

Dassault Aviation relies on EGNOS and LPV

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Credits: Dassault Aviation

A brief history of Dassault Aviation The company's story begins in 1916, with Marcel Dassault inventing the Éclair propeller. Today, Dassault Aviation is a leading aerospace company in over 90 countries across six continents. Dassault designs and builds the family of Falcon business jets and the Rafale fighter jet. The company has a workforce of over 12,000, production facilities in both France and the United States, and a worldwide service network. Since the rollout of the first Falcon 20 in 1963, over 2,650 Falcons have been delivered. The tri-jet and twin-engine lines offer outstanding efficiency and comfort, with ranges from 4,000 NM to 7,500 NM. They include the flagship Falcon 10X, the pioneering Falcon 7X and 8X, the wide-body Falcon 6X, and the versatile Falcon 900LX and 2000LX. Falcon Customer Service continues to hold the top spot in key business aviation surveys.

Review of the Falcon family and its LPV status

The story of Dassault and LPV originates from the early beginnings of EGNOS-based approaches. The LPV feature was first certified in Dassault's EASy2 Avionics – provided by Honeywell – in June 2011, with Falcon 900EX being the first aircraft model equipped with this Avionics standard. The EGNOS SoL service was introduced in 2011 with only APV-I Level of Service, which allowed LPV approaches down to 250ft line of minima. At that time, Dassault's Falcon 900LX was the first aircraft to fly an EGNOS-based approach down to 250ft (performed in Pau, France, early that same year). They went on to take a step further with their Falcon 2000LX, and in 2006 became the first business jet to fly an Instrument Approach Procedure with a published LPV minima of 200 ft, using the recently declared EGNOS LPV200 Level of Service. The flight was conducted at Paris' Charles de Gaulle Airport as part of initial European LPV200 trials, which also involved Airbus 350 and ATR-700 commercial aircraft.

Today, LPV is an option available for all inproduction Falcon types. According to Dassault, almost all of their customers purchase the LPV functionality from the manufacturing line. Various retrofit solutions are also available for older aircraft, and receiving these requests to implement LPV is extremely common. This demand for LPV comes from the Business Aviation's need to meet their customers' requests. They cannot rely on weather conditions to reach their destinations, and LPV brings instrument approaches with lower minima (200ft) to

a broader range of destinations, especially in secondary and regional aerodromes where ILS is not an option. As stated by Alain Boucher, Navigation & Flight Guidance Systems in Dassault, "Better accessibility means fewer go-arounds in approach and less diversion to alternate airports in case of bad weather. This means less fuel burnt. Consequently, direct access to those remote airports also means that the customer can directly fly to the final destination without using other transportation means, as would be the case when landing at a major airport – ILS equipped – maybe hundreds of km away."

In addition, they state that it is also important for their customers to implement SBAS-based ADS-B Out; it is the easiest way to meet ADS-B Out European and US mandates. And since worldwide SBAS systems are interoperable, operators relying on WAAS in the US can also benefit from EGNOS when flying within Europe.

The new Falcon 6X and 10X will also count on EGNOS and LPV

LPV option for new orders will also apply to the brand-new models of the Falcon family, the [Falcon 6X](#) and [Falcon 10X](#); long-range business jets models featuring the widest cabins on the market, new generation engines for greater performance and fuel efficiency and the latest developments in Flight control & Avionics systems.

On top of that, these new models can be fitted with the business jet world's first Combined Vision System (CVS), known as FalconEye, providing flight crews unprecedented situational awareness in all weather conditions, day or night, as a combination of SVS and EFVS.

Considering all of the above, operators purchasing the new 6X and 10X might benefit from LPV and Combined Vision Systems simultaneously, particularly with EFVS. When arriving at LPV decision height, the FalconEye multispectral camera, which can be installed onboard Falcon models, allows the crew to see the runway for landing when this is not possible with the crew's natural vision. EFVS has the capability to extend operations below LPV200/ ILS Cat 1 visibility minima. That is why LPV and EFVS are complementary and particularly interesting for business aviation.