BJ934QT	VF629AHA000006567	NO	NO	NO
L P 3	STEF	BJ846QT	VF629AHA000006556	NO	NO	NO

During both baseline and operation the following distance has been travelled by the pilot vehicles:

Lyon	**880928 Km**
Pomona Annecy	**46505 Km**
L33	22516 Km
L34	23989 Km
Pomona Dijon	**188840 Km**

L16	59314 Km
L18	66243 Km
L19	63283 Km
Pomona Saint-Priest	**407027 Km**
L28	90593 Km
L29	109044 Km
L30	80351 Km
L31	89611 Km
L32	37428 Km
Pomona Valence	**61991 Km**
L35	29463 Km
L36	32528 Km
STEF	**176565 Km**
L22	51881 Km
L23	55706 Km
L24	24478 Km
L25	32026 Km
L27	12473 Km

4.3.3. Baseline data collection

Delivery Space Booking

Two data collection modes were used to support the evaluation process on delivery space booking:

- GPS data from vehicles, collected by Blackberries.
- On-site 4-week surveys, aiming at describing the delivery behaviours, traffic conditions, disturbances caused by deliveries.

The baseline data collection started in January 2011 (blackberries distributed among involved fleet operators and used from then, survey in February).

Cooperative intersection control system

Two baseline data collections were provided because a new traffic lights intersection was created in the test area during the freilot pilot. The second baseline was required by LET.

Coordinated intersection control system

Nothing to report.

In vehicle systems

In August 2011, during the first installation of the AL for STEF's baseline recordings, the telematics gateway was not connected correctly. This component allows the data transfer. However, this was not noticed until the activation of the AL in January 2012 and was fixed as soon as possible. But unfortunately the baseline recordings from this period were lost.

4.3.4. Operation data collection

Delivery Space Booking

Nothing to report.

Cooperative intersection control system

The driver of the truck decided to use another route, and didn't cross the test area for severals days. It was easy to detect the trouble with the embedded device, and a recall was done to the driver.

Coordinated intersection control system

Nothing to report

In vehicle systems

See section 4.3.2 above.

4.4. Processes

Delivery Space Booking

Nothing to report.

Cooperative intersection control system

In order to solve difficulties to determine the best settings for intersection priority, a system of self-configuration was considered, based on recording of each intersection by the truck, except in rush hours where trucks cannot progress normally. Specific software could analyse the recordings and help to determine the best settings and apply them automatically. This process was not developed because it was out of scope of the project.

Coordinated intersection control system

For the test step, three rounds of settings were provided to optimize efficiency of the green wave, in order to allow more vehicles to cross the entire Jean Jaures road in a single green session.

In vehicle systems

The on-board systems modified some specific and delicate parts regarding the homologation of the vehicle, for which a special authorisation from the corresponding authorities was required to modify the truck for the FREILOT Project with a prototype system.

To do so is not very common and it is quite delicate as the selected trucks are not owned by Renault Trucks and they need to transport commercial goods. Thanks to the great work of the local team in France, all the mandatory authorisations were obtained and the customer's trucks could operate without any problem or breakdowns.

4.5. Maintenance

Delivery Space Booking

The poles, electric supply, and data connection were very reliable, and did not ask specific maintenance.

On the other hand, the configuration of the panels, and the quality of the connection with the server demanded a lot of work: once the panels were installed it turned out that the connection with the server did not work, which required extra work of configuration, on site and on the server as well.

This operation involved Interface Transport and Thetis: Interface Transport plugging a computer to the panel, and configuring the panel with the help of Thetis online. With the help of a computer, using an RJ45 cross cable, it is possible to modify the settings of a panel at any time. However, this operation needs a physical link with the panel and cannot be performed at a distance..

Figure 17 : One of the panels during on-site maintenance

Three panels could finally be stabilized and used starting February 2012. Despite all efforts to activate the 4th one (Croix Rousse 1), the GPRS connection could never be activated. Possible explanations are:

- The SIM card broke down: it was changed once during the pilot (in March), but connection could not be established with the new card either.
- The subscription was not activated: it was checked with the provider that everything was fine from this point of view
- GPRS coverage is not good enough on this location as panels require a good connection quality, however, other GPRS devices showed acceptable connection conditions;
- One key part of the panel was damaged during installation (possibly the antenna or the SIM slot). This is the most probable explanation for not allowing connection. Solving this problem would have required a heavy maintenance operation involving Thetis, Solari and Ville de Lyon. Since this conclusion came rather late in the pilot time, it was decided not to try this option before conclusions on the after-project life of the system.

Cooperative intersection control system

The system is technically very reliable, so there's not a lot of curative maintenance. However, the system is complex and maintenance operations must be done by qualified staff.

Coordinated intersection control system

The maintenance team of Grand Lyon have the know-how to maintain hardware of the traffic lights controllers and settings for green waves. The Coordinated intersection controller does not need extra devices. Consequently, maintenance is very easy in the Lyon context.

In vehicle systems

There were no maintenance activities during the pilot.

4.6. Availability

Delivery Space Booking

The connection and configuration problems were solved in February for two panels. Since then, these have worked continuously and proved to be reliable.

Cooperative intersection control system

The system is very reliable; consequently the availability is over 99%.

The efficiency of the priority is the main criterion. In France, the rules for management of traffic lights request to give green to all movements of an intersection at least once every two minutes. The minimum duration of green is 6 seconds. The release time for pedestrians must be respected and the rule is one second per meter to determine this release time. Consequently, the controller cannot wait for the truck if the green light is already running for a long time and must be very clever to put the green windows exactly at the good moment while respecting the rules. Moreover, a priority at intersections for public transport was previously installed in the tests area. The public transport uses a special lane. Due to political choice, the priority of public transport is higher than the truck's priority. The tests showed that the priority for trucks is more efficient during holidays where the frequency of public transport is lower.

Moreover, the tests have shown that the system is not efficient during rush hours because the other vehicles block the passage. In order to increase efficiency of the cooperative system, trucks should use a special lane, particularly at rush hours. The special lane could be the same as the public transport uses at the same time or at different time. This needs a political agreement and could be a good answer to the technical and functional problem raised.

Coordinated intersection control system

The system is very reliable; consequently the availability is over 99%.

In vehicle systems

From a total of 18 trucks in the Lyon pilot, eight trucks were equipped with EDS, ten with AL and five with SL. As the trucks came from two different companies, as well as from cities the time of installation ranged from February to September 2011. The systems were activated between July 2011and January 2012, which leaves the project with system data from between nine and three months.

4.7. Lessons learned

Delivery Space Booking

After numerous difficulties of all types, the system finally became operational in February 2012. Since then, it proves to be very stable, and is rather mature.

Main lessons learned from this pilot are:

- Technical devices should not be purchased without configuration and maintenance furnishing: a lot of effort was spent and a lot of time was lost in configuring and maintaining the system without sufficient technical background
- An innovative solution will be adopted by fleet operators if it makes their deliveries easier or

cheaper than they currently are. It appears that the DSB system allows delivery men to avoid double lane parking; double lane parking is currently not enforced[1].

Cooperative intersection control system

Main lessons from this pilot are :

- The comparative intersection control system is technically very reliable and rugged.
- Determine the best settings for intersection priority is difficult and shall be made by specialists. An improvement could be a self configuration system based on recording of each intersection crossing.
- This system isn't efficient at rush hours, when the truck is in the flow of cars. To avoid this problem, special lane for trucks should be used.
- Coordination with all stakeholders which manage the road where the pilot is taking place is very important in this kind of projects.

Coordinated intersection control system

Main lessons from this pilot are :

- The coordinated intersection control system is technically very reliable and rugged.
- Coordinated intersection control system is a standalone system and it was very difficult to evaluate this system.
- The coordinate intersection control system is technically ready to be deployed and used outside rush hours and particularly early in the morning in Lyon, with low costs.

In vehicle systems

- **Having the customer close by really facilitates the operations** Although there were some technical problems, the customer was well known and close to the Renault Trucks site. It was easy to organize regular meetings and have frank discussions.
- **The importance of training and explaining the systems**: Pomona's main drive to participate in this pilot was to reduce fuel, even the drivers were making special effort. The EDS function permitting to evaluate each driver and see his personal conumption, the errors and possible change of habits for improvent, was perceived as very positive, and most drivers were implicated. The system was seen as a good reminder of a previous Eco-driving training. The AL/SL systems seemed to be less interesting, as the drivers had delivery obligations and time requirements, they felt they were under time pressure and that the systems restrained and influenced their driving negatively.

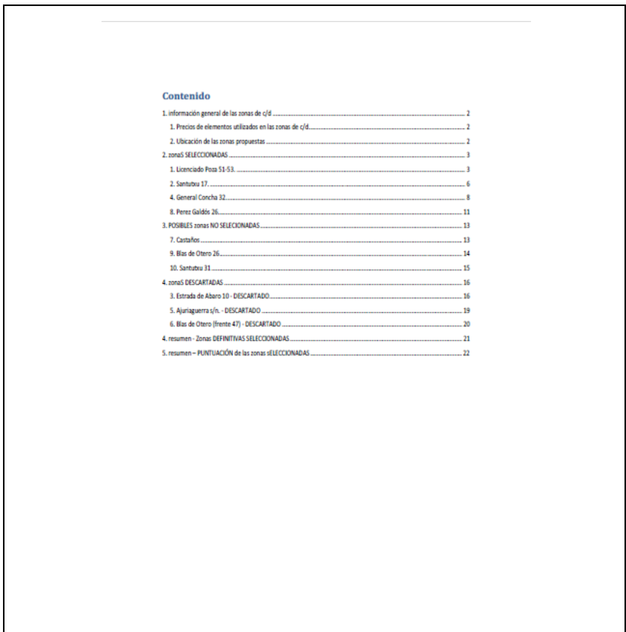
[1] The French law does not forbid it strictly speaking. It can be punished only if traffic is strongly disturbed, which almost never happens

I. Bilbao DSB location selection

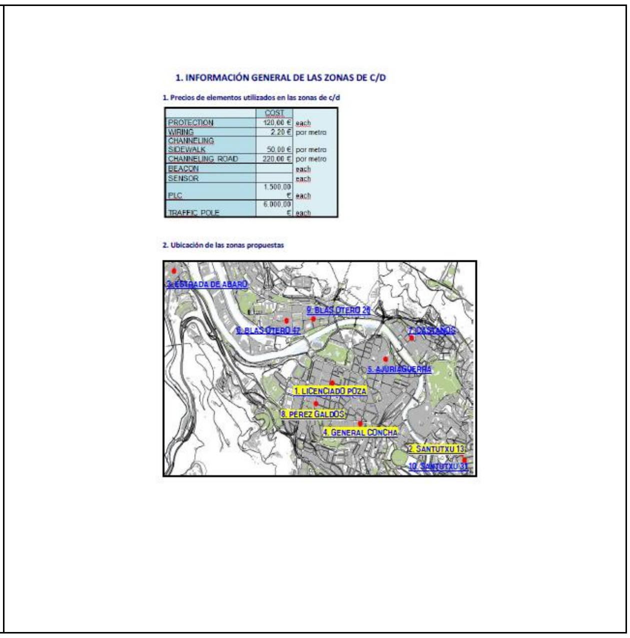
Excel Form →

PRIORITY	NAME	ENTIDADES	NUEVA PRIORIDAD	OBSERVACIONES
1	as de Otero (frente 4	EROSKI BM 5 BARES 8 COMERCIOS	0	
2	Licenciado Poza 53	EROSKI BARES 8 COMERCIOS	1	
3	Ajuriaguerra s/n	EROSKI ERKOREKA BARES	0	
4	Estrada de Abaro	BM (muelle propio) ARO ROJO 12 BARES 26 TIENDAS	2	
5	Castaños	BM 14 COMERCIOS 3 BARES	0	
6	Perez Galdós 26	BM 5 BARES 10 COMERCIOS	0	
7	Santutxu 13	EROSKI 7 COMERCIOS	3	
8	Blas de Otero 26	EROSKI COMERCIOS	0	
9	General concha 21	BM 3 BARES	4	
10	Santutxu 31		0	

Dossier of the selected FREILOT areas →



Contenido



1. INFORMACIÓN GENERAL DE LAS ZONAS DE C/D

1. Precios de elementos utilizados en las zonas de c/d

	COST	
PROTECTION	120,00 €	each
WIRING	2,20 €	por metro
CHANNELING SIDEWALK	50,00 €	por metro
CHANNELING ROAD	220,00 €	por metro
BEACON		each
SENSOR		each
PLC	1.500,00 €	each
TRAFFIC POLE	6.000,00 €	each

2. Ubicación de las zonas propuestas

2. ZONAS SELECCIONADAS

1. Licenciado Poza 51-53.

PUNTOS: 117 puntos 1ra posición.
- Los Jefes de Tráfico dicen que las descargas aquí son complicadas y que los metros destinados a la zona de c/d no son suficientes.
- La zona actual se usa mucho y se respeta sin haber estacionamientos irregulares
TIPO - Reconversión de zona existente.
VIGILANCIA – Manzana de Licenciado Poza + Doctor Areiza (de 19 a 7) + Gregorio de Revilla (de 3 a 23 pares/impares) + Particular de Indautxu.
CONTROL - No hay espiras en esa manzana pero si en la siguiente (número 31 ó 33) la calle transversal es solo para taxis y buses.

CARACTERÍSTICAS DE LA CALLE	CARACTERÍSTICAS ZONA C/D	ACTIVIDADES
- Tramo de calle 145 m entre D. Areilza y G. Revilla **(no se puede aparcar en doble fila).** - Las descargas se realizan desde la zona c/d y desde la esquina con Dr. Areilza ocupando parcialmente la acera	- **Nº plazas: Actuales + 3 Nuevas** ACTUAL 11,5m/A 20 m de la esquina con Dr Areilza NUEVAS **3 plazas** / 18m / Ubicación: contigua a la actual (nº49) - **Modalidad de vehículos** que pueden estacionar en las nuevas plazas: Vehículos de hasta 2 ejes y hasta 18 tn	En un radio de 60 m: - Eroski - 12 bares - restaurante - carnicería - 4 tiendas ropa - Comercios varios (estanco, decoración,...)

PRIORITY	Nº	NAME	ENTIDADES	Nº BAYS	METERS TO POWER	METERS TO WIRING	Nº BEACONS	DELIVERY AREA	CIVIL WORK	TOTAL
1	1	Licenciado Poza 53	EROSKI BARES 8 COMERCIOS	3	60	28	16	11.000,00 €	3.252,00 €	14.252,00 €

NEGOCIOS CONCRETOS

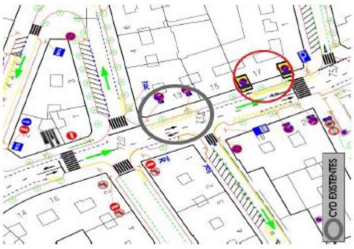
	C/ Dr AREILZA	C/ LICENCIADO POZA	C/ G. REVILLA
PARES	1. Ropa 2. Bar 3. Tintorería	Del nº 46 al nº 26: 1. Bar 2. Bar 3. Deportes 4. Bar 5. Cocinas 6. Bar 7. Bar 8. Farmacia 9. Ropa 10. Fotocopias 11. Inmobiliaria 12. Chino 13. Ropa 14. Frutería 15. Bar 16. Flores 17. Ropa	Del nº 12 al nº 18: 1. Viajes 2. Ropa 3. Ropa 4. Ropa 5. Perfumería 6. Bar 7. Zapatería
IMPARES	Del nº 23 al nº 15: 1.Pescardería 2.Joyería 3.Ropa 4.Frutería 5.Madres 6.Perfumería 7.Zapatería 8.Librería 9.Fotos 10.Apuestas 11.Perfumería 12.Bar	Del nº 53 al 34: 1. Panadería 2. Viajes 3. Academia 4. Eroski 5. Ropa 6. Bar 7. Bar 8. Bar 9. Bar 10. Cuadros 11. Carnicería 12. Bar 13. Loterías 14. Fotocopias 15. Ropa	Del nº 17 al nº 15: 1. Banco 2. Óptica 3. Ropa

2. Santutxu 17.

PUNTOS: 224 puntos 2da posición.
TIPO - Zona nueva que no existía.
VIGILANCIA – Manzana de Santutxu + Caserio Landaburu (1 al 4 pares/impares) + Carmelo (2 al 6 pares/impares).
CONTROL - No hay espiras y no hay en todas las calles de aledañas por lo que podemos calcular por una simple resta. Pero hay cámara.

CARACTERÍSTICAS DE LA CALLE	CARACTERÍSTICAS DE LA PLAZA C/D	ACTIVIDADES
- Tramo de 70 m que **permite la doble fila.** - A pesar de que los particulares respetan la zona c/d las descargas se hacen mayoritariamente en la acera	- **Nº plazas: Actuales + 3 Nuevas** ACTUALES 15 m/Esquina con c/ Karmelo a 40 m del Eroski NUEVAS **3 plazas**/18 m/Ubicación: contigua a la actual (nº 15, 17) - **Modalidad de vehículos** que pueden estacionar en las nuevas plazas: Entra todo tipo de vehículos, hasta de 3 ejes	- Un bar - Un Eroski (40 m c/d) - Una panadería - Otros 7 comercios

PRIORITY	Nº	NAME	ENTIDADES	Nº BAYS	METERS TO POWER	METERS TO WIRING	Nº BEACONS	DELIVERY AREA	CIVIL WORK	TOTAL
2	2	Santutxu 17	EROSKI 7 COMERCIOS	3	30	10	16	11.000,00 €	1.686,00 €	12.686,00 €



NEGOCIOS CONCRETOS

	C/ SANTUTXU
PARES	Del nº 20 al nº 18: 1.Ropa 2.Óptica 3. Bar 4. Barco 5. Ropa 6. Jabones 7. Banco
IMPARES	Del nº 19 al nº 13 1. Joyería 2. Óptica 3. Eroski 4. Fotos 5. Bar 6. Bisutería 7.Panadería 8. Bisutería 9. Pescadería 10. Bolsos 11. Calzado

4. General Concha 32.

PUNTOS: 324 puntos 4ta posición.

La actual siempre ocupada por estacionamientos irregulares.

TIPO - Reconversión de una existente – pero añadimos una nueva.

VIGILANCIA - Manzana de General Concha + calle Autonomía (impares).

CONTROL - No hay espiras.

CARACTERÍSTICAS DE LA CALLE	CARACTERÍSTICAS PLAZA C/D	ACTIVIDADES	
		Concha	Autonomía
- Esquina con c/ Autonomía - En Autonomía y Concha no es posible parar - Se plantea servir a comercios de Cocha y Autonomía	- **Nº plazas: 3** ACTUALES 11 m/En esquina con c/ Autonomía NUEVAS **2 plazas**/ 12 m/ Ubicación contigua a la actual (nº 32 General Concha) - **Modalidad de vehículos** que pueden estacionar en las nuevas plazas: Vehículos de hasta 2 ejes y hasta 18 tn	En un radio de 60 m: - 4 bares - 2 tiendas ropa - 1 exposición muebles de cocina	En un ratio de 60 m: - Un BM a 45 m de c/d (tiene zona propia c/d en el interior del local) - 3 bares - 1 carnicería - 5 comercios varios

PRIORITY	Nº	NAME	ENTIDADES	Nº BAYS	METERS TO POWER	METERS TO WIRING	Nº BEACONS	DELIVERY AREA	CIVIL WORK	TOTAL
4	4	General concha 21	BM 3 BARES	[illegible]	[illegible]	5	[illegible]	[illegible]	[illegible]	[illegible]

NEGOCIOS CONCRETOS

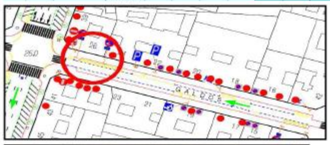
	GENERAL CONCHA	AUTONOMÍA
PARES	Del nº 44 al nº 32: 1.Bar 2. Bar 3. Locutorio 4. C. Roja 5. Clínica dental 6. Reformas 7. Imagen	Del nº 6 al nº 2: 1. Ropa 2. Bar 3. Ropa 4. Ropa 5. Ropa 6. Muebles 7. Muebles 8. Bar 9. Zapatería 10. Loterías 11. Panadería 12. Zapatería 13. Ropa 14. T. exotérica 15. Bar 16. Bar 17. Maderas 18. Óptica 19. Viajes
IMPARES	Del nº 37 al nº 31: 1. Complementos 2. Ropa 3. Autoescuela 4. Exposición coches 5. Taller coches	Del nº 1 al nº 9: 1. Ertzaintza 2. Coches 3. Carnicería 4. Bar 5. Locutorio 6. Bar 7. Bar 8. Estanco 9. Zapatería 10. Arreglos 11. Móviles 12. Alfombras

8. Perez Galdós 26

PUNTOS: 333 puntos 8 posición
No interesa a los agentes
TIPO - Reconversión de una zona existente.
VIGILANCIA - Manzana de Perez Galdós + María Díaz De Aro (entre 37 y 47)+ Doctor Areiza (38 y 48 - Mirar Bidegorri)
CONTROL – No hay espiras.

CARACTERÍSTICAS DE LA CALLE	ACTIVIDADES
- Tramo de calle 125 m entre Mª D. Haro y D. Areilza (**no se puede aparcar en doble fila**). **- 2 Zonas de c/d** , 1 en cada esquina de la calle. - Se propone la zona c/d que hace esquina con Mª D. Haro (3 carriles con dobles filas) por estar junto al BM (el único que usa zona c/d, el resto desde la doble fila de Mª D. H)	En un radio de 60 m: - BM - 5 bares - 10 comercios varios

PRIORITY	Nº	NAME	ENTIDADES	Nº BAYS	METERS TO POWER	METERS TO WIRING	Nº BEACONS	DELIVERY AREA	CIVIL WORK	TOTAL
1	8	Perez Galdós 26	BM 5 BARES 10 COMERCIOS	[illegible]	[illegible]	10	[illegible]	11.000,00 €	900,00 €	11.900,00 €



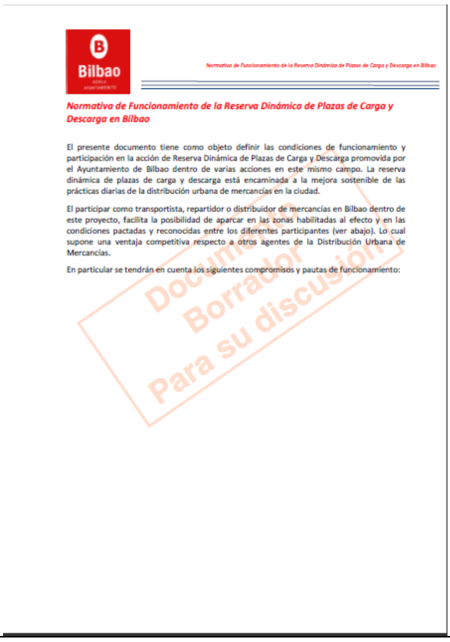
II. Pre-booking schedule Bilbao DSB

	SLOTs	Licenciado Poza 51-53			[illegible] 17		Perez Galdós 25		General Concha 32	
		1	2	3	1	2	1	2	1	2
Lunes	8:00	18 ZUBIETA-EROSKI			19 ZUBIETA-EROSKI		17 UNIALCO			
Lunes	8:30	18 ZUBIETA-EROSKI			19 ZUBIETA-EROSKI					
Lunes	9:00				5 BIZKAI-'		16 UNIALCO			
Lunes	9:30	20 MRW							23 MRW	
Lunes	10:00	6 HANUK			25 COCA COLA					
Lunes	10:30	6 HANUK			2 AZKAR	8 PATXI	24 EUSKODIS			
Lunes	11:00	31 DHL			20 RULASAN-EROSKI		4 AZKAR			
Lunes	11:30	1 AZKAR			20 RULASAN-EROSKI		35 DHL	30 MRW	3 AZKAR	
Lunes	12:00	32 DHL					16 UNIALCO	30 MRW	34 DHL	
Lunes	12:30	7 PATXI			33 DHL		9 ZUBILLAGA		26 SEUR	
Lunes	13:00						9 ZUBILLAGA			
Martes	8:00	18 ZUBIETA-EROSKI			19 ZUBIETA-EROSKI		17 UNIALCO			
Martes	8:30	18 ZUBIETA-EROSKI			19 ZUBIETA-EROSKI					
Martes	9:00	24 COCA COLA		20 MRW			16 UNIALCO			
Martes	9:30				22 EUSKODIS				23 MRW	
Martes	10:00	6 HANUK								
Martes	10:30	6 HANUK			2 AZKAR					
Martes	11:00	31 DHL			20 RULASAN-EROSKI		4 AZKAR			
Martes	11:30	1 AZKAR			20 RULASAN-EROSKI		35 DHL	30 MRW	3 AZKAR	
Martes	12:00	32 DHL			33 DHL		16 UNIALCO	30 MRW	34 DHL	
Martes	12:30	13 MEDRANO		11 ZUBILLAGA	14 MEDRANO		5 BIZKAI-'		26 SEUR	
Martes	13:00			11 ZUBILLAGA						
Miércoles	8:00	18 ZUBIETA-EROSKI			19 ZUBIETA-EROSKI		17 UNIALCO			
Miércoles	8:30	18 ZUBIETA-EROSKI			19 ZUBIETA-EROSKI					
Miércoles	9:00				9 ZUBILLAGA		16 UNIALCO			
Miércoles	9:30	20 MRW			9 ZUBILLAGA				23 MRW	10 ZUBILLAGA
Miércoles	10:00	6 HANUK							5 BIZKAI-'	10 ZUBILLAGA
Miércoles	10:30	6 HANUK			2 AZKAR					
Miércoles	11:00	31 DHL			20 RULASAN-EROSKI		4 AZKAR			
Miércoles	11:30	1 AZKAR	15 VEH		20 RULASAN-EROSKI		35 DHL	30 MRW	3 AZKAR	
Miércoles	12:00	32 DHL					16 UNIALCO	30 MRW	34 DHL	
Miércoles	12:30				33 DHL				26 SEUR	
Miércoles	13:00									
Jueves	8:00	18 ZUBIETA-EROSKI			19 ZUBIETA-EROSKI		17 UNIALCO			
Jueves	8:30	18 ZUBIETA-EROSKI			19 ZUBIETA-EROSKI					
Jueves	9:00				5 BIZKAI-'		16 UNIALCO		12 ZUBILLAGA	
Jueves	9:30	20 MRW			22 EUSKODIS				12 ZUBILLAGA	23 MRW
Jueves	10:00	6 HANUK								
Jueves	10:30	6 HANUK			2 AZKAR				29 EUSKODIS	
Jueves	11:00	31 DHL			20 RULASAN-EROSKI		4 AZKAR			
Jueves	11:30	1 AZKAR			20 RULASAN-EROSKI		35 DHL	30 MRW	3 AZKAR	12 ZUBILLAGA
Jueves	12:00	32 DHL					16 UNIALCO	30 MRW	34 DHL	12 ZUBILLAGA
Jueves	12:30				33 DHL				26 SEUR	
Jueves	13:00									
Viernes	8:00	18 ZUBIETA-EROSKI			19 ZUBIETA-EROSKI		17 UNIALCO			
Viernes	8:30	18 ZUBIETA-EROSKI			19 ZUBIETA-EROSKI					
Viernes	9:00	21 EUSKODIS		11 ZUBILLAGA			16 UNIALCO			
Viernes	9:30			11 ZUBILLAGA					23 MRW	
Viernes	10:00	6 HANUK								
Viernes	10:30	6 HANUK			2 AZKAR		24 EUSKODIS			
Viernes	11:00	31 DHL		20 MRW	20 RULASAN-EROSKI		4 AZKAR			
Viernes	11:30	1 AZKAR	15 VEH		20 RULASAN-EROSKI		35 DHL	30 MRW	3 AZKAR	
Viernes	12:00	32 DHL		20 MRW	33 DHL	8 PATXI	16 UNIALCO	30 MRW	34 DHL	
Viernes	12:30	10 ZUBILLAGA	13 MEDRANO		14 MEDRANO		5 BIZKAI-'		26 SEUR	
Viernes	13:00	10 ZUBILLAGA		5 BIZKAI-'						

Table 14 Pre booking schedule

III. Bilbao DSB DOCUMENT

Adhesion Rules Document



Normativa de Funcionamiento de la Reserva Dinámica de Plazas de Carga y Descarga en Bilbao

Normativa de Funcionamiento de la Reserva Dinámica de Plazas de Carga y Descarga en Bilbao

El presente documento tiene como objeto definir las condiciones de funcionamiento y participación en la acción de Reserva Dinámica de Plazas de Carga y Descarga promovida por el Ayuntamiento de Bilbao dentro de varias acciones en este mismo campo. La reserva dinámica de plazas de carga y descarga está encaminada a la mejora sostenible de las prácticas diarias de la distribución urbana de mercancías en la ciudad.

El participar como transportista, repartidor o distribuidor de mercancías en Bilbao dentro de este proyecto, facilita la posibilidad de aparcar en las zonas habilitadas al efecto y en las condiciones pactadas y reconocidas entre los diferentes participantes (ver abajo). Lo cual supone una ventaja competitiva respecto a otros agentes de la Distribución Urbana de Mercancías.

En particular se tendrán en cuenta los siguientes compromisos y pautas de funcionamiento:

Normativa de Funcionamiento de la Reserva Dinámica de Plazas de Carga y Descarga en Bilbao

Compromisos de los transportistas al participar en el proyecto:

La Reserva Dinámica de Plazas de Carga y Descarga permite mejorar las condiciones de reparto. Para que todos los participantes se beneficien, los transportistas deberán cumplir las siguientes normas:

1. Reservar las plazas de carga y descarga temporal según las necesidades reales de cada actividad, no se deben reservar más tiempo del estrictamente necesario para la operación de carga y descarga para garantizar la debida rotación de los vehículos de reparto.
2. La reserva de la plaza se debe realizar según el tamaño del vehículo, no reservando más plazas de las estrictamente necesarias.
3. Nunca se deben de utilizar turismos o vehículos particulares para realizar las operaciones de Carga descarga.
4. La duración normal de la reserva será de treinta minutos, pudiéndose reservar hasta dos franjas horarias consecutivas con una duración máxima continuada de una hora. Para poder hacer otra reserva dentro de la jornada en la misma zona, se deberá dejar una franja libre de al menos treinta minutos.
5. Cumplir con las reservas realizadas y llegar a la hora. Si no se necesita una reserva, se deberá cancelar para facilitar que otros usuarios la puedan emplear. Se prestará especial atención a las reservas periódicas para evitar el bajo aprovechamiento de las zonas de descarga. Si no se llega a la hora exacta se procederá según se indica en el Anexo 1.
6. Estacionar adecuadamente en la plaza asignada, respetando el resto de plazas de aparcamiento para que estacionen los otros vehículos que han podido hacer reservas puntuales.
7. Respetar la ordenanza de circulación y dar ejemplo al resto de transportistas y repartidores que trabajan en la ciudad. Ser un modelo de buenas prácticas.
8. Informar puntual y diligentemente a los responsables municipales de las incidencias que se detecten en la operativa diaria: máquinas dañadas, espiras que no detectan, luces que no funcionan.
9. Renovar las reservas de largo plazo puntualmente.
10. En el caso en que se cree un logotipo identificativos del proyecto, colocarlo de manera visible en el vehículo como distintivo de empresa participante.

Normativa de Funcionamiento de la Reserva Dinámica de Plazas de Carga y Descarga en Bilbao

Compromisos del Ayuntamiento en el desarrollo de la iniciativa:

El Ayuntamiento, como motor de la acción y teniendo en cuenta que es la vía de interlocución natural entre los transportistas, los ciudadanos y los receptores de mercancías, se comprometerá a los siguientes puntos:

1. Dar suficiente notoriedad a la acción desarrollada para que sea conocida y sirva como ejemplo del compromiso adquirido entre las autoridades municipales y los agentes de la Distribución Urbana de Mercancías.
2. Velar porque se mantenga la calidad de servicio adecuada para la operativa eficiente de la actividad. En particular, pero no de manera exhaustiva, se pueden citar los siguientes puntos:
   - Garantizar la disponibilidad del sistema para poder hacer reservas de plazas vía Internet.
   - Garantizar la disponibilidad del sistema para poder hacer las reservas de plazas a través de los parquímetros.
   - Vigilar el cumplimiento de las ordenanzas de aparcamiento para y las reservas de plazas para garantizar que los transportistas pueden cumplir con las condiciones de la reserva realizada. El ayuntamiento podrá sancionar a vehículos que infrinjan estas ordenanzas o la normativa FREILOT de reserva dinámica de plazas de Carga Descarga descritas en este documento.
   - Mantener la infraestructura operativa durante todo el día y durante todos los días del año para permitir a los transportistas hacer sus reservas con anticipación.
3. Fomentar y valorar la incorporación de nuevos socios al consorcio para potenciar la utilización de estas zonas durante la ejecución del piloto.

Normativa de Funcionamiento de la Reserva Dinámica de Plazas de Carga y Descarga en Bilbao

Modalidades de reserva:

El sistema contempla los siguientes tipos de reservas dinámicas de plazas de carga y descarga: reservas periódicas o reservas puntuales.

Reservas Periódicas:

Este tipo de reservas se realizarán única y exclusivamente por Internet. Las reservas podrán ser diarias, semanales o quincenales e implican la reserva de una zona concreta en una franja horaria determinada.

Estas reservas se realizarán para períodos fijos de un trimestre no prorrogable, pudiendo ser anuladas sin esperar a la finalización del período. Durante el tercer mes se deberá volver a solicitar la reserva del siguiente trimestre.

En el caso en que cambien las necesidades del transportista y no necesite más la reserva, ésta se debe anular inmediatamente para dejarla libre para otros usuarios.

Si se detecta la utilización irregular de las plazas reservadas, el Ayuntamiento se guarda la potestad de anular la reserva realizada y el socio perderá toda prioridad en futuras reservas periódicas.

En el caso en que dos o más usuarios realicen una reserva periódica coincidente en horario, zona y número de plazas que las haga incompatibles entre sí, se atenderá a lo indicado en el Anexo 2 de esta normativa.

Reservas puntuales.

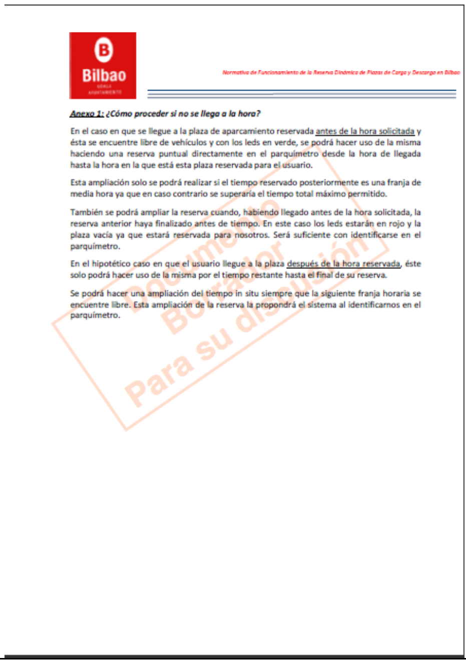
Este tipo de reservas se pueden realizar bien a través de la página Web habilitada o directamente en los parquímetros colocados al efecto en las zonas de descarga de mercancías.

Si la reserva se realiza a través de Internet, ésta se deberá reservar como mínimo con una hora de antelación a la utilización de la plaza.

Si la reserva se realiza a través del parquímetro, ésta se realizará en el momento en que se llega a la plaza de descarga con el vehículo y la tarjeta de socio. Esta reserva queda condicionado a que haya sitio disponible, es decir, que los leds[1] indicadores se encuentren en verde.

El procedimiento de reserva por parquímetro es el siguiente: se deberá insertar la tarjeta y a continuación se mostrará en pantalla la situación de la zona de carga y descarga. La plaza donde se haya estacionado el vehículo aparecerá en verde junto con la información del slot/horario que se quiere reservar. Para finalizar la reserva será suficiente con seleccionar desde la pantalla del parquímetro "Aceptar".

[1] Los leds indicadores son las luces colocadas en el pavimento que delimitan las plazas de aparcamiento e indican a los conductores la disponibilidad o no de las plazas. Si la luz está en verde, la plaza se encuentra disponible. Si la luz está encendida de color rojo, indica que la plaza está reservada u ocupada.



Normativa de Funcionamiento de la Reserva Dinámica de Plazas de Carga y Descarga en Bilbao

***Anexo 1:* ¿Cómo proceder si no se llega a la hora?**

En el caso en que se llegue a la plaza de aparcamiento reservada antes de la hora solicitada y ésta se encuentre libre de vehículos y con los leds en verde, se podrá hacer uso de la misma haciendo una reserva puntual directamente en el parquímetro desde la hora de llegada hasta la hora en la que está esta plaza reservada para el usuario.

Esta ampliación solo se podrá realizar si el tiempo reservado posteriormente es una franja de media hora ya que en caso contrario se superaría el tiempo total máximo permitido.

También se podrá ampliar la reserva cuando, habiendo llegado antes de la hora solicitada, la reserva anterior haya finalizado antes de tiempo. En este caso los leds estarán en rojo y la plaza vacía ya que estará reservada para nosotros. Será suficiente con identificarse en el parquímetro.

En el hipotético caso en que el usuario llegue a la plaza después de la hora reservada, éste solo podrá hacer uso de la misma por el tiempo restante hasta el final de su reserva.

Se podrá hacer una ampliación del tiempo in situ siempre que la siguiente franja horaria se encuentre libre. Esta ampliación de la reserva la propondrá el sistema al identificarnos en el parquímetro.

Documento Borrador Para su discusión

Normativa de Funcionamiento de la Reserva Dinámica de Plazas de Carga y Descarga en Bilbao

***Anexo 2:* Asignación de plazas en caso de reservas solapadas.**

En el caso en que se detecten dos o más reservas dentro de una franja horaria determinada y una zona concreta, que se solapen entre sí, se procederá tal y como se indica en este anexo.

El responsable último de la interpretación del mismo en caso de dudas es el Ayuntamiento de Bilbao.

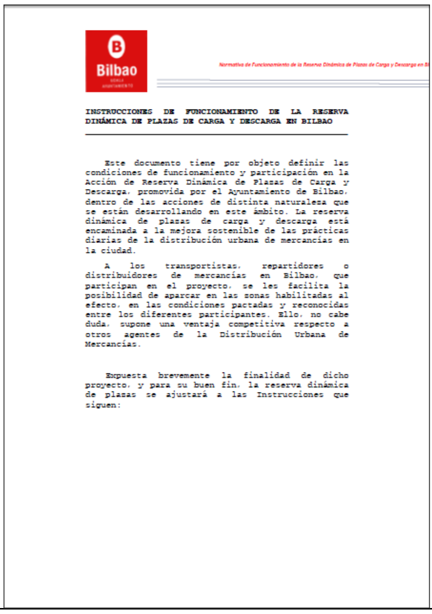
Prioridades para la asignación de reserva definitiva por este orden:

1. Emisiones contaminantes del vehículo en cuestión: El vehículo que menos contamine tendrá prioridad sobre los más contaminantes. Para ello se tomará como referencia la normativa europea de emisiones.

   Como ejemplo: un vehículo EURO 5 tendrá prioridad en la reserva respecto a un vehículo EURO 4 o inferior.
2. Antigüedad del socio en el Club: Los socios que llevan más tiempo participando en el proyecto son los que tendrán prioridad respecto a los socios de más reciente incorporación. Para ello se tendrá en cuenta la fecha de arranque del proyecto inicial.
3. Aprovechamiento de la carga útil del vehículo: Los vehículos que tengan una estimación de aprovechamiento de la carga útil más eficiente tendrán prioridad respecto a los que tengan un menor aprovechamiento.

Documento Borrador Para su discusión

Operational Rules Document



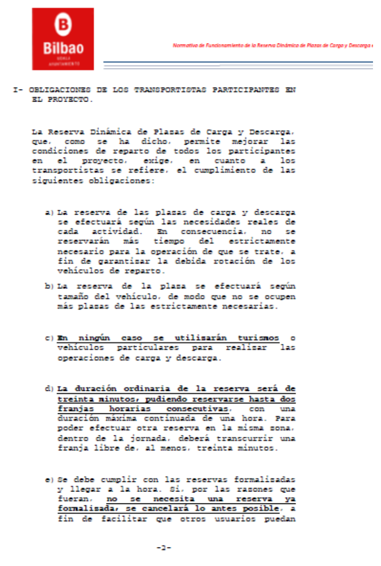
Normativa de Funcionamiento de la Reserva Dinámica de Plazas de Carga y Descarga en Bi

INSTRUCCIONES DE FUNCIONAMIENTO DE LA RESERVA DINÁMICA DE PLAZAS DE CARGA Y DESCARGA EN BILBAO

Este documento tiene por objeto definir las condiciones de funcionamiento y participación en la Acción de Reserva Dinámica de Plazas de Carga y Descarga, promovida por el Ayuntamiento de Bilbao, dentro de las acciones de distinta naturaleza que se están desarrollando en este ámbito. La reserva dinámica de plazas de carga y descarga está encaminada a la mejora sostenible de las prácticas diarias de la distribución urbana de mercancías en la ciudad.

A los transportistas, repartidores o distribuidores de mercancías en Bilbao, que participan en el proyecto, se les facilita la posibilidad de aparcar en las zonas habilitadas al efecto, en las condiciones pactadas y reconocidas entre los diferentes participantes. Ello, no cabe duda, supone una ventaja competitiva respecto a otros agentes de la Distribución Urbana de Mercancías.

Expuesta brevemente la finalidad de dicho proyecto, y para su buen fin, la reserva dinámica de plazas se ajustará a las Instrucciones que siguen:



Normativa de Funcionamiento de la Reserva Dinámica de Plazas de Carga y Descarga

I- OBLIGACIONES DE LOS TRANSPORTISTAS PARTICIPANTES EN EL PROYECTO.

La Reserva Dinámica de Plazas de Carga y Descarga, que, como se ha dicho, permite mejorar las condiciones de reparto de todos los participantes en el proyecto, exige, en cuanto a los transportistas se refiere, el cumplimiento de las siguientes obligaciones:

a) La reserva de las plazas de carga y descarga se efectuará según las necesidades reales de cada actividad. En consecuencia, no se reservarán más tiempo del estrictamente necesario para la operación de que se trate, a fin de garantizar la debida rotación de los vehículos de reparto.

b) La reserva de la plaza se efectuará según tamaño del vehículo, de modo que no se ocupen más plazas de las estrictamente necesarias.

c) **En ningún caso se utilizarán turismos** o vehículos particulares para realizar las operaciones de carga y descarga.

d) **La duración ordinaria de la reserva será de treinta minutos, pudiendo reservarse hasta dos franjas horarias consecutivas**, con una duración máxima continuada de una hora. Para poder efectuar otra reserva en la misma zona, dentro de la jornada, deberá transcurrir una franja libre de, al menos, treinta minutos.

e) Se debe cumplir con las reservas formalizadas y llegar a la hora. Si, por las razones que fueran, **no se necesita una reserva ya formalizada, se cancelará lo antes posible**, a fin de facilitar que otros usuarios puedan

-2-

utilisarla. Se prestará especial atención a las reservas periódicas para evitar el bajo aprovechamiento de las sonas de descarga. Si no se llega a la hora exacta se procederá según se indica en el Anexo 1.

f) Se estacionará adecuadamente en la plasa asignada, respetando el resto de plasas de aparcamiento, para que estacionen los otros vehículos que hayan realisado reservas puntuales.

g) Se respetará la normativa circulatoria, dando ejemplo al resto de transportistas y repartidores que trabajan en la ciudad.

h) Se informará puntual y diligentemente a los responsables municipales de las incidencias que se detecten en la operativa diaria (máquinas dañadas, espiras que no detectan, luces que no funcionan, etc.)

i) Las reservas de largo plaso se renovarán puntualmente.

j) Caso de que se cree un logotipo identificativo del proyecto, se colocará en el vehículo, de forma visible, como distintivo de empresa participante.

II- COMPROMISOS DEL AYUNTAMIENTO EN EL DESARROLLO DEL PROYECTO.

El Ayuntamiento, como motor de la acción y teniendo en cuenta que es la vía de interlocución natural entre los transportistas, los ciudadanos y los receptores de mercancías, se compromete a:

1. Dar suficiente publicidad a la acción desarrollada, para que sea conocida y sirva como ejemplo del compromiso adquirido entre las autoridades municipales y los agentes de la Distribución Urbana de Mercancías.

2. Velar porque se mantenga la calidad de servicio adecuada para la operativa eficiente de la actividad. A tal fin, y sin ánimo de exhaustividad:

   a) Garantisará la disponibilidad del sistema para poder efectuar las reservas de plasas: bien, vía Internet; bien, a través de los parquímetros.

   b) Vigilará el cumplimiento de la normativa de estacionamiento en las reservas de plasas, para garantisar que los transportistas pueden cumplir con las condiciones de la reserva realisada. El Ayuntamiento podrá sancionar a vehículos que infrinjan la normativa circulatoria de reserva dinámica de plasas de Carga Descarga descritas en este documento.

   c) Mantendrá la infraestructura operativa durante todo el día, todos los días del

año, para permitir a los transportistas hacer sus reservas con antelación.

3. Fomentará y valorará la incorporación de nuevos socios al Consorcio para potenciar la utilisación de estas sonas durante la ejecución del piloto.

III-MODALIDADES DE RESERVA

El sistema contempla los siguientes tipos de reservas dinámicas de plasas de carga y descarga: reservas periódicas o reservas puntuales.

A) Reservas Periódicas:

a) Las reservas de esta naturalesa se llevarán a cabo, única y exclusivamente, por Internet. Las reservas podrán ser diarias, semanales o quincenales, e implican la reserva de una sona concreta, en una franja horaria determinada.

b) **Estas reservas se realisarán para períodos fijos de un trimestre no prorrogable**, pudiendo ser anuladas, sin esperar a la finalisación del período. Durante el tercer mes se deberá volver a solicitar la reserva del siguiente trimestre.

c) **En el caso en que cambien las necesidades del transportista y no necesite más la reserva, ésta se debe anular inmediatamente, para dejarla libre para otros usuarios.**

d) Si se detecta la utilisación irregular de las plasas reservadas, el Ayuntamiento se guarda la potestad de anular la reserva realisada y el socio perderá toda prioridad en futuras reservas periódicas.

e) En el caso en que dos o más usuarios realicen una reserva periódica coincidente en horario, sona y número de plasas que las haga incompatibles entre sí, se estará a lo indicado en el Anexo 2 de estas Instrucciones.

B) Reservas puntuales.

a) Las reservas puntuales se pueden realizar; bien, a través de la página Web habilitada; bien, directamente en los parquímetros instalados al efecto en las zonas de descarga de mercancías.

b) Si la reserva se lleva a cabo a través de Internet, ésta se deberá reservar como mínimo con una hora de antelación a la utilización de la plaza.

c) Si la reserva se realiza a través del parquímetro, ésta se realizará en el momento en que se llega a la plaza de descarga con el vehículo y la tarjeta de socio. Esta reserva queda condicionada a que haya sitio disponible, es decir, que los leds[1] indicadores se encuentren en verde.

d)

El procedimiento de reserva por parquímetro es el siguiente: se deberá insertar la tarjeta y a continuación se mostrará en pantalla la situación de la zona de carga y descarga. La plaza donde se haya estacionado el vehículo aparecerá en verde junto con la información del slot/horario que se quiere reservar. Para finalizar la reserva será suficiente con seleccionar desde la pantalla del parquímetro "Aceptar".

[1] Los leds indicadores son las luces colocadas en el pavimento que delimitan las plazas de aparcamiento e indican a los conductores la disponibilidad o no de las plazas. Si la luz está en verde, la plaza se encuentra disponible. Si la luz está encendida de color rojo, indica que la plaza está reservada u ocupada.

Anexo 1

¿CÓMO PROCEDER SI NO SE LLEGA A LA HORA?

A) Llegada con *anterioridad* al tiempo reservado.

a) En el caso en que se llegue a la plaza de aparcamiento reservada antes de la hora solicitada, y aquélla se encuentre libre de vehículos y con los leds en verde, se podrá hacer uso de ella, efectuando una reserva puntual, directamente en el parquímetro, desde la hora de llegada hasta la hora en la que la mencionada plaza se encuentra reservada.

b) Esta ampliación solo se podrá llevar a cabo si la franja horaria reservada posteriormente es de media hora; puesto que, de no ser así; se superaría el tiempo total máximo de estacionamiento permitido.

c) También se podrá ampliar el tiempo de ocupación de la plaza cuando, habiendo llegado antes de la hora solicitada, la reserva anterior haya finalizado antes de tiempo. En este caso, los leds estarán en rojo y la plaza vacía, ya que estará reservada para el siguiente (nosotros). Para esta ampliación, será suficiente con identificarse en el parquímetro.

B) Llegada con *posterioridad* al tiempo reservado.

a) En el hipotético caso en que el usuario llegue a la plaza **después de la hora reservada**, éste solo podrá hacer uso de la misma por el tiempo que reste hasta el final de su reserva.

b) Se podrá hacer una ampliación del tiempo en el lugar, siempre que la siguiente franja horaria se encuentre libre. Esta ampliación la

propondrá el sistema al identificarnos en el parquímetro.

Anexo 2

ASIGNACIÓN DE PLAZAS EN CASO DE RESERVAS SOLAPADAS

Caso en que se detecten dos o más reservas dentro de una franja horaria determinada y una zona concreta, que se solapen entre sí, se estará a los criterios de prioridad que siguen:

1. **Emisiones contaminantes del vehículo en cuestión.** Los vehículos que menos contaminen tendrán prioridad sobre los más contaminantes. Para ello se tomará como referencia la normativa europea de emisiones. Ejemplo: un vehículo EURO 5 tendrá prioridad en la reserva respecto a un vehículo EURO 4 o inferior.
2. **Antigüedad del socio en el Club.** Los socios que llevan más tiempo participando en el proyecto tendrán prioridad respecto a los de incorporación más reciente. Para ello se tendrá en cuenta la fecha de inicio del proyecto inicial.
3. **Aprovechamiento de la carga útil del vehículo.** Los vehículos que tengan una estimación de aprovechamiento de la carga útil más eficiente tendrán prioridad respecto a los que tengan un menor aprovechamiento.

Las cuestiones que se susciten en la interpretación de estos criterios serán resueltas por el Ayuntamiento de Bilbao, a través del Área de Circulación y Transportes.

Parking meter Manual Use Document

TERMINAL DE IDENTIFICACIÓN Y RESERVA (TIR)

Manual de Usuario

Índice

1. Introducción

En este documento se presentan y explican los distintos elementos y la operativa necesaria que deberán seguir los usuarios para validarse correctamente en el **terminal de identificación y reserva (TIR)**.

Cada transportista contará con una **tarjeta *chipcard*** que usará, una vez haya estacionado el vehículo, en el TIR situado en la zona de carga y descarga. Cuando introduzca la tarjeta en él, el sistema validará el aparcamiento (siempre y cuando se haya estacionado en la plaza correcta), con lo que se dispondrá del tiempo reservado para la realización de las tareas de carga y descarga.

Por tanto, los usuarios deberán disponer de una tarjeta *chipcard* que identifica a cada **usuario** y **tipo de vehículo**: 1 plaza (1-P), 2 plazas (2-P) y 3 plazas (3-P) en función de la longitud del vehículo.

*Tarjeta chipcard para la empresa **Gertek** y vehículo de **1 plaza**.*

De esta forma, a cada transportista al realizar una reserva, se le asignará una tarjeta correspondiente al tipo de vehículo que lleve. No será posible, por ejemplo, estacionar un vehículo de dos plazas y registrarse en el TIR con una tarjeta de una plaza.

Cuando el transportista termine las operaciones, **no** hará falta que vaya de nuevo al TIR a decir que se va.

IMPORTANTE: Vehículos con plataforma trasera deberán bajar la plataforma antes de pasar por el TIR. En caso contrario no podrán validar la ocupación total de la reserva.

2. Validación de reserva previa

Una vez el transportista haya estacionado el vehículo en la plaza correcta (y bajado la plataforma trasera si dispone de ella), deberá dirigirse al TIR para poder validar la reserva que haya realizado previamente desde la Web.

1. En primer lugar, deberá seleccionar el botón de "**CARGA – DESCARGA**" en la pantalla de inicio.

2. A continuación, el sistema pedirá **introducir** la **tarjeta *chipcard*** en el TIR.

3. Una vez se haya introducido la tarjeta, se mostrará en pantalla la información de la reserva: **plaza asignada** y **horario**. El usuario deberá seleccionar "**CONFIRMAR**" para finalizar y hacer uso de la reserva.

4. Una vez confirmada la reserva se deberá **retirar** la tarjeta ***chipcard***.

3. Reserva desde TIR

Cuando en una zona de carga y descarga existan plazas que están libres, éstas se podrán reservar través del TIR en el mismo momento. Una plaza estará libre cuando las balizas estén encendidas en verde y la plaza se encuentre desocupada.

Por tanto, cuando un transportista estacione en una plaza que esté libre, deberá dirigirse al TIR para realizar la reserva. El procedimiento será el mismo a seguir en el caso de "Validación de una reserva previa" que se ha explicado en el punto anterior.

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4. Estacionamiento en plaza no asignada

Cuando un transportista estacione el vehículo en una plaza que no sea la que tenga asignada en su reserva o que haya ocupado una plaza que no estuviera libre, al intentar validar la operación en el TIR, el sistema le indicará que está mal estacionado y le pedirá que mueva su vehículo y vuelva a identificarse en el TIR.

El procedimiento a seguir es el siguiente:

1. En primer lugar, deberá seleccionar el botón de "**CARGA – DESCARGA**" en la pantalla de inicio.
2. A continuación, el sistema pedirá **introducir** la **tarjeta *chipcard*** en el TIR.
3. Una vez se haya introducido la tarjeta en pantalla se indicará que el usuario debe mover el vehículo ya que está mal estacionado.

4. Tras confirmar la operación se deberá **retirar** la tarjeta ***chipcard*** y proceder a mover el vehículo. Una vez esté bien estacionado, el usuario deberá volver a identificarse en el TIR.

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5. Confirmación de estacionamiento en plaza

En ocasiones puede suceder que al estacionar varios vehículos al mismo tiempo en distintas plazas, el sistema pida al usuario confirmar la plaza en la que ha estacionado su vehículo.

En este caso el procedimiento a seguir será el siguiente:

1. En primer lugar, deberá seleccionar el botón de "**CARGA – DESCARGA**" en la pantalla de inicio.
2. A continuación, el sistema pedirá **introducir** la **tarjeta *chipcard*** en el TIR.
3. Una vez se haya introducido la tarjeta se mostrarán en pantalla las plazas de la zona de carga y descarga, con una de ellas seleccionadas en azul.
    a. Si la **posición** es **correcta** y coincide con la posición del vehículo, únicamente habría que pulsar sobre "**Confirmar**".
    b. En caso de **no** ser **correcto**, el usuario podrá seleccionar en pantalla la plaza en la que ha estacionado su vehículo mediante el botón de "**Siguiente**". Una vez seleccionada, deberá pulsar "Confirmar".

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5. Tras confirmar la posición, se mostrará en pantalla la información de la reserva: **plaza** y **horario**. El usuario deberá seleccionar "**CONFIRMAR**" para finalizar y hacer uso de la reserva.

6. Una vez confirmada la reserva se deberá **retirar** la tarjeta ***chipcard***.

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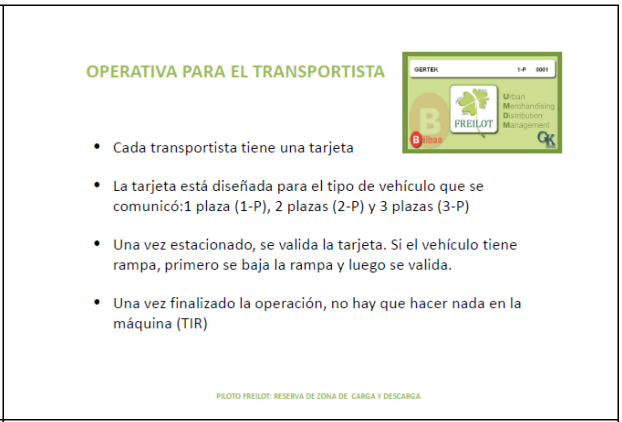
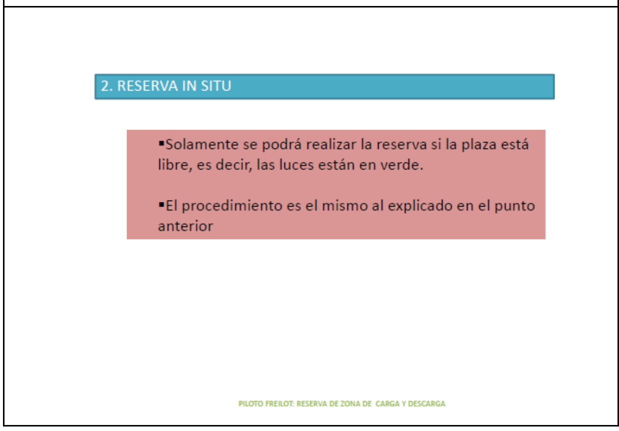
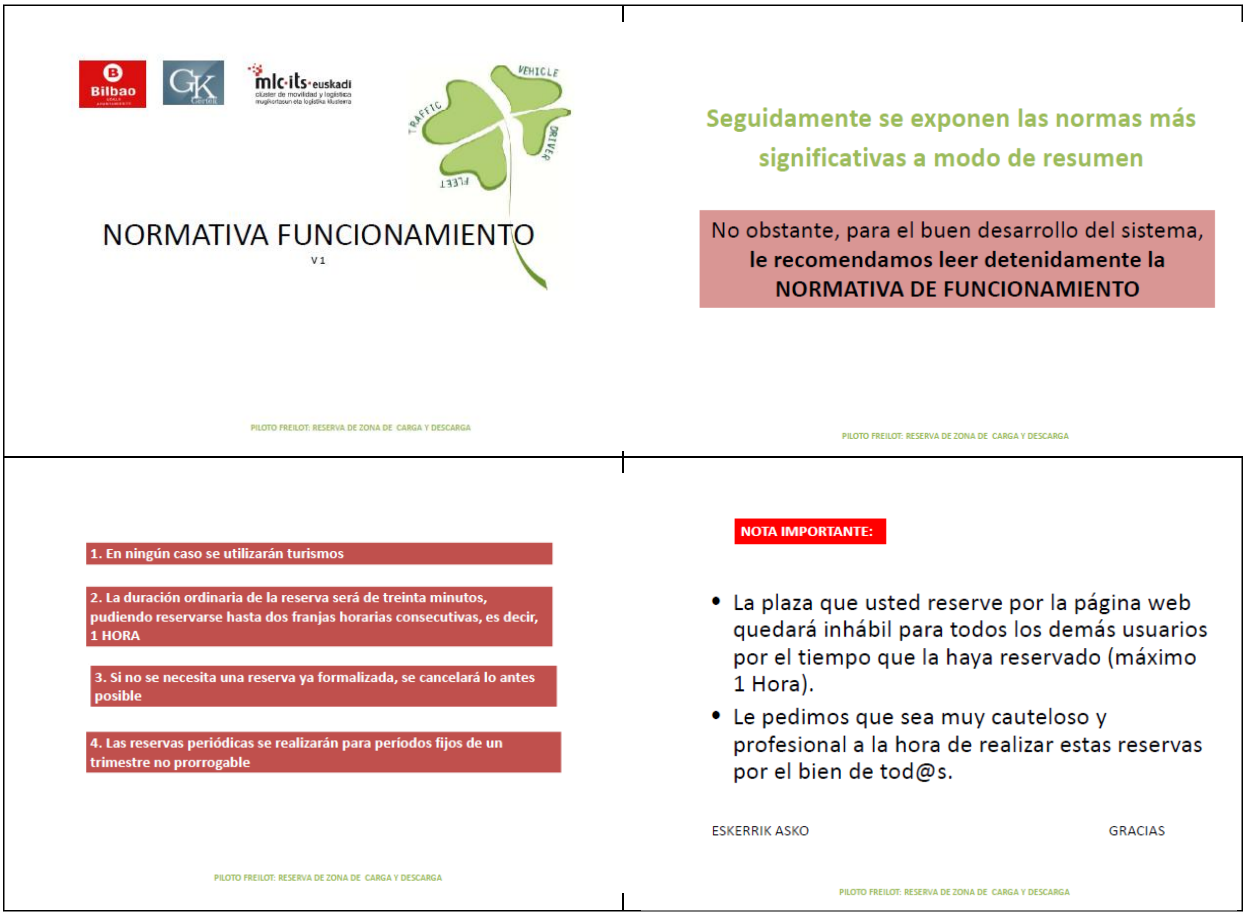
IV. Power point presentations for users training

Parking meter Manual Use Power Point Presentation

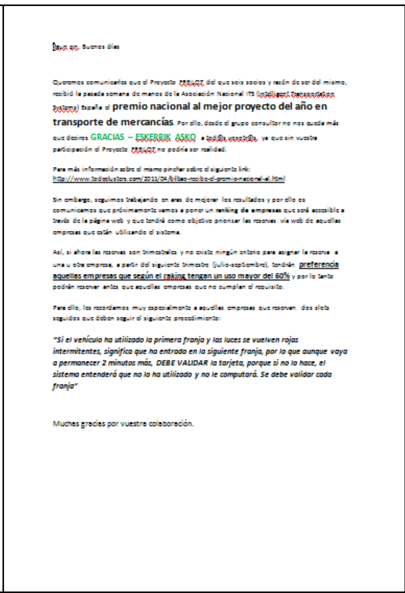


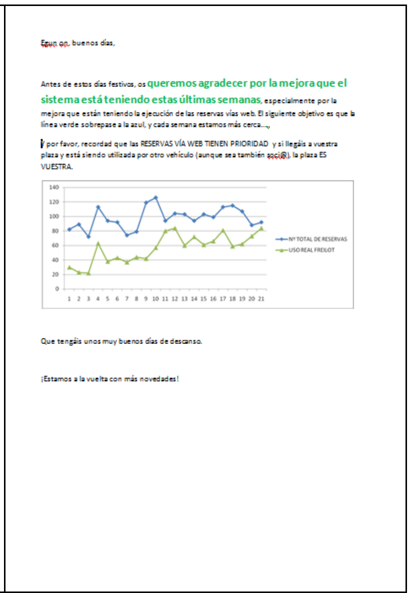


Operational Rules Power Point Presentation



V. Newsletters





Egun on, buenos días,

Antes de Semana Santa os comentaba que volveríamos con novedades y así es! Aquellos que habéis accedido a la página web habréis visto que aparece un **RANKING.**

¿Para qué es? ¿Qué objetivo tiene?

PREMIAR A LOS QUE EJECUTAN LAS RESERVAS REALIZADAS VÍA WEB

Las reservas que se realizan vía web son trimestrales y un mes antes de iniciarse el nuevo trimestre, hasta ahora TODOS los socios tenían la misma opción de reservar. Diríamos que ***el primero que llegaba, reservaba la plaza que le interesaba***. ¡A PARTIR DE AHORA NO!

A partir del nuevo trimestre que se inicia en Julio (agosto-septiembre), las prioridades se marcarán del siguiente modo:

- **Ranking de uso igual o mayor a 60% → Premiados con poder reservar 30 días antes, (en este caso 1 de JUNIO)**
- **Ranking de uso entre 59 y 30% → 15 días antes podrán iniciar las reservas (en este caso 15 de JUNIO)**
- **Inferior a 29% → cuando se inicia el trimestre (en este caso 1 de JULIO)**

Este ranking se actualiza día a día, por lo que le recomendamos que visite la página web para ver en qué posición se encuentra su empresa. (Si su empresa no está en los diez primeros, significa que su porcentaje de ejecución es inferior al décimo). http://umdm.dyndns-ip.com/umdm/

A la vez, les informamos que aquellas empresas que cumplan con el perfil requerido recibirán a lo largo de esta semana otro mail donde se les invitará a asistir a una reunión donde se les informará de **OTROS PILOTOS que se están poniendo en marcha en Bilbao (distribución nocturna, carril multiusos, distribución con bicicleta…)**

LA OPERATIVA DE LA DISTRIBUCIÓN URBANA DE MERCANCÍAS ESTA EVOLUCIONANDO, ALGO ESTÁ CAMBIANDO. ¿Y SU EMPRESA?

Ante cualquier duda o información adicional que necesite, no dude en ponerse en contacto con nosotros.

MILA ESKER – GRACIAS

Arratsalde on, buenas tardes,

Os escribimos este mensaje para recordaros que siguiendo con las diferentes medidas que se tomaron en el mes de Marzo con el objetivo de impulsar el funcionamiento del PILOTO FREILOT, que el próximo 1 de JUNIO se aplicará la **medida que premia al que correctamente utiliza las reservas realizadas vía web.**

De este modo, el 1 de Junio podrán realizar reservas periódicas para el **TRIMESTRE JULIO-SEPTIEMBRE** aquellas empresas que en el ranking tengan un ratio de ejecución mayor o igual al 60%. (Recordad lo que se comentó en el Informe nº 4)

- **Ranking de uso igual o mayor a 60% → Premiados con poder reservar 30 días antes, (en este caso 1 de JUNIO)**
- **Ranking de uso entre 59 y 30% → 15 días antes podrán iniciar las reservas (en este caso 15 de JUNIO)**
- **Inferior a 29% → cuando se inicia el trimestre (en este caso 1 de JULIO)**

Egun on, buenos días,

Hoy, 15 de Junio, os queremos comunicar que aquellos socios que a día de hoy en el ranking que se visualiza en la página web tienen **un porcentaje de ejecución entre el 30 y 59% que pueden realizar las reservas periódicas (vía web) correspondientes al trimestre que viene: JULIO –AGOSTO-SEPTIEMBRE.**

Si hoy tu porcentaje de ejecución es inferior al rango comentado, ten en cuenta que si mañana, pasado mañana, la semana que viene… lo alcanzas, podrás realizar las reservas tan pronto como llegues al rango establecido, debido a que el ranking se actualiza diariamente.

Si a lo largo de estas dos semanas no alcanzas el 30% de ejecución, podrás reservas los slots que necesites una vez iniciado el trimestre, es decir, el 1 de JULIO.

Gracias por vuestra colaboración en este piloto y recordad que ante cualquier duda estamos vuestra entera disposición.

******

- **Ranking de uso igual o mayor a 60% → Premiados con poder reservar 30 días antes, (en este caso 1 de JUNIO)**
- **Ranking de uso entre 59 y 30% → 15 días antes podrán iniciar las reservas (en este caso 15 de JUNIO)**
- **Inferior a 29% → cuando se inicia el trimestre (en este caso 1 de JULIO)**

Atentamente,

Arratsalde on, buenas tardes,

Os queremos informar que tras tener en cuenta vuestras peticiones, que **se ha decidido cambiar la fórmula que calcula "EL RANKING".**

Hasta ayer, para calcular el ratio de ejecución, se tomaba como base la fecha de inicio del sistema, Octubre 2010. Ahora, con el cambio en la fórmula, **se calculará el ratio de acuerdo al uso de los últimos 60 días.** Con este cambio queremos conseguir un dinamismo mayor en el sistema, para que sea premiado el uso ACTUAL y no el inicial.

Así, el alumno que quiera esprintar podrá llegar a las vacaciones con buena nota….

Podéis ver los nuevos ratios en la página web (han cambiado muchísimo). http://umdm.dyndns-ip.com/umdm/

Recordad, que aquellas empresas que tienen un ratio de ejecución mayor al 30% pueden realizar las reservas del trimestre Julio-Agosto-Septiembre ya!

¡Hasta la próxima!

Buenos días, Egun on,

Hoy hemos empezado con un nuevo trimestre del Proyecto PILOTO FREILOT de reserva de zonas de carga y descarga dinámicas por lo que les recordamos la importancia de su posición en el ranking para poder haber reservado la zona que le interesa vía web:

- **Ranking de uso igual o mayor a 60% → Premiados con poder reservar 30 días antes, (en este caso 1 de SEPTIEMBRE)**
- **Ranking de uso entre 59 y 30% → 15 días antes podrán iniciar las reservas (en este caso 15 de SEPTIEMBRE)**
- **Inferior a 29% → cuando se inicia el trimestre (en este caso 1 de OCTUBRE)**

Estamos en la recta final del proyecto, por lo que os animamos a aprovechar esta oportunidad de gestionar vuestra distribución de una manera más eficiente.

¡Seguimos en contacto!

Atentamente,

Buenos días, Egun on,

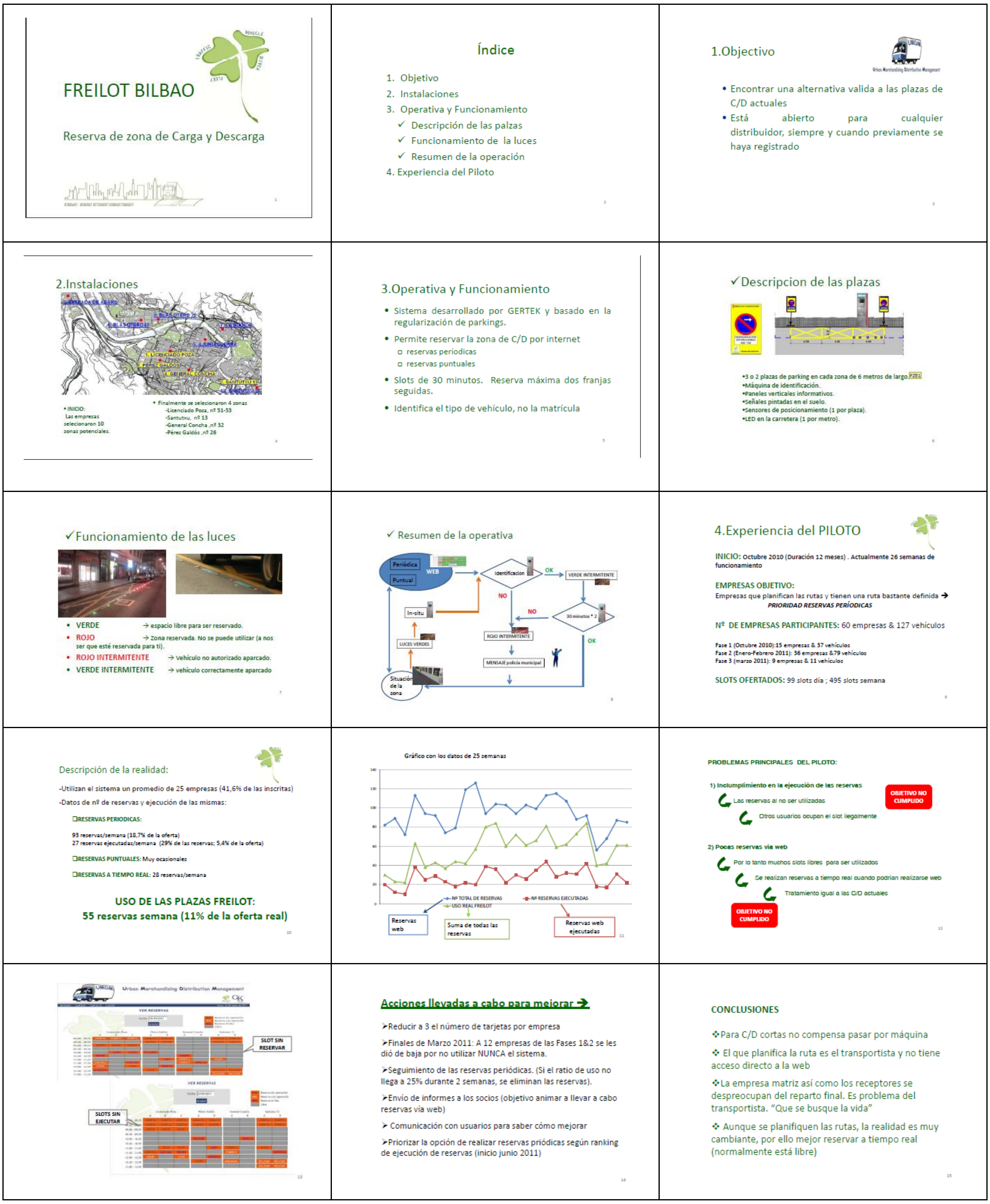
Os queremos avisar que el mes de Abril empieza un **nuevo trimestre en FREILOT**, por lo que dependiendo de vuestra posición en el ranking podréis llevar a cabo ya las reservas vía web o no. Os recordamos las reglas:

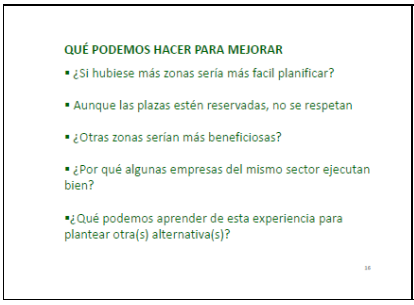
- **Ranking de uso igual o mayor a 60% → Premiados con poder reservar 30 días antes, (en este caso 1 de MARZO)**
- **Ranking de uso entre 59 y 30% → 15 días antes podrán iniciar las reservas (en este caso 15 de MARZO)**
- **Inferior a 29% → cuando se inicia el trimestre (en este caso 1 de ABRIL)**

A la vez os adelantamos que próximamente nos pondremos en comunicación con vosotros para ir diseñando un **nuevo planteamiento de Distribución Urbana de Mercancías** así como sobre nuevos posibles espacios de **Carriles Multiusos**.

¡Seguimos en contacto!

VI. Physical Meeting May 2011




QUÉ PODEMOS HACER PARA MEJORAR
▪ ¿Si hubiese más zonas sería más facil planificar?
▪ Aunque las plazas estén reservadas, no se respetan
▪ ¿Otras zonas serían más beneficiosas?
▪ ¿Por qué algunas empresas del mismo sector ejecutan bien?
▪¿Qué podemos aprender de esta experiencia para plantear otra(s) alternativa(s)?


Se agradecen
ideas, comentarios,
opiniones, fallos, problemas…
¡TODO!

VII. Helmond WP3 kick-off presentation

PEEK traffic solutions

FREILOT
Helmond

Start of the WP3 Evaluation Period

Eric Koenders
Peek Traffic BV

FREILOT Helmond meeting 15/12/2010

Agenda

- Terugblik 28 oktober
- Huidige status
- Start WP3
- Het komende WP3 jaar

FREILOT meeting 15/12/2010

Terugblik 28 oktober

- Aandacht in de media
  - Televisie en websites
  - Gedrukte media (o.a. "De Ingenieur")
- Interesse andere partijen
  - EcoMove
  - GCDC

FREILOT meeting 15/12/2010

Huidige status

- XP901 (bij de McDonalds) is nu operationeel
- XP704 PC vervangen wegens defect
- XP101 nog steeds kabelproblemen
- Storing scherm op sommige GPS ontvangers (Tomtom); verbeterd in de ambulances, maar nog niet verholpen
- Inmeldtijd soms te kort voor de brandweer; vooral in het centrum (korte afstand tussen kruisingen)
- Volvo systemen nog niet allemaal geïnstalleerd
- Nog 3 Peek systemen voor trucks te leveren (1e week januari)

FREILOT meeting 15/12/2010

Start WP3

Gepland begin januari:

- Alle Peek systemen beschikbaar
- Volvo dataloggers operationeel

Begint met baseline:

- Truck prioriteit wordt **onderdrukt** (blauw licht blijft operationeel)
- Volvo systemen worden **onderdrukt**
- Alle trucks rijden met **werkende** systemen
- Prioriteitssysteem en Volvo dataloggers verzamelen informatie

FREILOT meeting 15/12/2010

Het WP3 jaar

Onderhoud

- Meldingen en vragen naar eric.koenders@peektraffic.nl

Testfases

- Wisseling van baseline naar meting en terug
- Enquête voor chauffeurs en vervoerder

Meetings

- Instructie chauffeurs Volvo systemen
- Einde baseline periode
- Voorlopige resultaten
- Veranderingen in de installatie (indien van toepassing)

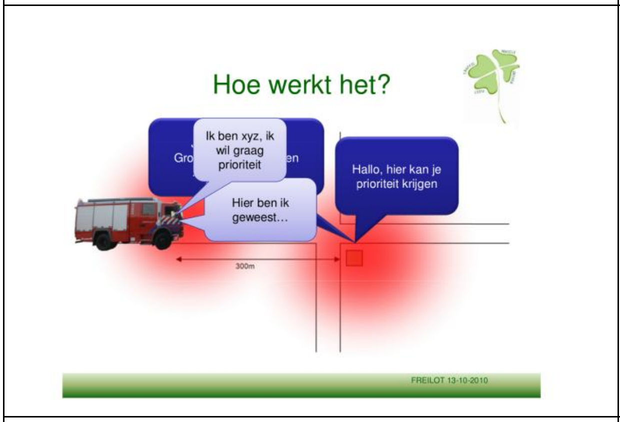
FREILOT meeting 15/12/2010

Contact details

Evaluation WP leader: Eric Koenders
Email: eric.koenders@peektraffic.nl
Phone: +31(0)33-4541970

FREILOT meeting 15/12/2010

VIII. EEIC User education



Prioriteit

FREILOT 13-10-2010

Verlengd groen

FREILOT 13-10-2010

Snelheidslimiet

FREILOT 13-10-2010

Blauw licht

FREILOT 13-10-2010

Bij blauw licht…

- Absolute prioriteit:
  groen zodra alle richtingen ontruimd zijn
- Groen op alle richtingen van het voertuig:
  linksaf, rechtdoor en rechtsaf
- Geen snelheidslimiet

FREILOT 13-10-2010

Als er iets niet werkt…

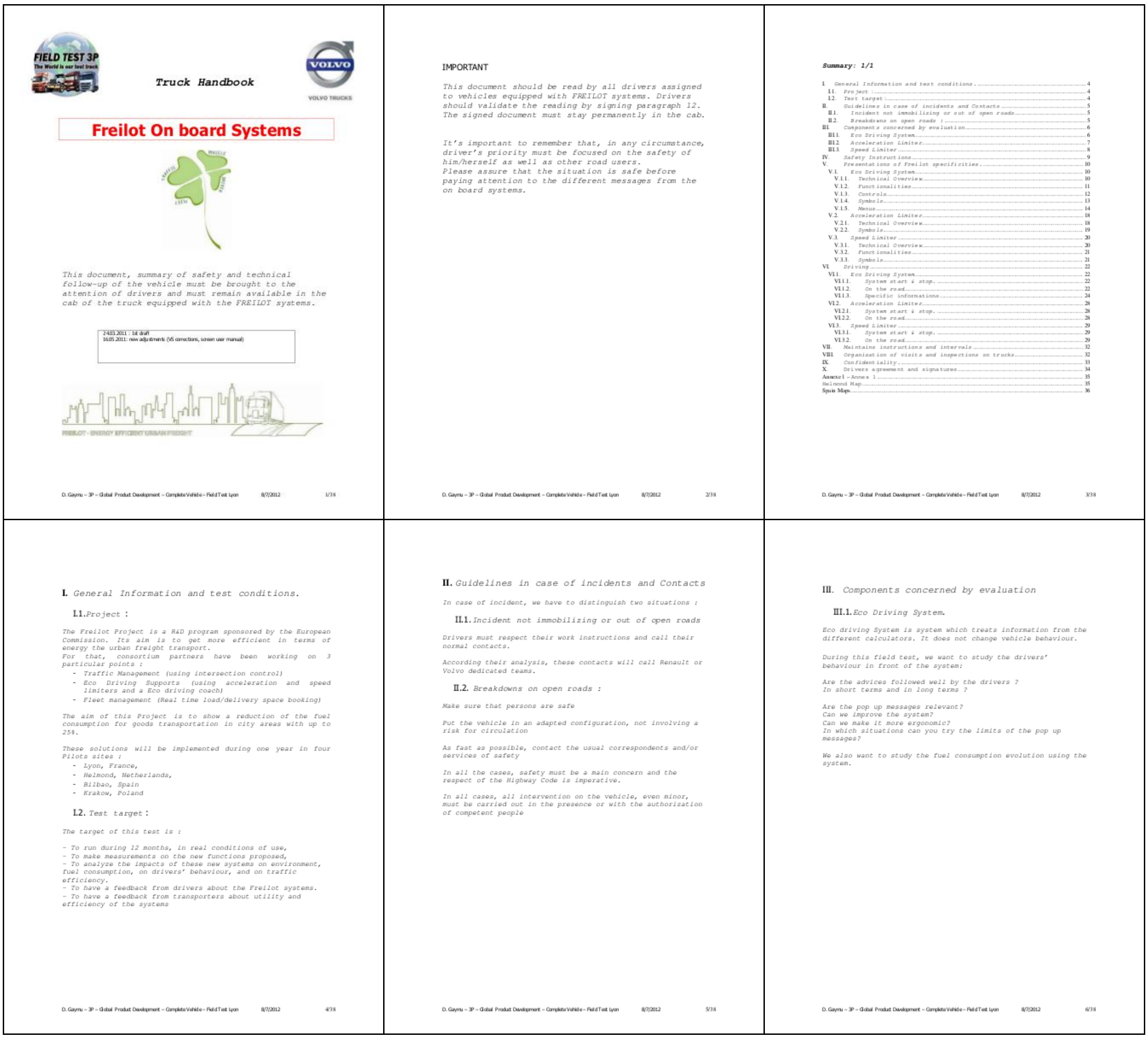
Graag een email naar:
eric.koenders@peektraffic.nl

Informatie:
- Wat had je verwacht?
- Wat gebeurde er?
- Waar (welke kruising)?
- Wanneer (welke dag, hoe laat)?

FREILOT 13-10-2010

IX. In-vehicle systems manual

This manual was translated to Dutch, French, Spanish and Polish.



FIELD TEST 3P
The World is our test track

Truck Handbook

VOLVO
VOLVO TRUCKS

Freilot On board Systems

This document, summary of safety and technical follow-up of the vehicle must be brought to the attention of drivers and must remain available in the cab of the truck equipped with the FREILOT systems.

24.03.2011 : 1st draft
16.05.2011: new adjustments (VS corrections, screen user manual)

FREILOT - ENERGY EFFICIENT URBAN FREIGHT

D. Gaymu – 3P – Global Product Development – Complete Vehicle – Field Test Lyon 8/7/2012 1/38

IMPORTANT

This document should be read by all drivers assigned to vehicles equipped with FREILOT systems. Drivers should validate the reading by signing paragraph 12. The signed document must stay permanently in the cab.

It's important to remember that, in any circumstance, driver's priority must be focused on the safety of him/herself as well as other road users. Please assure that the situation is safe before paying attention to the different messages from the on board systems.

D. Gaymu – 3P – Global Product Development – Complete Vehicle – Field Test Lyon 8/7/2012 2/38

Summary: 1/1

D. Gaymu – 3P – Global Product Development – Complete Vehicle – Field Test Lyon 8/7/2012 3/38

I. *General Information and test conditions.*

I.1. *Project :*

The Freilot Project is a R&D program sponsored by the European Commission. Its aim is to get more efficient in terms of energy the urban freight transport.
For that, consortium partners have been working on 3 particular points :

- *Traffic Management (using intersection control)*
- *Eco Driving Supports (using acceleration and speed limiters and a Eco driving coach)*
- *Fleet management (Real time load/delivery space booking)*

The aim of this Project is to show a reduction of the fuel consumption for goods transportation in city areas with up to 25%.

These solutions will be implemented during one year in four Pilots sites :

- *Lyon, France,*
- *Helmond, Netherlands,*
- *Bilbao, Spain*
- *Krakow, Poland*

I.2. *Test target :*

The target of this test is :

- To run during 12 months, in real conditions of use,
- To make measurements on the new functions proposed,
- To analyze the impacts of these new systems on environment, fuel consumption, on drivers' behaviour, and on traffic efficiency.
- To have a feedback from drivers about the Freilot systems.
- To have a feedback from transporters about utility and efficiency of the systems

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II. *Guidelines in case of incidents and Contacts*

In case of incident, we have to distinguish two situations :

II.1. *Incident not immobilizing or out of open roads*

Drivers must respect their work instructions and call their normal contacts.

According their analysis, these contacts will call Renault or Volvo dedicated teams.

II.2. *Breakdowns on open roads :*

Make sure that persons are safe

Put the vehicle in an adapted configuration, not involving a risk for circulation

As fast as possible, contact the usual correspondents and/or services of safety

In all the cases, safety must be a main concern and the respect of the Highway Code is imperative.

In all cases, all intervention on the vehicle, even minor, must be carried out in the presence or with the authorization of competent people

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III. *Components concerned by evaluation*

III.1. *Eco Driving System.*

Eco driving System is system which treats information from the different calculators. It does not change vehicle behaviour.

During this field test, we want to study the drivers' behaviour in front of the system:

Are the advices followed well by the drivers ?
In short terms and in long terms ?

Are the pop up messages relevant?
Can we improve the system?
Can we make it more ergonomic?
In which situations can you try the limits of the pop up messages?

We also want to study the fuel consumption evolution using the system.

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III.2. Acceleration Limiter

Some news functionalities have been added into the vehicles' calculators to design this Acceleration limiter function. The function is designed to optimize in every moment the performance of your truck.

During this field test, we want to evaluate
- The driver behavior in front of this function.
- Do the drivers accept this function and the new truck behaviour ?
- Do you notice some limits in this function ?
- Do you notice an evolution in fuel consumption when using this function ?
- Do you notice some benefits using this function ?

III.3. Speed Limiter

Some new functionalities have been added into the vehicles calculators to design this Speed limiter function.

During this field tests, we want to evaluate
- The driver behavior in front of this function.
- Do the drivers accept this function and the new truck behaviour ?
- Do you notice some limits in this function ?
- Do you notice an evolution in fuel consumption when using this function ?
- Do you notice some benefits using this function ?

IV. Safety Instructions

For Acceleration and Speed Limiters, you can over ride the functions at anytime pressing the kick down of the acceleration pedal. In this case, all the vehicle performance will be restored temporally.

In case the "Stop" icon switches on in the Instrument Cluster, please respect the common safety instructions:
- Stop the vehicle immediately.
- Put the persons in safety.
- Put the vehicle in an adapted configuration, not involving a risk for surrounding traffic.

V. Presentations of Freilot specificities.

V.1. Eco Driving System.

V.1.1. Technical Overview

The FREILOT Eco Driving Support (EDS) System is a support system which gives advices to the driver of a truck in terms of fuel efficient driving behavior.

This system is an adaptation of the Dynafleet system. Dynafleet is a system for transport planning combined with vehicle planning, message handling and automatic reporting of vehicle status and driver times.
The Dynafleet system collects information from the vehicle calculators.
The on board display provides the driver with information about the vehicle and driving activities.
Thanks to this information, you can optimize your driving routes, manage your follow up in terms of vehicle costs, workload distribution and performance of eco driving.

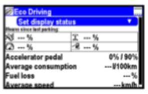
All recorded data is transferred to a back office server for further processing and follow-up. Transfer of vehicle data to the server is performed via the GSM network. If there is poor coverage, the information is stored temporarily in the Dynafleet system. Basic data reports are also transferred when required by the central office. In addition, the GPS receiver provides the system with correct system time and position.

The EDS system is accessible in the menu of the Dynafleet system. The following chapters describe the features of the system.

V.1.2. Functionalities

- On board

If the Eco Driving menu has been chosen, the following information is shown in the display on the dashboard:



The details of this picture are described in chapter V.1.5

When the system detects that the driving behavior can be improved in terms of fuel consumption, the EDS system gives advices to the driver. These advices are focused on the four following key features:

- Avoid quick accelerations
- Change gear appropriately during acceleration (deactivated with automatic gearbox)
- Drive with adapted engine speed in steady running (deactivated with automatic gearbox)
- Anticipate your deceleration to avoid braking or acceleration as long as possible.

These advices are shown as pop up messages in the display, covering the previous information in the display for a short period of time.

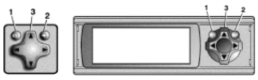
The driver can choose to not display pop up advices. The system will then continue to calculate and send evaluations to the office.

- Off board

The EDS system logs data concerning driving behaviour in terms of eco driving quality. As described in chapter VI.1.3 logged data is sent to a back office server and can be used for further analysis.

V.1.3. Controls

The system has the following buttons and controls:



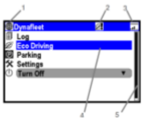
1. "Esc" has two functions depending on the situation:
- In forms, you can choose between different values. Pressing the "Esc button" means that you cancel the setting.
- In other cases, pressing the "Esc" button means that you are moved one level up in the menu tree.

2. "Select" has three functions depending on the situation:
- When a question is asked, pressing the "Select" button means that you answer yes to the question asked.
- In forms, you can choose between different values. Pressing the "Select button" means that you confirm and accept the current settings.
- In a menu, pressing "Select" once means that you are moved to the active alternative, i.e. to the sub menu which is shown as white text on a blue background.

3. "Pressing the arrow keys on the cross; right, left, up and down", moves the cursor in the selected direction.

V.1.4. Symbols

The relevant symbols and functions are described below.



1. Icon that indicates which part of the system you are viewing.

2. Eco Driving icon (active when eco driving advice is not being followed).

3. Icon showing the GSM signal strength.

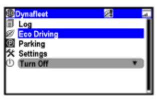
4. The currently active alternative is shown as white text on a blue background.

5. Scroll-strip that shows if there is more information available. Pressing "down" shows the lines below.

V.1.5. Menus

- Dynafleet main menu

The FREILOT version of Dynafleet in which the FREILOT EDS system is integrated is a light version: message handling, orders and other functionalities are not included.



The main menu consists of the following menu selections:

- **Log**, shows the drivers log
- **Eco Driving**, set display status, shows Eco Driving scores and driving data
- **Parking**, makes parking reservation (FREILOT parking booking function, separate function not described in this document)
- **Settings**, manage settings in the system.
- **Turn off**, puts the system in stand-by mode

- Settings menu

The settings menu gives access to all adjustable system parameters.

To alter a setting, press "Select" on the setting that is to be altered and scroll between the alternatives shown using the arrow keys. Press "Select" to accept the highlighted setting.

The following alternatives can be selected in the settings menu:

- **Screen saver**, adjusts the delay before the screen saver is activated or turns the function off.

- **Volume**, adjusts the speaker volume.
- **Back lighting**, adjusts the screen back lighting.
- **Contrast**, adjusts the screen contrast.
- **Language**, selects desired language.

- **Keyboard**, selects the keyboard language required.

- **Units**, selects between European, American or British units.

- **System information**, shows the hardware number, software number and serial number.

- Eco Driving menu

The Eco Driving menu gives access to display system status and eco driving sum up data.

1. **Set display status**, press "Select" to change the display status of pop-up advices.

2. display the driver score related to the **accelerator** pedal position advice

3. display the driver score related to the acceleration **gear shifting** advice

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4. display the driver score related to the **engine speed** in steady running advice

5. display the driver score related to the **deceleration** advice

Displayed values are averages since last time the parking brake was engaged.
Values are updated when the vehicle is stopped (vehicle speed at zero).

A one hundred percent score means that the driver has done a run without triggered any pop up advice.

A zero percent score means that the driver has not been driving according to the advices at all.

The lower part of the Eco Driving menu gives the following information:

- **Accelerator pedal**, display the actual accelerator pedal position and the limit that shall not be passed (percent)

- **Average consumption**, display the average fuel consumption since last parking (L/100km)

- **Fuel loss**, display the estimated fuel that was lost since last parking due to non optimized driving (percent)

- **Average speed**, display the average speed since last parking (km/h)

Even if pop up advices are disabled, scores and sum up values will be calculated and sent to the office. Also, the Eco Driving icon will be displayed when the driver passes the advised limits.

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V.2. Acceleration Limiter

V.2.1. Technical Overview

The objective of the Acceleration limiter proposed by Freilot is to reduce fuel consumption using eco driving methods when accelerating.

Vehicle acceleration will be constantly controlled. In certain zones, defined with the transporter, the function is even more restrictive.
These zones are defined by GPS. A GPS receptor has been installed in your vehicle. It allows locating, in real time, each entry and exit in one of these zones.

The system has 3 different levels of acceleration limiters as you can see following

- The first limitation is designed for extra-urban areas
- The second one is designed for Urban areas (red zones in our exemple)
- The third one is designed for urban areas with tense traffic (blue zone in our exemple).

You can see the zones maps related with your activities in annex to the current document.
The zones can evolve but such evolution will be done in agreement with concerned transport companies.

In this system, the calculators will determine what is the maximum acceleration allowed. This system is designed to be transparent for the users. The only indication when the

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acceleration limiter is active will be the following symbol in your instrument cluster

Moreover, for obvious safety reasons, you can switch off the limiter and restore temporally the original vehicle performance vehicle at anytime, activating the kick down on the acceleration pedal.

If driver tries to accelerate over the allowed limit, the symbol will appear inverted and blinking in the instrument cluster.

V.2.2. Symbols

The two symbols that represent the acceleration limiter are the following two:

- The first one appears when the acceleration limiter is active.
- The second one is when you are overriding the system, activating the kickdown.

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V.3. Speed Limiter

V.3.1. Technical Overview

The objective of the Speed limiter proposed by FREILOT is to reduce fuel consumption using eco driving methods (a reduced speed for reduced fuel consumption)

The vehicle maximum speed will be limited in certain zones. These zones and speed limits will be defined in agreement with the transporter.

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V.3.2. Functionalities

Entering in the zone, a pop up message will appear in your instrument cluster to indicate you how much is the speed limit in this zone. The driver can accept or reject this proposition using the commands in the steering wheel.

When exiting a zone the function will automatically be deactivated and a message will appear in the instrument cluster to inform about the change.

At any moment, you can override temporally the system activating the kick down.

V.3.3. Symbols

The following symbol represents the speed limiter function in your instrument cluster. It is always followed by the speed limit corresponding at the zone where you are.

If the system is overridden by activating the kick down, the symbol will appear inverted and blinking.

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VI. Driving

VI.1. Eco Driving System.

VI.1.1. System start & stop.

- System Start.

1. Turn the truck's ignition key. The Dynafleet system will start automatically when the key is in the radio position. If the truck is fitted with a separate color screen, it will pop up.

2. The system will automatically identify the driver by reading the driver card in the digital tachograph. If the vehicle has an analogue tachograph, the driver is identified by logging in on the Dynafleet Driver Tool-unit with information from the office.

3. After a greeting message the system is available to work with.

- System shut off

When the ignition key is in 0 position, the Dynafleet system goes to stand-by mode. The screen shuts off and drops down.

The system continues to log data while in stand-by mode.

The system is shut down completely only when the ignition key is turned off. In this condition, the Dynafleet system cannot receive GSM communications.

- Transferring data

The data collected and recorded in the system is transferred to a back office server where it is compiled and documented. Information is transferred to the server via the GSM network.

VI.1.2. On the road

On the road, message will be displayed in order to give advice on how to adjust the driver's behavior for more fuel efficient driving.

The following pictures are the messages drivers would be read:

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VI.1.3. Specific informations

EDS System integrates a server and a back office. Thanks these tools, data logged from the trucks can be analyzed.

This website is available at the following direction
http://freilot.tech.volvo.com:8080/freilot

You need a user name and password to log you in the application.
These data will be sent you at the moment of the activation of the systems.
We will provide you an access for your fleet manager. With this access you will be able to analyse the data of your whole fleet.
All your drivers will have a private access to his own data using his Driver ID as Username and password.
On your first login you will be able to customize your password.

Login in the application:

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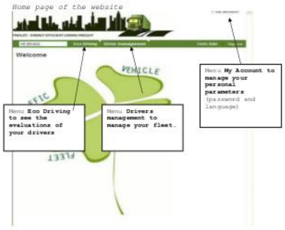
Home page of the website



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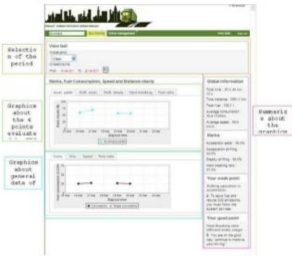
Menu Eco Driving



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Menu Drivers Management

In this menu, the fleet manager will have to register the list of the drivers concerned by FREILOT test with their driverID and their name or nickname.

In the Menu My Account, you can customize your password and choose your language.

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VI.2. Acceleration Limiter

VI.2.1. System start & stop.

There is nothing to report during the truck start and stop. The vehicle will have a normal behaviour in these situations.

On your instrument cluster, the Acceleration Limiter symbol will appear on the left down side as the following picture shows.

VI.2.2. On the road

On the road, if you override the system using the kick down, the Acceleration Limiter Symbol will appear in reverse video.

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VI.3. Speed Limiter

VI.3.1. System start & stop.

There is nothing to report during the truck start and stop. The vehicle will have a normal behaviour in these situations.

At the truck start, no particular symbol is present in your instrument cluster.

VI.3.2. On the road

In the case the truck is not close to a speed limit zone:

The truck will have a normal behaviour, as if the speed limiter is not present.

In the case the truck is close to the speed limit zone and is entering in it :

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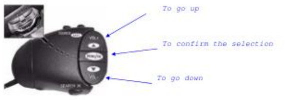
The following message will appear on your instrument cluster :

Using the cruise command, you can accept or deny this speed limit.



In the case you accept the limit, the Speed limiter symbol will appear in your instrument cluster followed by the speed limit.

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In the case you deny or do not respond to the question, the speed limiter will be switch off and nothing will appear on your instrument cluster.

The truck is exiting the speed limit zone and previously, the driver has accepted the speed limitation.

In this case, the following message will appear in your instrument cluster.

This is just an informative message. No driver's action is required. From this moment, the truck speed will no longer be limited.

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VII. Maintenance instructions and intervals

Please, respect the intervals and the instructions of your habitual maintenance plan.

VIII. Organization of visits and inspections on trucks

The truck has to be kept available for Renault Trucks/Volvo for inspections and adjustments as well as restoring original state at the end of the pilot.

The planning for visits/ inspections will be agreed by all the parts.

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IX. Confidentiality.

All the people in charge of this vehicle are subjected to the confidentiality, which they accept.

The users have the responsibility to take care that the following points are respected:

- No picture without Renault Trucks/Volvo authorization
- No communication of the data collected.
- No communication about the technical system installed in the vehicle.

Authorized persons are

Field Test Network :
- Allan Laursen Field Test DK (NL, PL trucks)
- Dominique Gaymu Field Test FR (FR trucks)
- Carlos Fernandez Field Test SP (SP trucks)

And any other person with FT agreement.

Renault Trucks, Volvo 3P, Powertrain :
All people working on this project

Customers :
All the persons working on this truck for its utilization and maintenance

Bodybuilders :
All the persons designated to build the superstructures.

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X. Drivers agreement and signatures

After reading the information above, each person who will drive these vehicles have to indicate its name, first name, date and its signature.

Last Name, First Name :

Date : Signature,

Last Name, First Name :

Date : Signature,

Last Name, First Name :

Date : Signature,

Last Name, First Name :

Date : Signature,

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Annexe 1 – Annex 1

Helmond Map

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Spain Maps

Alcala de Henares

Alcobendas

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Madrid

Segovia

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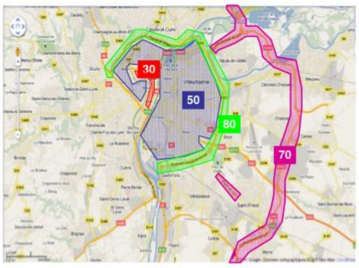
Lyon



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