

ATSIN Air Traffic Services Information Notice

Safety Regulation Group
Air Traffic Standards Division



ATC

Number 121

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INSTRUMENTED SYSTEMS FOR THE ASSESSMENT OF RUNWAY VISUAL RANGE

1 Introduction

- 1.1 ICAO standards (ICAO Annex 3 Meteorological Service for International Air Navigation, Appendix 3, Section 4.3, Fifteenth Edition, July 2004) mandate the use of instrumented systems for the assessment of Runway Visual Range (RVR) on runways intended for operation to ILS Categories II and III.
- 1.2 UK aerodromes providing precision approach Category II or III operations have historically assessed RVR by an instrumented system comprising a minimum of two transmissometer sites arranged, in pairs, at intervals adjacent to the runway.
- 1.3 ICAO Annex 3 also *Recommends* the use of instrumented systems for the assessment of RVR on runways intended for operations to ILS Category I.
- 1.4 RVR for operations at Category I could be assessed by a transmissometer, but an alternative instrumented technique known as "forward scatter" is also described in the ICAO Manual of Runway Visual Range and Observing Practices (Doc. 9328).

2 Purpose

- 2.1 This ATSIN is issued to advise air traffic service units of the results from a recent comparative trial between a Forward Scatter Meter (FSM) RVR system and a co-sited transmissometer system at a major UK aerodrome.
- 2.2 The trial has demonstrated that an FSM system is a reliable and accurate alternative to a transmissometer-based system for the assessment of RVR to ILS Category I. An FSM-based RVR system may, therefore, also be used as an acceptable and approved alternative to Human Observed Runway Visual Range (HORVR).

3 Scope

This ATSN is primarily addressed to managers of air traffic service units that either operate, or are intending to operate, an instrumented approach and landing service to ILS Category I.

4 Assessment of RVR by a Forward Scatter Meter (FSM) System

- 4.1 A transmissometer will determine Meteorological Optical Range (MOR) by measurement of the “transmissivity” of the atmosphere within the sampled volume. A factor known as the “extinction coefficient” is obtained directly from the transmissivity and the prevailing RVR is estimated after due allowance is made for background luminance and runway lighting for the runway in use.
- 4.2 Assessments of RVR from an FSM are dependant on several other factors that have an indirect effect on the extinction coefficient and as *Noted* by ICAO in Annex 3, measurements obtained from an FSM have to be “traceable and verifiable to a transmissometer standard, the accuracy of which has been determined over the intended operational range”.
- 4.3 Aerodrome operators wishing to gain CAA Approval for the installation, operation and maintenance of a Forward Scatter Meter RVR system for operations at ILS Category I will be expected to obtain evidence of comparative measurements from a transmissometer-based RVR system. The manufacturer or supplier of the FSM system should provide this data.
- 4.4 Where instrumented RVR is provided for non-precision approach or precision approach for Category I operations, HORVR may be used as a standby in case of failure of the instrumented system. Aerodrome operators should, however, be aware of the Updated Arrangements for the Calibration of HORVR (by letter from the UK Met. Authority dated April 5th 2007) and the recent publication of a Notice to Aerodrome License Holders (NOTAL 7/2007) on this subject.

5 Additional Information

- 5.1 An instrumented RVR system, comprising an appropriately sited FSM sensor, may also be able to supply MOR data and present weather codes for inclusion in METARs and special reports prepared for the Air Traffic Service provider.
- 5.2 CAA Requirements for Visibility Measurement Systems & Present Weather Detectors are included in Chapter 7 of CAP 746 (Meteorological Observations at Aerodromes). Further advice and information on these requirements can be obtained from the UK Met. Authority (Metauthority@dap.caa.co.uk).

6 Queries

- 6.1 Any queries or further guidance required on the content of this ATSIN should be addressed to:

ATS Enquiries
Air Traffic Standards Division
CAA Safety Regulation Group
2W Aviation House
Gatwick Airport South
West Sussex RH6 0YR
E-mail: ats.enquiries@srg.caa.co.uk

- 6.2 Any queries about the distribution and availability of this ATSIN should be addressed to:

ATS Documents
Air Traffic Standards Division
CAA Safety Regulation Group
2W Aviation House
Gatwick Airport South
West Sussex RH6 0YR
E-mail: ats.documents@srg.caa.co.uk

7 Cancellation

This ATSIN will remain in force until the ICAO *Recommendation* for instrumented RVR systems at Category I is incorporated into the Engineering Requirements for IRVR Systems (CAP670, ATS Safety Requirements, Part C, NAV-01).

The following ATSINs remain current:

<i>Number</i>	<i>Title</i>	<i>Relevant level of ATS</i>
1	<i>Introduction of the ATSIN scheme</i>	<i>All ATS</i>
74	<i>Communication on Air Traffic Service Matters with the CAA</i>	<i>All ATS</i>
80	<i>Flight Inspection under Single European Sky</i>	<i>All ATS</i>
82	<i>Minimum rest period following completion of a single night duty</i>	<i>ATC</i>
93	<i>Wind Turbulence Separation and Flight Planning Requirements for the Airbus A380-800</i>	<i>ATC</i>
97	<i>Medical Certification Requirements for Unit Training Plan (UTP) Verifiers</i>	<i>ATC</i>
101	<i>European Action Plan for Air-Ground Communication (EAPAGC)</i>	<i>All ATS</i>
102	<i>Communication with ATSD about ATSINs</i>	<i>All ATS</i>
105	<i>Single European Sky (SES) – The Interoperability Regulation</i>	<i>ATC and FIS</i>
107	<i>Deemed Separations: MATS Part 2</i>	<i>ATC</i>
108	<i>Introduction of RNAV (GNSS) Instrument Approach Procedures</i>	<i>All ATS</i>
109	<i>Display Technology</i>	<i>ATC and FIS</i>
110	<i>Departure Speed Restrictions – RTF Phraseology</i>	<i>ATC</i>
111	<i>Use of Obsolete RTF Phraseology and Multiple Level Instructions in Departure Clearances</i>	<i>ATC</i>
112	<i>1. “Student” prefix and considerations for ATS personnel. 2. Instructions to aircraft on final approach.</i>	<i>All ATS</i>
114	<i>Change to UK ILS Phraseology</i>	<i>ATC</i>
115	<i>Eurocontrol Guidelines for Contingency Planning of Air Navigation Services</i>	<i>All ATS</i>
116	<i>Winter Break 2007/2008 (Christmas and New Year)</i>	<i>All ATS</i>
117	<i>Winter Operations at Aerodromes</i>	<i>ATC and FIS</i>
118	<i>ATS Communication Facilities at Licensed Aerodrome: Publication of Designated Operational Coverage (DOC)</i>	<i>All ATS</i>
119	<i>Climb Above Notified Standard Instrument Departure Altitudes</i>	<i>ATC</i>
120	<i>European Aviation Safety Agency (EASA) Consultation on ATM/ANS: Notice of Proposed Rule Making (NPA) No 2007-16</i>	<i>All ATS and Industry Stakeholders</i>
121	<i>Instrumented Systems for the Assessment of Runway Visual Range</i>	<i>ATC</i>