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Thameslink: Faster and more comfortable service right across London

Commuter traffic suffocates London, an otherwise vibrant megacity. Train lines such as Thameslink, which directly connect the suburbs with the city center, are intended to ease London's traffic chaos. The goal is to optimize headways to improve capacity and reliability on one of Europe's busiest commuter lines. Siemens will supply the trains and the signalling systems.

Soon double the number of vehicles will be travelling on the already rather busy Thameslink route. This feat will be made possible by upgrading the entire route for automatic operation, enabling uninterrupted regional and mass transit services: As soon as the trains enter the city, the drivers will switch from conventional to automatic train control, saving valuable seconds. In addition, the new Desiro City will provide up to 80 percent more seats for commuters.

Automatic train operation with 24 trains per hour

- Automatic train operation systems are valuable tools for optimizing punctuality and headways. A variety of automatic functions can be used to support the driver, transmit information and considerably increase passenger comfort. In addition, the system controls train movements in accordance with the permissible speed. If a movement is not permitted or a train is travelling too fast, the train control system automatically decreases the speed of the train.
- Thameslink not only spans London from north to south, it also provides a direct connection from the suburbs to the city center. To connect the mass

transit and the regional network and enable uninterrupted services for the passengers, Siemens will introduce automatic train operation (ATO) over Level 2 operation of the European Train Control System (ETCS). Trains on the regional network will run conventionally. The transition from manual to automatic operation takes place without interruption.

- Outside the core area, the onboard equipment monitors the train movement using the existing train supervision and warning system which operates within the ETCS level. As the train nears the core area, a radio link is established and
 - the onboard ATO (Automatic Train Operation) exchanges messages with the control center (ATS: Automatic Train Supervision) via ETCS and receives all information necessary for an optimum journey,
 - the ETCS trackside commands a transition to ETCS Level 2 full supervision. The ETCS onboard now supervises train movements with the highest level of safety,
 - the train then enters automatic operation and ATO exactly controls the speed of the train.
- ATO shortens headways through time-optimized travel, exact stopping, automatic door opening, stipulation of a target dwell time for the driver and precise travel along ETCS brake supervision curves.
- The Controlguide operations control system coordinates train movements across the entire Thameslink route.

Desiro City: Double the service on the Thameslink route

- Siemens has developed a new vehicle for the Thameslink route: The new Desiro City for rapid transit, regional and inter-regional traffic in Great Britain reduces the overall energy consumption and track wear by up to 50 percent compared to previous models. The interior design of the new train generation has been improved for higher comfort and greater flexibility. With its individually selectable interior layout, the Desiro City can carry up to 25 percent more passengers compared to the predecessor model. The number of seats

and the distance between them can vary according to needs and the service for which they are intended. This is how additional standing room and space for bicycles and wheelchairs are created. Since 2014, the vehicles have been built at the Siemens plant in Krefeld, Germany. The first trains are to commence operation on the route in 2016.

- Siemens has developed a new platform concept for the British market, the Desiro City, based on years of experience with roughly 1,500 vehicles of the proven Desiro platform in Great Britain. The trains weigh up to 25 percent less than the existing Desiro UK fleet. The lightweight design of the aluminium body and the bogies, which are about one third lighter in weight, are crucial for ensuring this. Its recycling rate is about 95 percent. The Desiro City was conceived as a self-contained unit. This ensures high flexibility for train configuration, which can thus be adapted to the expected passenger volumes.
- The Desiro City Thameslink vehicles will be operated as eight or twelve-car trains in dual mode (DC 750 V or AC 25 kV). The maximum speed is 160 kilometres per hour. Depending on the passenger volume in each coach, the supply of fresh air is regulated automatically by the heating, ventilation and air conditioning (HVAC) system with CO₂ sensors.
- Siemens will also be in charge of maintenance for the entire vehicle pool. For this purpose, two new depots will be set up in Three Bridges and Hornsey. Siemens is the service and maintenance market leader in the UK. Siemens has been able to conclude long-term service contracts for all fleets, and ensures that over 350 trains are in passenger service every day.

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All information about the Siemens presentation at the UITP 2015 can be found at

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