Boeing, DTU Studies Confirm Value of Air Purification

The Boeing [NYSE: BA] 787 Dreamliner will provide passengers with better flight experiences, in part because of the findings of a two-year study about cabin environment conducted with the Technical University of Denmark (DTU).

"Our commitment to providing passengers with a better flying experience requires us to understand the science behind the perceptions and symptoms passengers report," said Mike Bair, vice president and general manager of the 787 program for Boeing. "We're researching many factors, ranging from temperature to altitude to humidity to air purification, so we make decisions that have noticeably positive results for passengers and crew."

Boeing's decision to enhance purification of the Dreamliner's cabin air, for example, resulted from participants' responses to a variety of environmental factors examined during the DTU study.

Research determined reduction of gaseous contaminants combined with modest increases in humidity provides improved passenger comfort. Air purification was found to be a more important factor than increased humidity for addressing many aspects of passenger complaints including eye irritation and general dryness.

"Airplanes today have very clean air, relying on the same technology used in hospital operating rooms," Bair said. "With the addition of air purification on the 787, we can make the air even cleaner by removing gaseous contaminants. Our studies show there is tremendous benefit in adding this technology."

The DTU/Boeing study evaluated the individual and combined effects of both gaseous filtration and increased humidity. Participants experienced prolonged exposure -- up to 11 hours -- at different humidity levels with and without air purification. Contaminant and humidity levels were controlled at different airflows.

Participants reported on their perceived ratings of air quality and the intensity of a number of symptoms such as level of eye and throat irritation, dryness, headache and general comfort. In addition, researchers ran objective medical tests to measure the effects on the eyes, nose and skin.

"The researchers' hypothesis before the studies was that humidity would be the key factor in improving comfort," said Bair. "And while they found that increased humidity is beneficial, the air purification has an even greater effect. It was a great learning experience that has helped us make meaningful design decisions for the 787.

"If it weren't for the research, we might have decided just to increase the humidity," said Bair. "But the results clearly showed that we could do even more to improve passenger and crew comfort by also applying new air purification technology."

Additional studies are being planned to understand the connection between humidity, air purification and other factors.

"Boeing is making an ongoing effort to identify opportunities to improve the flying experience," said Bair. "The 787's open architecture will allow us to incorporate future improvements as new opportunities are identified and confirmed with scientific research. This flexibility is enabled by our all-new design and cannot be accomplished on a derivative.

"We have an obligation to our customers to really understand the benefits of new technologies before we apply them," Bair concluded. "Once we understand the value and benefits, we can make decisions that have noticeably positive results."

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