

Next Generation Runway Visual Range (RVR)

The New Generation Runway Visual Range (RVR) system was procured to replace field obsolete RVR systems, which were becoming difficult to maintain. In addition to providing a state-of-the-art RVR system, the New Generation RVR also provides operation over the full range of instrument meteorological weather.

The RVR system measures visibility, background luminance, and runway light intensity to determine the distance a pilot should be able to see down the runway. This distance, the runway visual range, is used to define the precision landing category of operations. The forward scatter visibility sensor, which measures the amount of light scattered by fog or snow particles, is designed and proven to perform over the full range of instrument meteorological weather.

The system measures RVR from 6500 feet to 0 feet in all conditions of fog, snow, and freezing rain. The New Generation RVR system was approved for deployment and commissioned for operational use in the fall of 1995.



RVR Controller Display



Operational RVR Visibility Sensor

The Federal Aviation Administration (FAA) and the United Kingdom's Civil Aviation Authority, through a memorandum of cooperation, have conducted several seasons of comparison testing on the FAA's New Generation RVR system and the UK's Transmissometer-based RVR system. The testing has been carried out at Birmingham Airport in Birmingham, UK, Otis Weather Test Facility in Massachusetts, and the Mount Washington Observatory in New Hampshire. Based on results to date, future studies at the Otis Weather Test Facility may be conducted.

The FAA is participating in the International Civil Aviation Organization's (ICAO) Runway Visual Range Study Group. The study group is charged with developing the second edition of the Manual for Runway Visual Range Observing and Reporting Practices (Doc 9328).



ACCOMPLISHMENTS

- Management, planning, and conduct of the installation of 25 interim RVR/Automated Surface Observing System (ASOS) interfaces and 3 final interfaces throughout the NAS.
- Developed, managed, and conducted a comprehensive test and evaluation program resulting in a cost-effective accepted solution to the RVR Visibility Sensor zero offset phenomenon.
- Actively participated in hardware qualification testing for RVR program third increment spares.
- Conducted comparison testing of the FAA's and the United Kingdom's RVR systems at the Mount Washington Observatory in New Hampshire. The Weather Branch supported comparison testing of the two systems at Otis Weather Test Facility on Cape Cod in Massachusetts and at Birmingham Airport in Birmingham, UK.
- Active participation in the ICAO Runway Visual Range activities resulting in the development and publishing of the second edition Manual for Runway Visual Range Observing and Reporting Practices (Doc 9328).

FUTURE WORK

- Supporting the RVR Product Team by evaluating a RVR to Collaborative Decision Making (CDM) initiative, which will provide near-real-time RVR data to airlines and FAA centers via Enhanced Traffic Management System (ETMS) and CDM communications lines.
- RVR contractor supervision in the following areas: negotiated upgrades for ASOS activities and depot level instruction book development.
- Development of a national standard radio link for use with the FAA's RVR system.
- Support the RVR Product Team in updating the RVR System Specification (FAA-E-2772).
- Develop a MDT software package for use with the existing RVR system's hardware and software. The package will include a

more suitable graphical user interface and will incorporate additional data quality checks not available with the standard RVR MDT software.

For additional information regarding the Next Generation Runway Visual Range program, please contact:

Communication/Navigation/Surveillance Engineering and Test Division – Weather Branch

Federal Aviation Administration
William J. Hughes Technical Center
Atlantic City International Airport, NJ
08405

Phone: (609) 485-5308
Fax: (609) 485-4035
<http://www.tc.faa.gov>



RVR Visibility Sensor Severe Weather Testing in Mount Washington, NH

Safety