



## **MANDATE ADDRESSED TO CEN/CENELEC/ETSI FOR STANDARDISATION IN THE FIELD OF AIR TRAFFIC MANAGEMENT SYSTEMS AND GALILEO LOCAL COMPONENTS**

### **1. BACKGROUND**

This mandate relates in general to:

- Community air transport policy under Article 80(2) of the Treaty, and in particular to the Council Directive 93/65/EEC of 19 July 1993 on the definition and use of compatible technical specifications for the procurement of air traffic management (ATM) equipment and systems, as amended by Commission Directive 97/15/EC of 25 March 1997.
- To the European project for satellite navigation Galileo, and in particular to the local components of it, necessary to augment Galileo performances to specific zones, like airports, ports or urban areas.

Concerning the first objective, the Directive aims to facilitate, with the aid of common standards, the process of harmonisation and integration of national air traffic management systems with the intention of remedying air traffic congestion and improving the flow of traffic. Technical harmonisation will contribute to establishing a consistent level of safety and to the free movement of air traffic management equipment within the territory of the Community. In support of these aims the Directive provides that Eurocontrol standards can be brought into the Community legislative framework by Commission action so as to ensure their uniform application by all the Member States.

It is recognised in the Directive that there is a need for European standardisation work allied to the drawing up of technical specifications by Eurocontrol. Accordingly, following a programming mandate (M/028), the Commission issued in September 1996 a mandate (M/239) to CEN/CENELEC/ETSI requesting the drawing up of six standards and a study in the field of ATM aimed to explore feasibility of standardising the self-organising time-division multiple access (STDMA) technology. This mandate did not include a request for drawing standards on the basis of the STDMA technology.

While work on most of the six standards of the previous mandate is still in progress, the study has been completed in November 1997. The study recommended that standards should be developed in two phases. The first would develop the part of the system that would support surveillance applications while end-to-end communications would be added in the second step, including as necessary optimisation of its protocols.

In March 2001, the International Civil Aviation Organisation (ICAO) Council decided to adopt a VHF Data Link (VDL) Mode-4 standard - based on the STDMA features - for surveillance applications, including Automatic Dependent Surveillance Broadcast (ADS-B). The standards requested in Annex A, phase 1 cover this aspect.

In addition, the ICAO Aeronautical Mobile Communications Panel, and in particular the Working Group M (Maintenance) is presently examining the use of VDL Mode-4 as a general-purpose data link. In support of this process, the standards requested in Annex A phase 2 will consider all aspects of the VDL Mode-4 technology that need to be adapted accordingly, including in particular the VDL Mode 4 communication protocols.

The second purpose of the mandate relates to the exploration of capability of VDL Mode-4 to become a part of the Galileo local component. The Transport Council of April 2001 decided the launching of the development phase of Galileo. Most of the technical work carried up to now in the context of studies funded by the Community and European Space Agency (ESA) concentrates on the satellite segment. However the need for a Galileo local component to augment its performances as required for specific applications has been already established and the first activities are about to start. The feasibility study for a European standard on the basis of VDL Mode-4 set out in Annex A will be an element contributing to this process.

Last but not least, a lot of Community research and development projects as well as Transeuropean Network projects in the area of air traffic management have tested and validated the capabilities of VDL Mode-4. The work included in this mandate is aimed therefore to provide and support for European standards to ease implementation. As all European standards these are of voluntary application and do not prejudge of implementation decisions that will be taken individually by the Air Traffic Services (ATS) stakeholders or preferably collectively at European level.

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

CEN/CENELEC/ETSI are asked to draw up the standards and the study for VDL Mode-4 equipment listed in Annex A.

In preparing the standards and the study, CEN/CENELEC/ETSI should take into account of the technical specifications, standards and rules currently available or under preparation in this area at global and European level. In particular account shall be taken of the rules and technical specifications drawn up by ICAO, the technical work of Eurocontrol and the work currently in progress in Eurocae WG-51. The work to be done by CEN/CENELEC/ETSI shall include an assessment of work in progress in this area with a view of identifying subjects for further work in relation to equipment standards.

Standards to be developed under this mandate must be consistent with ICAO standards with respect to their content. A mechanism has to be identified to ensure with a minimum delay that these standards remain synchronised with possible updates of the relevant ICAO standards.

### **3. BODIES TO BE ASSOCIATED AND SPECIFIC ISSUES**

The standards shall be drawn up in close co-operation and association with Eurocae. Concerning the airborne part, Eurocae will be in charge of the technical work and CEN/CENELEC/ETSI in charge of the procedures in view of converting this part into a European standard. To this end, a close co-operation between those organisations is required to ensure consistency between Eurocae documents and the European standard.

Appropriate co-ordination will be also established with Eurocontrol.

Co-ordination with standards developed under ICAO auspices, as stipulated in §2, (possibly through exchange of change request) is also necessary.

Particular attention shall be given to appropriate association of air traffic service providers, air transport and airport operators, air regulatory authorities and the manufacturing industry; their requirements shall be fully taken into account in the preparation of standards.

For matters related to satellite navigation local component, appropriate co-ordination will be established with present and future Community studies such as SAGA (Standardisation Activities for Galileo) and the research projects related to the Galileo local component. In relation to frequency aspects, links shall be established with the Galileo signal task force.

CEN/CENELEC/ETSI are reminded of their obligations, as defined in the Communication from the Commission "Intellectual Property Rights and Standardisation" (IPRs) (COM (92) 445 final, published on 27 October 1992) concerning patents and European standards. These include, but are not limited to, the need to identify any IPRs related to a specific technology before adopting a standard and if this is the case, to ensure that standards are available for use on fair, reasonable and non-discriminatory terms.

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

- (1) The European Standardisation Organisation mainly in charge of this mandate shall, after consultation of Eurocae, inform the Commission of the arrangements to be adopted for the execution of the work within one month of acceptance of this mandate. Such information will include a detailed list of standards to be developed on the basis of the contents of Annex A; it will cover also co-operation arrangements with Eurocae and Eurocontrol.
- (2) CEN, CENELEC and ETSI will deliver results on the study referred to in Annex A within seven months from the acceptance of the mandate. European Standards for phase 1 of Annex A will have to be adopted within eighteen months from the acceptance of the mandate. The European Standard for phase 2 will have to be

adopted within twelve months after the Aeronautical Mobile Communications Panel of ICAO has decided to proceed with an update of relevant ICAO standards.

- (3) The European Standards (EN) shall be adopted by the target dates specified. At these dates, the English version shall be sent to the Commission. If the other two linguistic versions (German and French) are available they shall also be forwarded to the Commission.
- (4) The European standards shall be transposed into national standards and differing national standards shall be withdrawn from the catalogues of the national standards organisations in the Member States within six months of their adoption.
- (5) The standstill period referred to in Article 7 of Directive 98/34/EC of 22 June 1998 shall commence when the European Standardisation Organisations accept this standardisation mandate<sup>1</sup>.

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<sup>1</sup> OJ L 204 of 21.07.98, p. 37, as amended by Directive 98/48/EC (OJ L 217 of 5/8/98, p. 18)

## Annex A

### Standards and studies to be drawn up

#### 1. Standards

A European Standard on the basis of the ICAO Mode 4 VHF Data Link (VDL) standard with the following parts:

Part 1: Ground transmitter/receivers equipment

Part 2: Co-ordination of ground stations

Part 3: Airborne equipment (including both air-to air and air-to-ground service)

Work for this standard will be done in two phases:

Phase 1 : This phase will focus on VDL Mode-4 standards to be used for supporting air-to-air and air-to-ground surveillance applications, including uplink broadcast. Work for phase 2 can start in parallel.

Phase 2 : This phase will update, if necessary, standards produced in phase 1 so as to support all kind of point to point communications.

Note 1:

1) When preparing the standards referred above, particular attention will be given to frequency and channel management aspects, including interference from and protection of aviation safety critical systems. This work will be done in co-ordination with Eurocontrol and the ICAO Paris Office<sup>2</sup>.

2) When preparing the European Standard in phase 2, account shall be taken, as necessary, of any implementing provisions to ensure robustness (redundancies, avoidance of common modes of failure) of VDL Mode-4 equipment offering multiple services, both in a core European area and in lower density area scenarios.

3) For all above-mentioned standards appropriate conformance tests shall be specified.

#### 2. Study

A feasibility study for a European standard related to the capability of VDL Mode-4 to serve as an element to support services to be provided by the Galileo local component.

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<sup>2</sup> Eurocontrol undertakes frequency planning activities on behalf of the ICAO Paris Office and also conducts radio interference testing.