

GALILEO, satellite radionavigation programme: development phase, joint undertaking

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This document comprises of the progress report on the Galileo programme. This report is in response to a request by the April 2001 Transport Council. It takes stock of the progress of the Galileo satellite radionavigation programme so as to enable the December 2001 Transport Council to take the decisions needed to move on to the programme development phase in full knowledge of the facts, these decisions being: - adoption of the Regulation on the Statutes of the Galileo Joint Undertaking; - the release of EUR 450 million (from the appropriations assigned to the trans-European networks) to fund the development phase. In addition to this report, the summary and final report of the study of the financial prospects for the Galileo programme as a whole will be sent directly to Council and Parliament. With regard to the activities in 2001, the use of the EUR 100 million released by the April Transport Council authorised to the Commission to allocate this amount to Galileo for the pre-development phase. EUR 30 million was allocated to the ESA for studies and technical support measures for tasks definition and consolidation activities relating to the development phase of the Galileo programme. The remaining EUR 70 million will be allocated to the Joint Undertaking once it has been set up. It will make it possible in particular to fine-tune the definition of the different Galileo segments (space, ground and user segments) and their implementation. The sections concerning the integration of EGNOS into GALILEO and the security issue are in response to specific Council requests. Two options are envisaged: - option 1: would be a continuation of an operational EGNOS as GPS/GLOSSASS overlay into an operational GALILEO environment; - option 2: would be a pre-operational integration of EGNOS signal in space into GALILEO with combined operational validation and certification. The option 1 necessitates, however, significant public funding for a long time after the completion of the ongoing ESA ARTES 9/EGNOS activities. In case the public sector will be unable to guarantee the required funding for option 1, option 2 could provide for a viable alternative. This solution would allow adopting EGNOS to the GALILEO services and a re-use of either infrastructure or technology know-how would enable Europe to fulfil its contribution to GNSS. It would thus provide for a unique European navigation transition strategy including the outlined cost saving potential. In any case the economic success of EGNOS will depend on quick transition from terrestrial infrastructure to EGNOS technology. With regard to the security of the system, the report indicates three aspects are concerned in this context: 1) security with regard to misuse of the GALILEO signal for hostile purposes; 2) the intrinsic security of the system itself with regard to an interruption in service, since the system comprises material components (infrastructures, ground stations, satellites, physical installations), as well as links and interfaces (communications, computer links, etc) and the signal itself; 3) data security, i.e. protection of information with regard to private operators, will raise the same questions as with mobile phones. The following principles - which concern intrinsic security and security with regard to misuse - have been adopted by experts: - space segment: unlike the GPS, the space component would not be protected against explosions or space debris which are rare at this altitude. on the other hand, uplinks and downlinks will be protected; - ground segment: the various components (monitoring stations, control stations, mission centres) and the links between the various centres and stations will be protected. The infrastructures will be regarded as sensitive as they are components of a space system. Files will be protected to prohibit the access, modification, copying, saturation or hacking of any kind. For all the space and ground components, security will concern both infrastructures and staff. It should be noted that the Commission's services are preparing a proposal for a Regulation to define the security rules which will apply to all the structures and staff working on the GALILEO project. Lastly, measures will be taken to prevent the misuse of GALILEO. Geographical access denials will be possible very rapidly.