

● FLIGHT TEST

On board the A350 XWB

The A350 Xperience

In June, TIM ROBINSON, was among selected journalists to become one of the first to experience Airbus' new widebody airliner — the Airbus A350 XWB — as a passenger. Does it live up to the hype?

It may be tempting fate but, as it stands today, Airbus's new composite A350 XWB airliner now seems to be almost on the final lap after an (for the aerospace industry) exemplary flight test and development programme. While Airbus detailed its flight-test progress to aviation journalists at its annual Airbus Innovation Days media briefing event, it also decided to show off its latest airliner by taking journalists aloft on a special flight.

It was only in June last year that the A350 XWB took to the skies in Toulouse for its maiden flight, before appearing briefly at the Paris Air Show. Meanwhile, earlier in February 2014, Airbus made history when it flew two different A350 prototypes (MSN2 and MSN4) on the same day — a remarkable flight-test achievement. The last flying test prototype, MSN5, (the second cabin-equipped) recently made its first flight this month — completing the flight test fleet.

The test aircraft have been worked hard — and, by 20 June, had flown more than 2,000 flight-test hours (around 500 flights) or on average 80 flight test hours per aircraft a month. This is the highest flying rate yet for an Airbus test programme. With a planned flight test campaign of 2,500hrs — this leaves 500hrs still to complete.

To achieve this rapid pace has taken careful and detailed planning and preparation. Airbus itself has learnt tough lessons both from its own past (the A380) and from competitors (the Boeing 787). Even today, another civil airliner manufacturer, Bombardier is finding the going tough in testing its new CSeries. The key has been extensive and detailed de-risking of the programme. While some things (such as finding suitable weather for in-flight icing tests) are beyond the control

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IN AN A321
ON THE
FLIGHT HOME,
COMPARED TO
BEING IN THE
ULTRA-QUIET
A350, SOUNDED
LIKE BEING IN
A SATURN V
ROCKET ON
LAUNCH

of any development flight-test schedule, the A350 has benefited from a new level of simulation, bench testing, test rigs — before it even flew. These range from not only the traditional testing, such as an engineering flight simulator, and an 'iron bird' rig, but also mock-ups such as 'Cabin Zero', to test IFE and galley features and even a full scale air conditioning, bleedair and APU system test bench — put together by Honeywell.

Thus, barring some unforeseen 'out-of-the-blue' event — the schedule of certification in the third quarter, and first delivery to launch customer Qatar Airways appears on track for the fourth quarter.

The biggest surprise in the A350 programme, so far, has been a non-technical matter — a cancellation of an order for 70 by Emirates. Though the Gulf carrier's fleet adjustment decision hit both Airbus' and Rolls-Royce's share prices immediately, the airframer was bullish that although unfortunate, the long-term production slots would soon be filled by other airlines eager to buy the aircraft.

Flight test demo

Such a setback though was temporarily forgotten when Airbus revealed that this year's Innovation Days would include a



flight for around 150 aviation journalists on MSN2, a A350 XWB prototype equipped with a representative business and economy cabin. "The aircraft woke up well this morning", said Fernando Alonso, Head of Flight Test at Airbus, confirming the decision to offer the media there an opportunity to be among the first passengers to experience the aircraft. Indeed, this was only the third flight with 'passengers' — MSN2 having recently completed two Early Long Flights (ELFs) with Airbus employees.

The flight, flown by Airbus test pilots Peter Chandler and Frank Chapman, saw the aircraft depart Toulouse to fly near the stunning Pyrenees mountains. The A350 XWB reached 31,000ft during the demo flight which, at one point, was joined by a French Air Force Rafale fighter which formed with us.

So what is it like as a passenger?

If the aircraft is quiet on the outside, it is also unbelievably quiet on the inside — building on the A380's reputation. Even with a mid-wing seat (usually the most noisy place due to engine and flap noise, etc) it was easy to have conversations, even with people in different rows, without raising one's voice. Indeed, throttle adjustments on landing, were almost imperceptible. The result should be an aircraft that will be not only a hit with passengers wanting sleep on overnight flights but, also, crucially residents around airports — an increasingly important factor in airline operations.

Some comparison for this journalist was that take-off on an A321 on the flight home, compared to being in the ultra-quiet A350, sounded like being in a Saturn V rocket on launch.

One system that the aviation press was unable to test was the inflight WiFi system. Airbus (probably correctly) decided that 150 journalists all uploading pictures and video simultaneously would be a test too far for the A350 — and wisely it was kept off.

Widebody Xperience?

So does the X in XWB really stand for 'Xtra'? In its latest marketing campaign — Airbus is pushing hard the 'widebody' angle vs its deadly rival Boeing and is highlighting the difference it claims an extra inch makes between the 18inch and 17inch width seats. With a generic but representative cabin interior and, without a similar 787 cabin to compare side-by-side, it is difficult to make direct comparisons. However, the light, spacious passenger cabin (even in economy) gives the impression that you are in a larger aircraft, such as the main deck of the A380. The side wall panels



too, are straighter and more vertical — important for tall passengers, such as this journalist when sat in the window seats.

Another feature set to be popular is the giant overhead luggage bin space. Like passengers, carry-on luggage today is getting bigger and bigger, and the A350's huge overhead bins will help airlines accommodate ever-bigger bags.

However, while Airbus has certainly taken airlines' needs into account, with the A350 it has steered a careful path between too much choice and too little. Part of the reason for the A350 staying on track is that, after the A380, Airbus has been much firmer and stringent with customisation options for airlines. Freeze decision points in the cabin design, and an 'A350 XWB Configurator' means that, this time round, Airbus has managed to rein in the temptations of airline marketers who see the cabin as a 'blank canvas' — the undoing of the A380 when too much choice and creativity spilled over and contributed to the disrupted development of the airliner.

Finally, another factor in the A350's favour is, (like the 787) its lower cabin altitude (6,000ft) — which should make for more pleasant and comfortable flight, with less tiredness and dryness for passengers. The A350 can also be equipped with Swedish company CTT's humidification technology as an option to further increase passenger comfort. Though this was only a short demo flight (and excitement levels among passengers were extremely high) the lower cabin altitude should make a notable difference on long-haul flights — getting passengers to their destination feeling more refreshed and less fatigued.

Also like its US rival, the A350 is equipped with coloured cabin 'mood lighting' which can be changed to customise the interior for different times of day or to match the airline's brand identity.

Summary

Showing off its new A350 in this way, was a highly visible sign of Airbus's quiet confidence in the type's maturity — especially since the aircraft had only twice before carried passengers. Even though it was an actual, working flight-test aircraft (with an engineer's panel at the back and specific equipment installed), it had the feel of an operational, production aircraft. This is no accident. With the A350, Airbus decided to run its Flight Test Centre as 'Airline 1' — emulating a 'virtual airline' and the operational challenges that its launch customers will face. This means that, when the A350 enters service, any potential teething troubles that Qatar or other airlines encounter, will have already been seen previously by Airbus as 'Airline 1'. Again, de-risking the programme as early as possible, is now paying off as the aircraft begins to enter the home straight.