

Weather information need for safe operations

RTCA Special SC-206 Aeronautical Information and Meteorological Data Link Services Status

A key objective of the future ICAO Air Traffic Management (ATM) concept and Next Generation Air Transportation System (NextGen) performance based capabilities is to establish the aircraft as a primary participant in collaborative decision making (CDM); and, in some cases, establish airspace regions for autonomous operations where the aircraft is primarily responsible for safe separation from other traffic, weather and designated/restricted airspace. Timely availability of high-quality and reliable electronic Aeronautical Information Services (AIS) and Meteorological Information Services (MET) are necessary to support the transition and implementation of these advanced global ATM concepts envisioned by ICAO, NextGen, and SESAR. To support these envisioned services, RTCA SC-206 is currently developing the AIS and MET Data Link Service Minimum Aviation Systems Performance Standard; developing guidance for data linking forecast and real-time wind information to the aircraft; and developing Eddy Dissipation Rate (EDR) Minimum Operations Performance Standard to facilitate the calculation of EDR by various vendor algorithms such that the outputs are operationally comparable.

The currently available options

FAA Next Generation Weather Research Branch Turbulence Uplink Demonstration Results

Federal Aviation Administration's (FAA) Next Generation (NextGen) Weather Research Branch Weather Technology in the Cockpit (WTIC) Program conducted one year Turbulence/Eddy Dissipation Rate (EDR) Uplink proof-of-concept demonstration with Delta Air Lines (DAL). The purpose of the Turbulence/EDR Uplink proof-of-concept was to assess several viable, low-cost, reliable means of accessing and displaying Graphical Turbulence Guidance (GTG) and Eddy Dissipation Rate (EDR) turbulence information in aircraft.

The goal of the Turbulence / EDR Uplink demonstration program was to: determine the feasibility of providing and displaying EDR/GTG information to the flight deck through the existing aircraft WiFi link; to identify and address any human factors considerations associated with providing EDR/GTG information to flight crews; and to quantify the efficiency and capacity benefits to the National Airspace System (NAS) through providing GTG / EDR information to the flight deck.

The demonstration included participation from 80 Delta Line Check Airmen during regularly scheduled line operations. Approximately 171 aircraft were equipped with the capability to calculate EDR and of downlinking EDR information to the ground via ACARS. Each line check airman had, in their possession, a tablet device capable of displaying GTG and EDR information via an application developed specifically for this demonstration.