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**COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN
PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL
COMMITTEE AND THE COMMITTEE OF THE REGIONS**

Digital Tachograph: Roadmap for future activities

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1. INTRODUCTION

Tachographs play a crucial role in checking compliance by professional road transport drivers with the rules on driving time and rest periods. They contribute to improving road safety, drivers' working conditions and fair competition between road transport companies. Making tachographs more cost-effective is one of the key elements of the strategy of the Commission to further integrate the road freight transport market and render road transport safer, more efficient and competitive as outlined in the White Paper on transport of 28 March 2011¹.

- This Communication accompanies a proposal to amend Council Regulation (EEC) No 3821/85 on tachograph. This proposal aims at improving the efficiency and the effectiveness of tachographs, and to ensure that professional drivers respect the rules on driving hours and rest periods. It follows up the recommendations of the High Level Group of Independent Stakeholders on Administrative Burdens² and reports from national control and police organisations on manipulations and frauds.
- The proposed regulation includes measures to improve the technical capabilities of the digital tachograph³ and make it a real 'smart' tachograph, as well as non-technical measures such as improving the trustworthiness of the workshops, introducing a minimum degree of harmonisation of sanctions, of training of control officers and simplifying rules on the use of tachograph by exempting certain SMEs.

A number of other measures required to improve the effectiveness and efficiency of the tachograph system were identified⁴ by the Commission when preparing this proposal. However, they can not be implemented directly by the proposed regulation itself. The present Communication explains how and when the Commission intends to implement these other measures which are needed but not integrated in the accompanying legislative proposal. Four measures will need to be taken and are detailed in this Communication:

- It will be necessary to change by delegated acts the technical specifications of the digital tachograph laid down in Annex IB of Regulation (EEC) N° 3821/85. This will facilitate the development and production of tachographs with the new technical capabilities introduced by the legislative proposal as mentioned above. More importantly, it will be necessary to upgrade the security mechanisms in order to preserve the current level of security and

¹ COM(2011)144 final

² http://ec.europa.eu/enterprise/policies/better-regulation/administrative-burdens/high-level-group/index_en.htm

³ Connection to a Global Navigation Satellite System (GNSS) devices for remote communication with roadside enforcement officers and development of a standardised interface with Intelligent Transport Systems applications.

⁴ See Impact Assessment SEC(2011)948

avoid fraud and tampering with the data recorded by tachographs. These changes will require a migration strategy in order to ensure compatibility between the existing cards and vehicle units in operation and those to be introduced.

- As regards security seals on tachographs to prevent interference with the data, harmonised standards should be developed by the appropriate standardisation bodies. To launch this procedure, the Commission must issue a mandate to CEN under 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 regulations⁵, which defines the framework for standardisation activities.
- The proposed regulation will make it necessary to improve the decision-making process on tachographs in the context of the so-called AETR agreement⁶ signed by the 27 EU Member States and 22 European countries (including CIS countries, Turkey and Western Balkan countries).⁷ In 2010 a modification of AETR made the digital tachograph the obligatory recording equipment for international transport in 22 non-EU AETR countries. A consequence of this success in spreading the EU-developed tachograph beyond its borders is that these non-EU countries now become involved in the future technical adaptation of the device. The uniform implementation of tachograph use enables EU road hauliers to compete on an equal footing with road hauliers from these non EU-countries and which is ultimately in the interest of the EU.
- Lastly, Directive 2006/126/EC on driving licences will need to be amended in order to organise properly the merging of cards used by professional drivers in digital tachographs with their driving licences from 2018, as foreseen in the accompanying Regulation .

2. CHALLENGES

2.1. Adapting the security features of the tachograph

2.1.1. Current situation

The tachograph has to be capable of delivering reliable and trustworthy data to allow effective checks on drivers' driving times and rest periods. The data must for instance be useable in court proceedings. The security of the tachograph system is therefore crucial to preventing fraud and unlawful manipulation. The obligation to provide sufficient guarantees in respect of technical security measures and organisational measures governing the processing of data stems also from the fact that the data processed are personal data. Their processing is subject

⁵ OJ L 204, 21.7.1998, p. 37–48.

⁶ European Agreement concerning the Work of Crews of Vehicles engaged in International Road Transport

⁷ Albania, Andorra, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Croatia, Kazakhstan, Liechtenstein, Moldova, Monaco, Montenegro, Norway, Russian Federation, San Marino, Serbia, Switzerland, The Former Yugoslav Republic of Macedonia, Turkey, Turkmenistan, Ukraine, Uzbekistan.

to the principles enshrined in Directive 95/46/EC⁸ on the protection of personal data and Directive 2002/58/EC⁹ which require that personal data are processed securely.

Maintaining the security level over time entails continual adaptation to the progress of Information Technologies (IT). A relatively high level of security is indeed necessary to make unauthorised changes to recorded data impossible (integrity), to identify unequivocally the origin of data and to ensure that data are always available when needed/requested. The current tachograph legislation has set a certain security level and imposes some security mechanisms which are supposed to meet this security level (called ‘ITSEC level E3 high’)¹⁰ However, the developing power of computers and progress in cryptography and in cracking ciphers means that this security level is no longer guaranteed by the security mechanisms foreseen by the current specifications¹¹. If left unchanged, the probability that the system will be cracked will increase year-on-year. What was considered state of the art previously and which were hard to attack several years ago become easier to crack now as IT becomes more and more developed and sophisticated.

This discrepancy between the security level required and the technology supposed to guarantee this security level has already led the Commission to take its own corrective actions. The latest amendment of Annex IB of Council Regulation (EEC) No 3821/85¹² stipulates that type approval can continue to be granted in circumstances where the authorities who certify compliance with the security level of the Regulation refuse to certify new equipment on the grounds of obsolescence of security mechanisms.

2.1.2. Modifications to be planned

Action must be planned to restore and maintain the security level, using an appropriate new set of security mechanisms, and employing more up-to-date standards and methods. Annex IB to Council Regulation (EEC) No 3821/85 and its appendices will need to be modified by means of delegated acts. The Commission will first carry out a general security assessment to identify the weak points in the security set-up. In a second step, it will identify and validate the requirements for the strength of the security mechanisms applicable to vehicle units, motion sensors and tachograph cards.

The aim will be for new equipment put onto the market to restore as a minimum the initial level of security (ITSEC level E3 high), and to assure this level of security for a sufficient number of years. New encryption methods will be needed, which will in turn require changes in the hardware (longer “key lengths”). The modifications of Annex IB will relate to the sections identified in Annex I of the present Communication.

⁸ Directive 95/46/EC of the European Parliament and of the Council of 24.10.1995 on the protection of individuals with regard to the processing of personal data and on the free movement of such data, OJ L 281 of 23.11.1995, p.31

⁹ Directive 2002/58/EC of the European Parliament and of the Council of 12.07.2002 concerning the procession of personal data and the protection of privacy in the electronic communications sector (Directive on privacy and electronic communications)

¹⁰ See requirement CSP_105 in Appendix 10 of Annex IB to Council Regulation (EEC) No 3821/85.

¹¹ See requirement CSM_014 in Appendix 11 of Annex IB to Council Regulation (EEC) No 3821/85.

¹² Commission Regulation (EU) No 1266/2009 of 16 December 2009 adapting for the tenth time to technical progress Council Regulation (EEC) No 3821/85 on recording equipment in road transport, OJ L 339, 22.12.2009, p.3.

2.1.3. Migration strategy

Interoperability and backward-forward compatibility¹³ should be guaranteed between the various versions and generations of vehicle units, cards used in these vehicle units, and to some extent equipment of controllers. But the life cycles of vehicle units and cards are not the same. Cards can be of one, two or five years duration, vehicle units may last 15–20 years. Solving this challenging issue requires careful planning of a migration-transition strategy.

Migrating to different encryption methods can be accomplished in different ways. In the context of the digital tachograph, a single security solution seems the most appropriate. A single security solution means that when new recording equipment is introduced, the new tachograph can only read cards with new encryption ‘keys’. This allows a defined level of security for new vehicle units and tachograph cards as from a certain date. Every migration between two levels of security will therefore imply a transition period of five years, during which the two different levels of security will coexist. The figures in Annex II illustrate how this can be implemented. It shows that vehicle units with the new security mechanisms should be introduced in the fleet once all tachograph cards in circulation are interoperable with these new mechanisms as well as with the old ones.

It should be noted that a general consensus seems to exist in the industry to avoid the coexistence of more than two consecutive generations of security mechanisms in the fleet of vehicles covered by the Regulation. Indeed, very few vehicles would be concerned when new equipment is introduced, as a large proportion of heavy duty vehicles would either have been sold in other markets, or would no longer be in use. For the few remaining vehicles (e.g. special cranes or specific vehicles with long life operation), specific measures can be arranged, such as exemption or tachograph retrofit.

Regarding the time line, it is reasonably realistic to carry out all the preparatory work to have new equipment with an upgraded security level by the time of first introduction of the new cards after 2017, and the vehicle units between 2018 and 2022 (depending on the card renewal policy).

2.2. Mandate CEN to develop standards for seals

At any point in time, several thousand heavy duty vehicles are driving on the trans-European network with a manipulated tachograph or a non-valid card. The Impact Assessment showed that one of the reasons why the tachograph system is still vulnerable to manipulation and fraud is that seals do not perform properly as an indicator of tachograph manipulation. National enforcement authorities and research institutes¹⁴ report weaknesses of the tachograph in terms of its capacity to resist tampering.

¹³ Interoperability ensures that a new type of card will work with all types of vehicle unit already present in the field and vice-versa. Backward and forward compatibility relates to the compatibility between generations of equipment. Driver cards have to be compatible with different generations of tachographs without problems and vice-versa.

¹⁴ See for instance JRC, Report on the attacks to security of the Digital Tachograph and on the risk associated with the introduction of adaptors to be fitted into light vehicles, 2007; JRC, Report on the vulnerability and controllability of the digital tachograph, 2010; 25th report from the Commission on the implementation of the social legislation relating to road transport, SEC(2011)52; Price Waterhouse Cooper, Analysis of the technical and organisational measures employed by Member States in the application of Directive 2006/22/EC, 2009.

Seals are intended as a means of detecting by visual inspection any tampering with the mechanical interface between the different parts of the tachograph (the motion sensor and the gearbox), which are sealed by approved workshops after installation. According to the previously mentioned JRC study,¹⁵ seals are currently not required to meet a minimum performance level at European level nor to comply with a specific standard, thus making them easier to forge and subject to differentiated degradation over time.

In order to address this issue and having regard to the provisions of Directive 98/34/EC and of rules on Information Society services, the Commission will give a mandate to CEN for developing European standards for seals to be used on tachograph systems. For the purpose of defining the requirements for standardisation, the mandate will take into account the particular environment in which the seals have to be placed (high variations in temperature, exposure to mechanical shocks) and will stress the need to identify the workshops entrusted with installing the seals. The CEN will make sure that representative organisations are invited to take part in the standardisation work.

The contemplated standardisation could be put into practice in an estimated timeframe of 2 to 2.5 years. Once accomplished, it should allow easier detection of damaged seals, identification of workshops that performed the installation and avoid misunderstandings between operators and enforcement officers.

2.3. Improve the decision-making process between AETR contracting parties

Parallel to the development of the social legislation within the EU, similar legislation has been implemented at the level of the UNECE through the AETR agreement. In 2006, the contracting parties to the AETR had agreed to introduce the digital tachograph. The digital tachograph has become obligatory equipment for new vehicles since 10 June 2010 and this introduction of the digital tachograph has been successful in most AETR contracting parties.

But the current legal situation within the AETR agreement for the adaptations to technical progress of the digital tachograph¹⁶ is may not be sustained. Indeed, the AETR provides that changes to Council Regulation (EEC) No 3821/85 are automatically taken over by all AETR contracting parties, without any formal consultation of the countries in question before the adoption of the changes by the EU. The current mechanism jeopardises the correct and harmonised implementation of the measures introduced in the proposed revision of Council Regulation (EEC) No 3821/85 and the digital tachograph by non-EU contracting parties. It is therefore in the interest of the EU to improve the decision-making process as regards digital tachographs and AETR.

A process to review the AETR in this respect has been started at the level of the UNECE. The Commission would advocate the following in order to ensure a more efficient decision-making process with the involvement and consultation of all concerned countries in defining and updating the technical specifications of digital tachographs.

As a first transitional step, pending the necessary adaptations of the AETR, it seems appropriate to involve and consult AETR countries in the decision on changes to tachographs taken at the level of the EU. This involvement could be formalised by creating a 'Tachograph Forum Expert Group', as proposed by the Commission in the parallel proposal to revise

¹⁵ JRC, Report on the vulnerability and controllability of the digital tachograph, 2010.

¹⁶ See Article 22bis of the AETR agreement.

Council Regulation (EEC) No 3821/85. The decisions on the technical updates of Annex IB would thereby be transparent and fully informed of the position of the AETR contracting parties.

In a final step, the AETR should be adapted allowing the cooperation of the EU and all AETR contracting parties in the technical adaptation of the digital tachograph. The AETR should allow for a special procedure for technical adaptations of tachographs. One example of such a procedure exists for instance in the Agreement of the United Nations Economic Commission for Europe concerning the adoption of uniform technical prescriptions for wheeled vehicles, equipment and parts which can be fitted to and/or be used on wheeled vehicles and the conditions for reciprocal recognition of approvals granted on the basis of these prescriptions ('Revised 1958 Agreement')¹⁷. With such a mechanism it will be possible to make the regular adaptations to technical progress needed, and it should be designed to allow rapid reactions to certain developments, where necessary, by involving all parties using digital tachographs in the decision-making process.

Given this substantial change to the AETR and EU legislation, it seems necessary to arrange for the EU to become a contracting party to the AETR in its own right. The main reason is that such an accession would guarantee the effective representation of the EU's interests in the UNECE proceedings and a harmonised development of the EU legislation in parallel to the developments of the AETR, as is the case with the Revised 58 Agreement. The ad-hoc coordination of the Commission with Member States, which is the current practice to establish agreed positions for the UNECE meetings, seems no longer appropriate for the future decisions to be taken within the AETR on the technical adaptation of tachographs. In addition, such an accession would be in line with the Court rulings according to which 'since the subject matter of the AETR falls within the scope of [Regulation (EC) No 561/2006], the Community has been empowered to negotiate and conclude the agreement in question since the entry into force of the said regulation'¹⁸.

The Commission will explore with UNECE and the main non-EU contracting parties to the AETR their readiness to modify the AETR in order to make it possible for the EU to accede to the convention. Subject to the positive conclusion of these exploratory talks, the Commission will ask Council for a mandate for negotiations in order to implement the second step described above (Article 218 of TFEU). Once the EU has joined the AETR, the EU would adopt its rules to define the EU positions within the AETR, similarly to Council Decision 97/836/EC.

2.4. Merging driver cards with driving licences

The proposal to revise Council Regulation (EEC) No 3821/85 foresees that by 2018, driver cards will be merged with driving licences. This measure requires minor adaptations of Directive 2006/126/EC of the European Parliament and of the Council of 20 December 2006

¹⁷ See also Council Decision of 27 November 1997 with a view to accession by the European Community to the Agreement of the United Nations Economic Commission for Europe concerning the adoption of uniform technical prescriptions for wheeled vehicles, equipment and parts which can be fitted to and/or be used on wheeled vehicles and the conditions for reciprocal recognition of approvals granted on the basis of these prescriptions ('Revised 1958 Agreement'), 97/836/EC, OJ L 346, 17.12.1997, p. 78.

¹⁸ Court case 22/70, Commission vs Council, AETR.

on driving licences¹⁹. The Commission will submit as soon as possible a proposal to modify the driving licences directive accordingly.

3. INDICATIVE TIMETABLE FOR INTRODUCTION OF THE NEW TACHOGRAPH

The parallel proposal to revise Council Regulation (EEC) No 3821/85 provides for the definition of essential requirements and the addition of certain new features. The existing annexes and appendixes will in the first stage remain unchanged and still be compatible with the new proposed Regulation.

The proposal foresees that Annex IB should be amended at the latest by 31 December 2014 to add the necessary technical specifications for the introduction of GNSS functionalities, remote communication facilities and a standardised interface with other intelligent transport systems (ITS). The Commission plans to introduce at the same time the new IT security requirements outlined at point 2.1. It should however be stressed that these dates should be considered as the latest dates at which the new specifications should be adopted and introduced. Relying on its previous experience related to the first introduction of digital tachographs, which shows that, after publication of technical specifications, the industry needs at least two years to begin putting the product on the market. The commercialisation of the new 'smart' tachograph could therefore take place by 1 January 2017. The Commission acknowledges that the time-span needed for industrial production can hardly be shortened. The Commission will therefore make all necessary efforts to proceed for its part without delay to the preparation of annexes and appendixes so that, if possible, new equipment can reach the market before the final date of 2017²⁰.

Then, the technical work will start to bring the necessary changes in the annexes and appendixes, to end with new technical definitions for the digital tachograph, and finally with new technical units on the roads and in the vehicles. Annex II shows the impact of implementing the measures on Annex IB.

¹⁹ OJ L 403, 30.12.2006, p. 18–60

²⁰ For the integration of driving cards with driving licences, two distinct dates, of 19.01.2013 and 19.01.2018, appear at article 35 of the Proposal of a regulation. These dates are justifiable by the period of 5 years administrative validity of a driving license, which will also become the period of validity of driver cards.

Overview of activities for the coming years:

Commission proposal reviewing Regulation	Regulation adopted	Preparation of new annexes and appendices	New annexes and appendices adopted	Development and production		New equipment in field
				2015	2016	
2011	2012	2013	2014	2015	2016	2017

4. CONCLUSION

The White Paper on transport called upon a review of the rules on the tachograph to make it more cost-effective and contribute to the further integration of the road freight transport market. While the parallel proposal for amending Council Regulation N° 3821/85 introduces a number of measures which will improve the tachograph system, other actions will be needed to make these measures fully effective or to supplement them. In order to implement these other actions, the Commission is committed to taking the following steps :

1. Update to technical progress through a delegated act Annex IB, in 2014, notably to preserve the security level of the digital tachograph, as explained. Stakeholders are invited to participate actively in this process and to integrate the anticipated dates for the production and actual introduction in use of the new equipment into their plans for the future.
2. Ask CEN in 2011 to develop standards for seals. These standards should be made available by 2014.
3. At international level, continue its efforts to promote EU social rules in road transport and the use of the technologically-evolving digital tachographs in all its neighbouring countries. For this purpose, it shall propose to Council by the end of 2011 that the EU should be made a full member of the AETR, provided that on-going exploratory talks with non-EU AETR contracting parties are positive.
4. Propose to amend Directive 2006/126/EC on driving licences in order to organise the merging of driver cards and tachograph cards, by the end of 2011.

Annex I

Outline of expected modifications/creation of new annexes

	New security mechanisms	Integration of GNSS	Standardised technical interface for ITS	Remote communication for control purposes
Annex 1B	Annex 1B will have to be revisited in the light of the new Regulation			
Appendix 1 – Data Dictionary	To be modified	To be modified		To be modified
Appendix 2 – Tachograph card specifications	To be modified	To be modified		To be modified
Appendix 3 – Pictograms				
Appendix 4 – Printouts		To be modified		To be modified
Appendix 5 – Display				
Appendix 6 – External interfaces				
Appendix 7 – Data downloading protocols	To be modified	To be modified		To be modified
Appendix 8 – Calibration Protocols				
Appendix 9 – Type Approval – List of Minimum Required Tests		To be modified	To be modified	To be modified
Appendix 10 – Generic Security Targets	To be modified			
Appendix 11 – Common Security Mechanisms	To be modified			
<i>New Appendix 12 – ITS</i>			<i>To be created</i>	
<i>New Appendix 13 – Remote Communication for Control Purposes</i>				<i>To be created</i>

Annex II

Migration Concept (Single Security Solution Equipment – cards natural renewal)

