SWISS, one of the first commercial operators flying LPVs in Europe

The first commercial flight of a Bombardier CS100 took place on July 2016. The flight, operated by the launch customer SWISS, which departed from Zurich, landed at Paris Charles de Gaulle making use of the existing EGNOS based LPV-200 procedure during the approach.

LPV-200 allows for aircraft approach procedures that are operationally equivalent to CAT I Instrument Landing System (ILS) procedures with no need for any navigation ground infrastructure at the airport. This satellite navigation technology provides lateral and vertical angular guidance during the Final Approach Segment without requiring visual contact with the ground until a Decision Height down to only 200 feet above the runway.

EGNOS ready Bombardier CS100 and CS300 fleet

Bombardier’s new CS100 and CS300 aircraft are fitted with Rockwell Collins Pro Line Fusion avionics suite and certified for the use of Satellite Based Augmentation Systems (SBAS) from factory.

As of January 2017, SWISS operates five CS100s units and expects to receive 30 C Series in total (mix of CS100 and CS300) until the end of 2018.

The current network of destinations of the CS100 fleet is shown to the right. The LPV implementation status at these destinations corresponds to the colour code given in the legend shown below.

Out of the 25 destinations, 15 count on an EGNOS based procedure (LPV or LNAV/VNAV authorised for the use of EGNOS) and 7 are already planned or ongoing*.

SWISS CS100 flights are operated via its main hub in Zurich, where an LPV-200 is planned for publication in May 2017. Once available, the total number of flights landing at EGNOS-ready destinations will rise to 84%, as indicated in the pie-chart below:

% of flights per EGNOS procedure availability at destination.

EGNOS implementation status at SWISS CS100 destinations.

Approach operations by means of LPV makes it easier to pilot as no navigation source change is required. Personally, I request a LPV to ATC whenever possible.

Thomas Schnider
Captain, Head of Flight Operations Policies & Flight Validation Pilot at SWISS

Further inputs

More information on EGNOS performance and services status can be found in the EGNOS User Support website: https://egnos-user-support.essp-sas.eu

Questions on EGNOS can be addressed to the EGNOS Helpdesk via e-mail: egnos-helpdesk@essp-sas.eu, telephone (24/7): +34 911 236 555 or website.
EGNOS benefits

Apart from the reduction of the Decision Height minima compared to conventional Non-Precision Approaches, LPVs provide safety benefits such as the avoidance of capturing ILS secondary lobes or QNH missetting errors, as the system provides geometric guidance which is not temperature nor pressure dependent. This makes the approach easier to fly, improves pilot situational awareness and reduces the risk of controlled flight into terrain (CFIT).

Additionally, EGNOS reduces trajectory dispersion and allows for a more flexible use of the airspace, which can facilitate the rationalisation of conventional nav aids, reducing the associated installation and maintenance costs and thus the taxes paid by airspace users.

EGNOS enabled Bombardier CS100 cockpit. © Swiss

“... The accuracy and stability of the LPV guidance is impressive, as completely independent from ground installations. Lowering the LPV minima down to 200ft in Europe is a great improvement and very valuable. The approach procedure is straight and simple, and there is no necessary changeover regarding the FGS with respect to conventional approach aids. ”

Peter Koch
Chief of Bombardier C Series Fleet at SWISS

http://www.essp-sas.eu/