

French Test Site WPT Charging Solution: Evaluation Results

DEMONSTRATIONS
AREA

*The dynamic WPT solution has been operational since March 2017
Final commissioning started in July 2017 and ended in November 2017*

Introduction

The integration of the dynamic WPT system and all its additional components (car instrumentation) has been a complex and multi-iterative process. However once the system had been firstly demonstrated in March 2017, no issues were encountered for the car part. For the track part, some random intermittent functioning was observed after a few months of tests; aggravating identified weather conditions like heavy rain and hot weather were observed. Final data collection could be proceeded from December 2017 to March 2018.

Objectives /methodology for evaluation

Evaluate the integrated dynamic WPT solution in its relevant functional specifications i.e.:

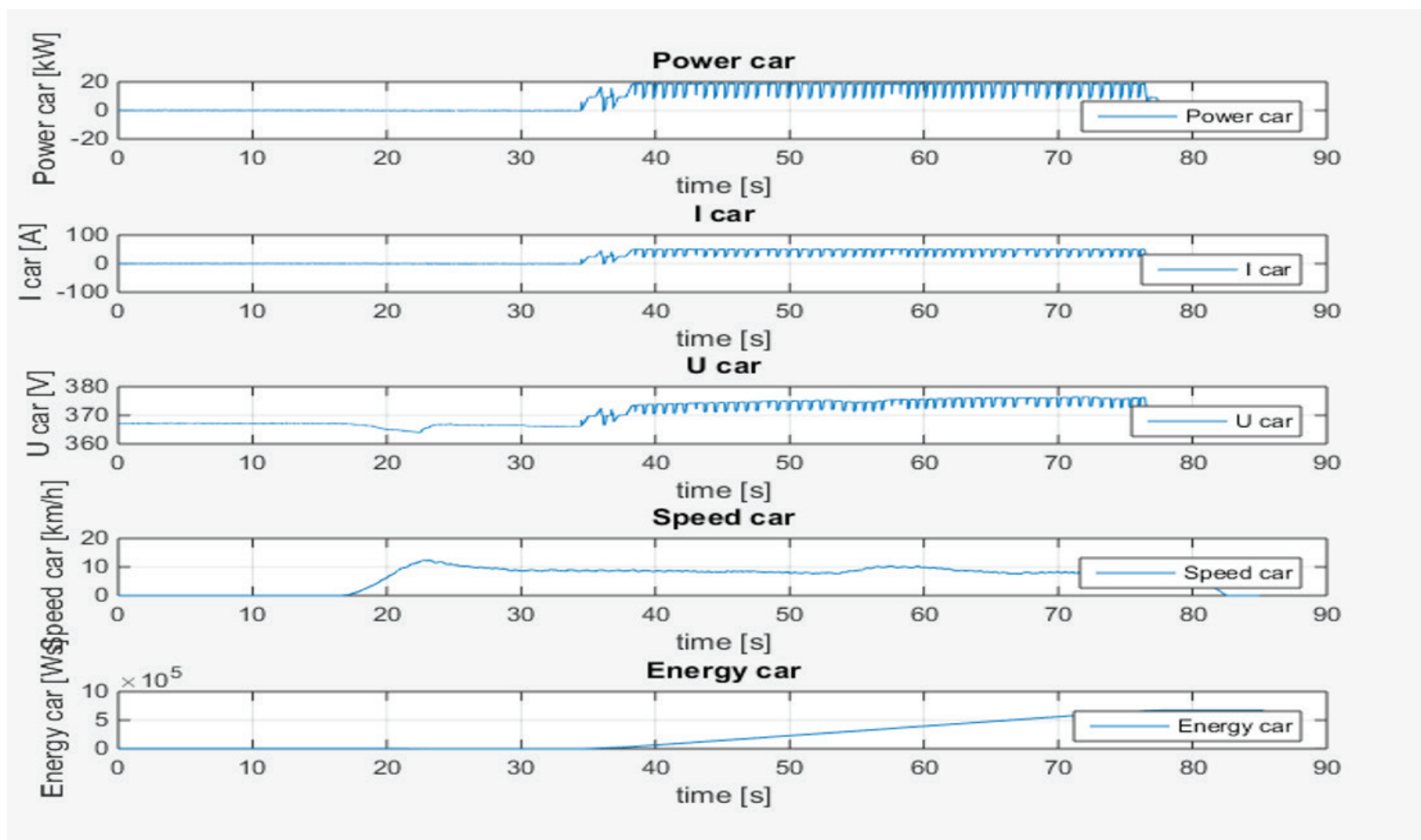
- Speed (0/100 km/h);
- misalignment (+/- 20 cm);
- air gap (+/-25 mm);

w/r to a common FABRIC validation methodology covering:

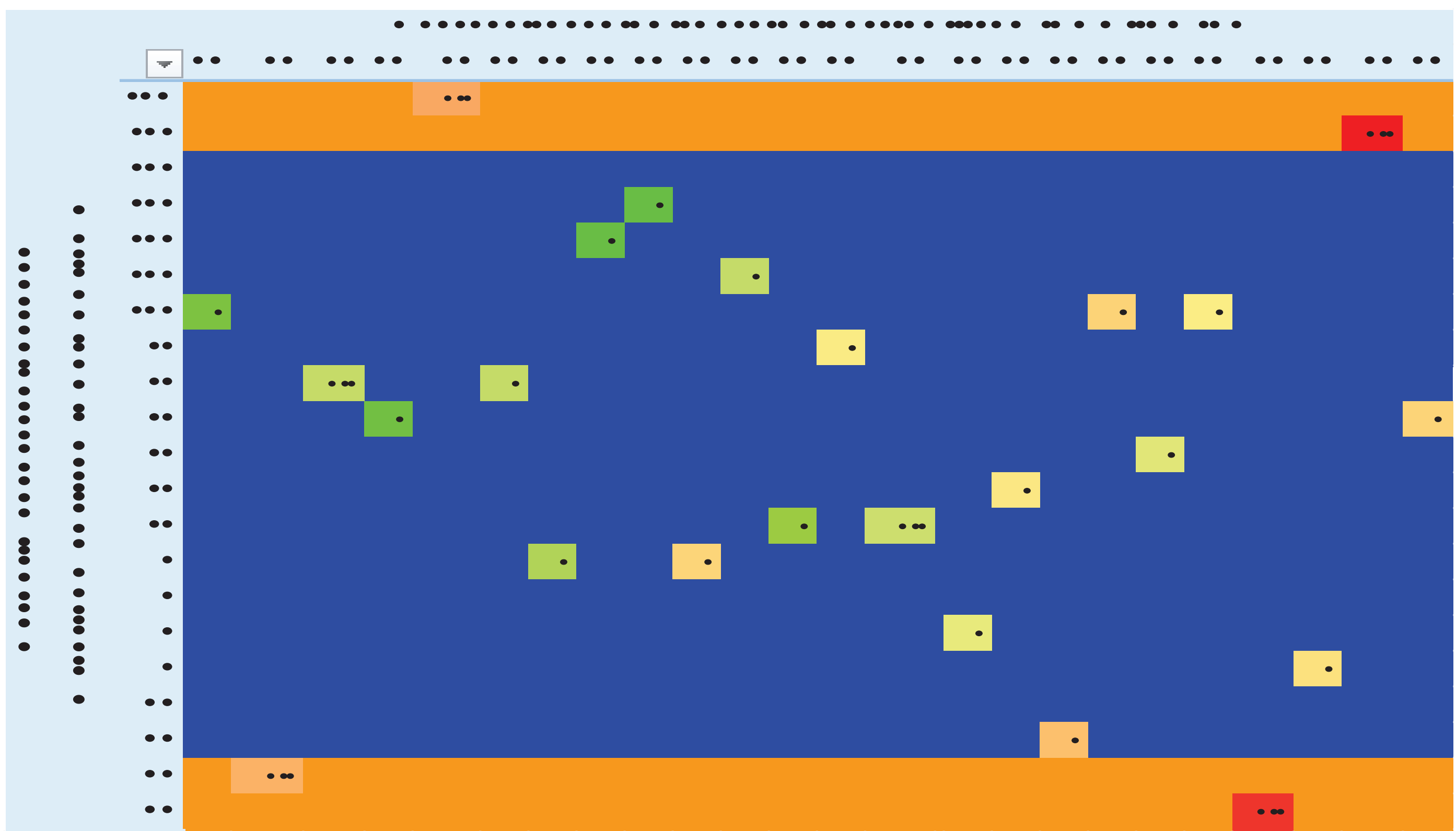
- Charge performance (54 test plan);
- EM exposure safety;
- Impact on grid.

Main evaluation results

- The experimental track implemented by VEDECOM has proven to be a very appropriate tool for such specific early prototypes tune-up, validation and demonstration in full functional range;
- The total energy efficiency of the dynamic WPT reached around 70% in best conditions (can be improved in the future);
- Pulsated output current and voltage signals could be further reduced;
- No significant charge performances indicator losses with less than 12 cm average misalignment and airgap variation in usual loading;
- EMF requirements (ICNIP 2010) are satisfied inside and outside the vehicle;
- EMC was practically assessed.



Standard data display (test at 10 km/h 20 kW)



Indicator of average power received by the battery (expressed as ratio between the measured value vs the maximum recorded value) as a function of average speed and misalignment

Main outreach activities

Many public demonstrations to French and European authorities have taken place in 2017 with extensive media coverage after:

- FABRIC track public inauguration by VEDECOM (March 28th);
- Demonstration for FABRIC Project Officer Mr Maurizio Maggiore, IEA members and Highways England representatives (April 26th);
- Qualcomm official launch (May 18th).

The dissemination of first scientific results has started (EvSys2018 conference on June 12th).



Demonstration of the FABRIC Versailles–Satory dynamic WPT solution to Elisabeth BORNE (French Minister of Transports) and Maros SEFCOVIC (Vice-President of the European Commission) on Oct 4th 2017.

Final Event & Demonstration | 21-22 June 2018 Italy

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Consortium

Project facts

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