



Brussels, 14 May 2007  
**M/408 EN**

**MANDATE TO CEN/CENELEC/ETSI FOR THE DEVELOPMENT OF  
EUROPEAN STANDARDS (FIRST PART OF SECOND SET OF COMMUNITY  
SPECIFICATIONS) FOR INTEROPERABILITY OF THE  
EUROPEAN AIR TRAFFIC MANAGEMENT NETWORK (EATMN)**

**1. MOTIVATION**

The Regulation (EC) N° 549/2004 of the European Parliament and of the Council laying down the framework for the creation of the Single European Sky (SES)<sup>1</sup> was adopted by the European Parliament on 29 January 2004 and by the Council on 2 February 2004. This Regulation called “the framework Regulation” was published on 31 March 2004 and entered into force on the twentieth day following its publication.

The framework Regulation establishes a harmonised regulatory framework for the creation of the SES in conjunction with:

- Regulation (EC) N° 550/2004 of the European Parliament and of the Council on the provision of air navigation services in the SES (“the service provision Regulation”)<sup>2</sup>;
- Regulation (EC) N° 551/2004 of the European Parliament and of the Council on the organisation and use of the airspace in the SES (“the airspace Regulation”)<sup>3</sup>;
- Regulation (EC) N° 552/2004 of the European Parliament and of the Council on the interoperability of the European Air Traffic network (“the interoperability Regulation”)<sup>4</sup>.

This mandate is related to the achievement of the objectives of the interoperability Regulation through the adoption of the first part of the priority 2 set of Community specifications (CS) for the interoperability of the European Air Traffic Management network (EATMN).

Article 4.1.a) of the interoperability Regulation lays down that Community specifications may be European Standards for systems or constituents, together with the relevant procedures, drawn up by the European standardisation bodies in cooperation with

---

<sup>1</sup> OJ L 96 of 31.3.2004, p. 1.

<sup>2</sup> OJ L 96 of 31.3.2004, p. 20.

<sup>3</sup> OJ L 96 of 31.3.2004, p. 10.

<sup>4</sup> OJ L 96 of 31.3.2004, p. 26.

EUROCAE<sup>5</sup>, on a mandate from the Commission in accordance with Article 6. 4 of Directive 98/34/EC of the European Parliament and of the Council of 22 June 1998 laying down a procedure for the provision of information in the field of technical standards and regulations and pursuant to the general guidelines on cooperation between the Commission and the standardisation bodies signed on 13 November 1984.

Article 4.2. of the interoperability Regulation lays down that compliance with the essential requirements and/or implementing rules for interoperability shall be presumed for systems, together with the associated procedures, or constituents that meet the relevant Community specifications and whose reference numbers have been published in the Official Journal of the European Union.

This mandate follows the revised SES standardisation (Community specifications) development process which started with M/390 (published in July 2006). It will also take aspects of the 'Programming Mandate for the Establishment of Space Industry Standards' into consideration.

## **2. DESCRIPTION OF THE MANDATED WORK**

CEN/CENELEC/ETSI are asked to produce European standards that satisfy the essential requirements and/or implementing rules of the interoperability Regulation for systems, together with the relevant procedures, or constituents for the following agreed two priority 2 Community Specifications:

### ***2.1. Ground Based Augmentation System (GBAS) Cat.I precision approach operations***

The Global Navigation Satellite Ground Based Augmentation Systems (GNSS GBAS) are systems to support Category I precision approach operations, which are interoperable with existing Category I landing systems (i.e. Instrument Landing Systems ILS and Microwave Landing Systems MLS) in providing precision lateral and vertical guidance to the landing aircraft. GBAS Category I approach procedures would enable aircraft to fly to 200 ft Decision Height (DH)/ Decision Altitude (DA) and commensurate visibility conditions at runways that are equipped with GBAS systems. GBAS Cat.I systems/operations will facilitate increased access to runways either unable to support ILS or MLS operations or as an alternative precision approach and landing means.

The implementation of GBAS Cat.I based precision approach services have to be seen as a first step towards a possible development of further performance levels (GBAS Cat.II/III) of precision approach services.

#### Deliverables

Development of European standards for GNSS Ground Based Augmentation Systems (GBAS) Category I operations, which are based on the existing ICAO<sup>6</sup> GBAS SARPs for Category I precision approach operations, up to the level of detail required for the implementation, including:

---

<sup>5</sup> European Organisation for Civil Aviation Equipment.

<sup>6</sup> International Civil Aviation Organisation.

- Minimum Operational Performance Specifications (MOPS) for the GBAS Cat.I ground and airborne equipment (*For the airborne part, existing RTCA<sup>7</sup> and EUROCAE specifications should be taken into account e.g., DO-253, ED-88 and ED-95. Consideration should also be given to e.g. FAA<sup>8</sup> TSO C-161*);
- Detailed guidelines on GBAS Cat.I approach procedure development (in reference to relevant ICAO material);
- Detailed Guidelines on the common GBAS Cat.I certification/operational approval issues (*in cooperation with the EASA<sup>9</sup> Rulemaking task (AWO.006) addressing GNSS Landing System (GLS) and more specifically to establish requirements for category I approach, GLS signal in space, GBAS failure modes, certification of GLS, certification credit for ILS look-alike GLS, combination ILS/MLS/GLS certification*);
- Test and validation procedures, including guidelines on calibration flights.

Development of standardization deliverables for the implementation of the GBAS Cat.I standard.

### Timelines

The European standard shall be available at the latest by the end of 2010.

## **2.2. Approach with Vertical Guidance (APV)**

An approach with vertical guidance (APV) is an instrument approach procedure which utilizes lateral and vertical guidance, but which does not meet all the performance requirements needed for precision approach and landing operations. Depending on the type of APV procedure, lateral guidance can be provided from either stand-alone Global Navigation Satellite Systems (GNSS), or by RNAV derived positioning using multi-sensor positioning capability (multi-sensor infers VOR<sup>10</sup>/DME<sup>11</sup>, DME/DME and Inertial aiding). Depending on the type of APV procedure, vertical guidance can be provided from GNSS augmentation system such as SBAS (or possibly Galileo in the future) or a barometric reference.

There is a general perspective to move away from the Non-Precision Approach (NPA) procedures that are generally recognized as less safe and operate to a Minimum Descent Altitude (MDA) or a Decision Altitude (DA) (*the minima is a function of the obstacle assessment, the safety is derived from flying a stabilized approach on a continuous descent profile, having vertical path guidance*). As a consequence, ICAO has identified the replacement of NPA by APV as an important step in improving the safety of approach operations. The various types of APV will provide different levels of performance (operating minima). The ICAO 11th Air Navigation Conference recommended that all stakeholders should move quickly to achieve a worldwide navigation capability of at least APV-I performance.

### Deliverables

---

<sup>7</sup> Radio Technical Commission for Aeronautics.

<sup>8</sup> Federal Aviation Administration.

<sup>9</sup> European Aviation Safety Agency.

<sup>10</sup> Very High Frequency Omnidirectional Radio Range.

<sup>11</sup> Distance Measuring Equipment.

Development of European standards for Approach with Vertical Guidance up to the level of detail required for the implementation, for the following types of operations:

1. APV Baro-VNAV operations, where the vertical guidance is derived from the aircraft Flight Management Systems (FMS) with position derived from onboard (barometric referenced) air data information and the lateral guidance is derived from a RNAV multi-sensor positioning solution within the FMS, taking into account DME/DME/Inertial and GNSS Airborne Based Augmentation System (ABAS) augmented position.
2. APV SBAS I/II operations, where the vertical and horizontal guidance is provided by GNSS with a Satellite Based Augmentation System (SBAS).
3. Future APV operations, where the vertical and horizontal guidance will be provided Global Navigation Satellite Systems like Galileo that are currently under development.

and in particular:

- Minimum Operational Performance Specifications (MOPS) for the APV SBAS I/II airborne equipment in coordination with EUROCAE;
- Detailed guidelines on APV procedure development and implementation;
- Detailed Guidelines on the APV procedure certification/approval issues (in cooperation with the *EASA Rulemaking Task (20.003) for the airborne systems developing AMC material for RNAV (GNSS) approach operations – both airworthiness and flight operations guidance*);
- Test and validation procedures including guidelines on calibration flights.

Development of standardization deliverables for the implementation of the APV standard.

#### Timelines

The European standards for APV Baro-VNAV, APV SBAS I/II shall be available at the latest by the end of 2010.

The European standard for APV with future Global Navigation Satellite Systems (like Galileo) shall be available within 2 years after the operational introduction of the future GNSS systems.

CEN/CENELEC/ETSI are asked to ensure the compliance of the standards with the general and specific essential requirements laid down in Annex II, Parts A & B of the Interoperability Regulation N° 552/2004 and with the relevant implementing rules.

European standards to be developed under this mandate must be consistent with ICAO standards and European standards should include mechanisms to ensure an efficient process of update which enables ongoing consistency.

### **3. BODIES TO BE ASSOCIATED**

The elaboration of the standards must be undertaken in cooperation with EUROCAE, particularly taking into account the technical expertise of EUROCAE on equipments (systems and constituents) for air traffic management, in cooperation with EASA

(European Aviation Safety Agency being responsible for regulation of airworthiness and in future also for flight operations) for the validation/certification aspects, and with Eurocontrol and the Air Navigation Service Providers for the operational ATM aspects.

This cooperation should also include the participation of relevant interested groups and organisations, international and European level associations and military authorities.

In the elaboration of the standards, any relevant material should be taken into account, in particular ICAO SARPS (Standards and Recommended Practices) and Eurocontrol specifications or other available documents, so that the standards can be based on the documents already developed or under development by these bodies.

#### **4. EXECUTION OF THE MANDATE**

The European Standardisation Organisation mainly in charge of this mandate shall, after consultation of EUROCAE and other European Standardisation Organisations, inform the Commission of the arrangements to be adopted for the execution of the work within three months of acceptance of this mandate. Such information will include a detailed list of standards to be developed and it will cover also co-operation arrangements with EUROCAE and other involved parties.

CEN/CENELEC/ETSI will forward to the Commission regular reports on the progress of the work at regular intervals of 12 months.

CEN/CENELEC/ETSI will forward to the Commission titles of the standards in all official languages of the European Union, along with a copy of the standards in the working languages of CEN/CENELEC/ETSI.

The standstill period referred to in Article 7 of Directive 98/34/EC<sup>12</sup> of 22 June 1998 will commence on acceptance of this standardisation mandate by CEN/CENELEC/ETSI.

---

<sup>12</sup> OJ L 204 of 21.07.98, p. 37, as amended by Directive 98/48/EC, OJ L 217 of 5.08.98, p.18.