

SECURITY ASPECTS OF THE GALILEO SERVICES

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ABSTRACT

In connection with the formulation of Galileo policies, many important legal questions occurred, one of them being the problem how to cope with the sensitive signals in a period of international crises. Unclear was the question whether a denial of certain emergency services within a zone of crisis would be legally possible and, if so, which would be the pertinent powers of the relevant security authorities. Under the provisions of the 1992 ITU Convention, it seems to be beyond any doubt that ITU-Member States are entitled to the suspension of their telecommunication services; the same conclusion applies, *a fortiori*, as concerns this right to suspend their telecommunication services in a situation of an international crisis, the only precondition being the notification to the Secretary-General. However: The structure proposed to deal with Galileo's security matters seems necessary to become more transparent in order to correspond more closely to the rule of law principles: Until now, it remains e.g. unclear which institution should according to which procedure decide about the mere fact whether or not an international crisis has in fact occurred.

I. INTRODUCTION

The high strategic importance of satellite navigation applications has been proved in several international crises. Both present systems – the US Global Positioning System (GPS) and the Russian Glonass network - are under military control. Since the Russian system has not generated any civil applications, GPS is used to a large extent for civil purposes but it can be cut off in the event of a crisis for civil users.

Thus, the autonomy of European countries in the sphere of distribution of satellite navigation signals in case of an international emergency and their independence from the existing system proved to be significant motives to develop an independent European network of navigation.

The European Commission presented an autonomous programme on satellite radio navigation, Galileo, in its communication of 10 February 1999 to be developed in four proposed phases: a definition phase in 2000, a development and validation phase up to 2005, a

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deployment phase up to 2007 and an operational phase thereafter¹. The European Union Transport Ministers decided, on 26 March 2002, to launch this programme providing EU with satellite navigation and positioning system by 2008. It is aimed to create a civil systems managed by civil entities, interoperable with the existing Glonass and GPS systems, allowing users to combine different systems and giving them the benefit of optimised precision².

In connection with the formulation of Galileo policies, many important legal questions occurred, one of them being the problem how to cope with the sensitive signals in a period of international crises and emergencies, especially in relation to third States. Unclear was especially the question whether a denial of certain emergency services within a zone of crisis would be legally possible and, if so, which would be the pertinent powers of the relevant security authorities. Until now, the publicly available documents concerning the Galileo system have given only limited answers to these questions.

II. THE CATEGORIES OF GALILEO SERVICES

The Galileo system shall provide for international telecommunication services with various grades of sensibility:

The Open Service shall provide positioning, navigation and timing signals for the public that can be accessed free of charge; the

Commercial Service shall provide encrypted data for commercial users.

The data of the Safety of Life Service and the Public Regulated Service belong without any doubt to the category of sensitive ones in the case of emergency. The Safety of Life Service is intended to provide a global warning of a loss integrity within a defined time-to-alarm limit; the coverage area of this service should be global. It is being defined in co-operation with COSPAS - SARSAT, and its characteristics and operations are regulated under the auspices of IMO and ICAO³.

The Public Regulated Service should provide position and timing to specific users requiring a high continuity of service. It is expected to be used by groups such as police and customs. This form of service is required to be operational in all times and in all circumstances, notably during a period of crisis, when other services may be jammed. Technically, it will be separated from the other services, so it can be denied without affecting its operations⁴. The access to this encrypted ranging codes and data should be open to the European Union and its member states as well as other participating states authorised by the EU Member States who are supposed to maintain the control of distribution of receivers suggested for this form of Galileo Services.

III. THE SECURITY ISSUE IN THE GALILEO POLICY DOCUMENTS

The Galileo security policy seems to be defined by two basic documents: The *System Specific Security Requirements Statement Document* (SSRS) and the *Project Security Instructions* (PSI), both approved and maintained by the Galileo System Security Board (GBSS)⁵. These documents make clear that, together with the security of the infrastructure, the security of signals was of a central importance.

Concerning its security, the following measures are foreseen: To prevent the misuse of the system, a possibility of service denial under the control of the relevant security authorities within a zone of crisis is considered. This measure should be co-ordinated with other countries operating satellite navigation systems. In the case of Safety of Life Service, the need for formal notification prior to the denial is stressed.

Concerning the Public Regulated Services, the Galileo policy is based on the principle to consider the receivers developed for their signals as dual-use tools and as such submitted to the rules of the 1996 *Wassenaar Arrangement*⁶.

The 2001 *Council Resolution on Galileo*⁷ stressed that the security of Galileo network was an important element of the programme. It must guarantee not only the continuity of service required in certain application fields, such as affecting the safety of human life, but also those linked to access restriction or even access denials

decided by civil authorities in crisis situations.

IV. LEGAL ASPECTS OF THE SECURITY ISSUE

IV. 1 Institutional Aspects

The general legal basis of the Galileo Security Policy are Articles 11 to 28 of the *Treaty on the European Union* devoted to the Common Foreign and Security Policy (CFSP). In accordance with these provisions the management of the security requirements of the Galileo system will be exclusively in the responsibility of EU institutions and EU member States:

Already in the development phase, the Galileo programme's management was shared between the EU Commission and the European Space Agency, each of whom has managed a certain number of contracts intended successfully to complete the programme's definition phase in accordance with their own administrative and budgetary rules. The Programme Management Board comprising a one representative of the Commission and one of the European Space Agency was attempting to compile the results of the activities and to draw up a co-ordinated plan for the future. Generally speaking, the political responsibility was in the hands of the Commission and the technical responsibility was held by the European Space Agency⁸.

Until now, there are only a few references to a specific institution vested with the power to cope with security issues of the Galileo

programme: In the literature⁹, the System Security Board has been described as an institution which “approved and maintained” the basic Galileo security policy documents – the *System Specific Security Requirements Statement document* (SSRS) as well as the *Project Security Instructions* (PSI). The composition and powers of the Board remain unclear.

Despite of the existence of this body, the European Commission stressed in its 2001 *Communication to the European Parliament and the Council on Galileo*¹⁰ that in the event of crisis, a European political body independent of Galileo management structures would be needed to be empowered to take the necessary measures. In addition, operational procedures have been suggested to be put in place between this designated body and the Galileo management structures in order to manage possible crisis situation.

This new institution has been introduced into the new structure of the Galileo programme following the present development phase: In order to prepare the conditions for the deployment phase, a new company structure, the Galileo Undertaking has been set up by the 2002 Council regulation (EC) No 876/2002 for a period of four years (Article 1 para 1)¹¹. The aim of this structure based on Article 171 of the Treaty establishing the European Community is to guarantee a single management body for the programme and to enable a combination of public and private funding to be used. For reasons of legal certainty, this entity which is not designed to fulfil an economic purpose and is responsible for managing a public research programme of European

interest, is considered as an international organisation within the meaning of the respective legal documents (Article 1 para 3)¹².

To deal with “security matters”, a specific institution has been envisaged: According to Article 7 para 1 of the Regulation, a Security Board shall be established composed of one representative of each Member State of the European Union and of a representative of the Commission. Thus, the membership in this organ should remain limited to EU member states and not extended to other, with Galileo associated countries. According to Article 7 para 2 of the Council regulation, the Security Board shall adopt its rules of procedure. No more details on its functions have been made available yet.

After a four – years phase of the existence of the Joint Undertaking, a re-structuralisation of the Galileo system is envisaged: The 2003 *Proposal for a Council Regulation on the establishment of structures for the management for the European satellite radio navigation programme*¹³ foresees the dissolution of the Joint Undertaking and the transferral of its ownership to another institution – a Supervisory Authority. The main responsibilities of the Authority – again a Community body with legal personality (Article 4 para 1 of the Proposal) - should be to conclude the concession contract with a selected consortium on completion of the Galileo development as well as to ensure compliance by that consortium with the obligations arising from the concession contract. According to Article 19 of the Proposal the membership of countries which are not members of the European Union in this

authority should be provided through bilateral agreements with the European Union to this effect.

Within the framework of the Authority, the security issues should be vested into the competence of a Centre of Security and Safety, a permanent and operational body under the auspices of the Secretary-General of the Council of the European Union (Article 20 of the Proposal). According to Article 22 of the Proposal the composition of the Centre should be determined by the Secretary-General of the Council, in liaison with the Commission. Also the operational procedures of this body should be “determined” by the Secretary-General.

The legal basis of the competencies of the Centre is Article 21 of the Proposal: According to this provision, the Centre should be given a general competence to fulfil any tasks in the area of security and safety which would be vested to it by the Council of the European Union. Second, it is expected – again very generally - to contribute to the actions relating to the safety of the European satellite radio navigation system. One of its most important tasks should be to give instructions to the operator of Galileo to “ensure the safety and reliability of the system”.

Concerning its specific responsibilities defined by Article 21 of the Proposal, the Centre should be consulted on safety annexes to contracts, with a view of setting up the system, on the technical specifications of the government services (public regulated service) and the procedures and means of identifying the users. It should fulfil tasks in defining the cryptology that requires government

approval and, when necessary, without prejudice to Article 300 of the EC Treaty provide the Commission with technical expertise within its ongoing negotiations with third States with regard to the safety of the navigation system.

The most sensitive feature of the Centre seems to be its role as an institution carrying the task of “giving instruction to the operator of Galileo to ensure the safety and reliability of the system” (Article 21 of the Proposal). The method of this “ensuring” should represent “in particular”...”compelling the operator to take such signals scrambling or interruption measures as may be required in the event of a crisis.” From the legal point of view, the content of this “compelling” and the consequences of neglecting the instructions from the Centre by the operator require further elaboration.

In the practice, it is expected that the Centre should be capable of taking such measures as may be required in the event of crisis, especially by providing the operator with the necessary instructions (e.g. concerning jamming or cutting the signal). In addition, it should provide for an interface with the security authorities (European Member States, third countries and NATO) and with the operator¹⁴.

IV.2 Material Aspects

All navigation services provided by the Galileo system belong to the category of “international telecommunication services” as formulated by the International Telecommunication Convention¹⁵. For the security aspects of the Galileo

services, the rules of the ITU Constitution and Convention are applicable:

The right of Member States on suspension of services has been formulated in Article 35 of the 1992 ITU Constitution: According to this provision, each Member State reserves the right to suspend the international telecommunication service, either generally or only for certain relations and/or for certain kinds of correspondence, outgoing, incoming or in transit. The condition of the legality of this suspension has been an immediate notification of such action to each of the other Member States through the UN Secretary-General. No emergency situation is required¹⁶. This means, *a fortiori*, that, in an emergency situation, the Galileo Member States are entitled to suspend its signals under the condition that this suspension was notified in a prescribed formal procedure; this applies also to those data belonging to the group of Public Regulated Service.

One of the more complex questions connected with the activity of the Galileo is the problem whether a denial of Safety of Life services within a certain zone of crisis can be legally possible. Article 40 of the ITU Constitution gives those telecommunications which can be described as "Concerning Safety of Life" absolute priority if they relate to safety of life at sea, on land, in the air or in outer space¹⁷. The wording of Article 40 seems, however, not to exclude the safety of life services from the general scope of Article 35 of the 1992 ITU Constitution concerning the condition of suspension of telecommunication services giving these services priority in relation to other - not suspended - data.

Applying a strict interpretation of Article 35 of the ITU Constitution, the suspension even of the Safety of Life Services seems to be legally possible under the condition of an immediate notification to the Member States through the Secretary-General.

This right of suspension under the ITU Constitution does not mean, however, that States cannot conclude arrangements exceeding such minimal standards and obliging themselves not to make use of their particular rights. This would be possible also under Article 42 of the ITU Constitution which gives the Member States the right to reserve for themselves, for the operating agencies recognised by them and for other agencies duly authorised to do so, the right to make special arrangements on telecommunication matters which do not concern Member States in general. Such arrangements, however, should not be in conflict with the terms of the Constitution, of the Convention or of the Administrative Regulations, so far as concerns harmful interference which their operation might cause to the radio services of other Member States, and in general so far as concerns the technical harm which their operation might cause to the operation of other telecommunication services of other Member States. This means that – theoretically – arrangements can be concluded by Galileo with third States excluding or minimising the possibility of suspending Galileo data both for the Public Regulated Services and for the Safety of Life Services.

Among non-EU countries, there is great interest in the Galileo signals. Generally, States which wish to be associated with the Galileo programme will be bound by specific agreements¹⁸:

In accordance with the mandate of the EU, the Commission started, in October 1999, formal negotiations with the countries having their own navigation systems – the United States and the Russian Federation – as well as with third countries having an interest in Galileo services: In Europe, the participation of Switzerland and the EFTA countries is assured, and discussions are under way with Central and East European countries and Ukraine. Also Canada is financially involved in Galileo studies, whereas Australia, Israel, as well as a number of Latin-American, African and Asian countries expressed a keen interest in the Galileo services. The contents of these arrangements including the possible provisions on signal denial in a crisis are not yet publicly available.

V. CONCLUSION

At the beginning of the paper, several questions were identified: the problem how to cope with the sensitive signals – the Public Relation Service data in a period of international crises and emergencies, especially in relation to third States. Unclear was especially the issue whether a denial of emergency services within a zone of crisis could be legally possible under the control of the relevant security authorities.

Under the provisions of the 1992 ITU Convention currently in force, it seems to be beyond any doubt that ITU-Member States are entitled to the suspension of their telecommunication services without there being any necessity of any special reason for that; the same conclusion applies, *a fortiori*,

as concerns this right to suspend their telecommunication services in a situation of an international crisis, the only precondition being the notification to the Secretary-General. On the other hand, third countries interested in Galileo data will be wishing to have a guarantee as strong as possible that this situation will not occur in relation to their Public and Safety of Life Services. The presently applicable ITU rules allow - theoretically - for such arrangements in which the Galileo operator defines the continuity of the service precisely and obliges itself to refrain from using the right to suspend signals.

The proposed mechanism of the Galileo programme indicates, however, that a procedure would be introduced into its structures which would allow for a suspension of services in a period of crisis. However: Also in the interest of the potential customers of Galileo, it seems necessary to make this structure more transparent and as such corresponding more closely to the rule of law principles: Until now, it remains e.g. unclear which institution should according to which procedure decide about the mere – but essential - fact whether or not an international crisis has in fact occurred.

¹ COM(1999) 54 final, 10.2.1999.

² WTDC-02, INF 25-E, 26 March 2002.

³ Galileo. The European Programme for Global Navigation Services. ESA/European Commission, 2003, p.21.

⁴ *Ibidem*, p. 21.

⁵ *Ibidem*, p. 7.

⁶ L. Tytgat, *R. Idiens*, GALILEO Status as of 5th April 2001-04-20, Galileo, Issue 3.5, April 2001, p. 8.

⁷ Council resolution of 5 April 2001 on Galileo, Official Journal C 157, 30/05/2001 p. 0001-0003.

⁸ Ibidem.

⁹ Fn. 6, p. 8.

¹⁰ Commission Communication to the European Parliament and the Council on Galileo, 16-17.

¹¹ Council resolution (EC) No 876/2002 of 21 May 2002 setting up the Galileo Joint Undertaking; entered into force on May 25, 2003.

¹² S. the second indent of Article 15(10) of the Sixth Council Directive 77/388/EEC of 17 May 1977 on harmonisation of the laws of the Member States relating to turnover taxes, OJ L 145, 13.6.1977 and the second indent of Article 23(1) of Council directive 92/12/EEC of 25 February 1992 on the general arrangements for products subject to excise duty and on the holding, movement and monitoring of such products, OJ L 76, 23.3.1992.

¹³ 2003/0177 (CNS).

¹⁴ Ibidem, p. 8.

¹⁵ Signed on 22 December 1992 (Geneva), entered into force on 1 July 1994, as amended by the Plenipotentiary Conference (Kyoto, 1994) and the Plenipotentiary Conference (Minneapolis, 1998).

¹⁶ Article 35 of the 1992 ITU Constitution reads as follows:

“Each Member State reserves the right to suspend the international telecommunication service, either generally or only for certain relations and for certain kinds of correspondence, outgoing, incoming or in transit, provided that it immediately notifies such action to each of the other Member States through the Secretary-General.”

¹⁷ Article 40 of the 1992 ITU Constitution reads as follows:

“International telecommunication services must give absolute priority to all telecommunications concerning safety of life at sea, on land, in the air or in outer space, as well as to epidemiological telecommunications of exceptional urgency of the World Health Organisation.”

¹⁸ Fn. 6, p.7.