



Quality Assurance and eSecurity

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[Foreword

Automotive industry has overcome many
Challenges

The embedded intelligence in an actual car
is 100 times more important than in the first
Apollo lunar mission



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[Increasing complexity

The Probability of default increases as the square of complexity

When the complexity is multiplied by 100,
The probability of default is multiplied
By 10 000



[Improved reliability

In spite of the complexity, reliability of cars is much improved.

This goal has been achieved through high performance concepts, tools and methods from functional specifications to the establishment of quality of a fleet of vehicles.



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[Need of Quality standards

The coordination of the different participants for the construction of a vehicle needs to respect precise rules : Quality standards

These standards are known as ISO 9000 class
And have been defined within ISO TC 176



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[ISO 9000 class standards 1/5

ISO 9000:2005, entitled Fundamentals and Vocabulary, describes the fundamentals of a QMS and specifies the terminology.

ISO 9001: 2000, Quality management systems - Requirements specifies requirements for a QMS where an organization needs to demonstrate its ability to provide products that meet customer requirements and applicable regulatory requirements and aims to enhance customer satisfaction



[ISO 9000 class standards 2/5

Section 0 Introduction

Sections 1 & 2 : Scope & Normative Reference

Section 3: Terms and definitions

Section 4: General Requirements

Section 5: Management Responsibility

Section 6: Resource Management

Section 7: Product Realization

Sec. 8: Measurement, analysis and improvement



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[ISO 9000 class standards 3/5

ISO 9000:2005, entitled Fundamentals and Vocabulary, describes the fundamentals of a Quality Management System and specifies the terminology.

ISO 9001: 2000, QMS - Requirements for a QMS where an organization needs to demonstrate its ability to provide products that meet customer requirements and applicable regulatory requirements and aims to enhance customer satisfaction



[ISO 9000 class standards 4/5

The standard specifies 6 compulsory documents:

Control of Documents (4.2.3)

Control of Records (4.2.4)

Internal Audits (8.2.2)

Control of Nonconforming Product / Service (8.3)

Corrective Action (8.5.2)

Preventive Action (8.5.3)

In addition to these, ISO 9001:2000 requires a Quality Policy and Quality Manual (which may or may not include the above documents).



[ISO 9000 class standards 5/5

TC 176 has started the review of ISO 9001, which will in all likelihood be termed in 2008

ISO/TS 16949 aims to the development of a quality management system that provides for continual improvement, emphasizing defect prevention and the reduction of variation and waste in the supply chain. It applies to the design/development, production and, when relevant, installation and servicing of automotive-related products. The requirements are intended to be applied throughout the supply chain. For the first time vehicle assembly plants will be encouraged to seek ISO/TS 16949 certification.



[ISO 19011

ISO 19011 Guidelines for quality and/or environmental management systems auditing provides guidance on auditing quality and environmental management systems, and is presently being jointly developed by ISO/TC 176 and ISO/TC 207.

ISO/TC 207 is responsible for the ISO 14000 family of environmental management standards (EMS).



[ISO/TC 176 Key Strategies 1/2

Provide for a clear understanding of the role of quality in relation to the management (leading and operating) of an organization and the application of related concepts and principles.

Minimize proliferation of standards within the ISO 9000 family.

Work towards minimizing the proliferation of standards in the field of quality management developed externally to TC 176 using a joint and cooperative approach with the ISO/IEC TCs and other bodies involved.



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[ISO/TC 176 Key Strategies 2/2

Ensure the integrity of the ISO 9000 family of standards and provide for the integrity of their implementation and of the evaluation of their implementation.

Maximize usefulness of the ISO 9000 family of standards, facilitating effective implementation together with other ISO/IEC management system standards, using a joint and cooperative approach with the other TCs involved.



[IEC 61508 on security

is an umbrella standard, covering all industries and all aspects of the safety of electrical/electronic/programmable electronic safety-related systems from “cradle to grave”

ISO/IEC 15408 Information technology -- Security techniques -- Evaluation criteria for IT security

Draft ISO 26262 standard is an application of the 61508 and 15408 standards for road vehicles

Legal metrology Directive and OIML recommendations are issued from these standards



[Eu. harmonisation for motor vehicles

Numerous and precise mandatory rules for the Construction of vehicles have been made through European Legislation and Standardization.

Majority of automotive industry have design their products taking into account Quality standards and [European technical harmonisation for motor vehicles](#)

(<http://europa.eu/scadplus/leg/en/s06021.htm>)



[Ex. of technical harmonization 1/3

Council Directive [70/156/EEC](#) of 6 February 1970 on the approximation of the laws of the Member States relating to the type-approval of motor vehicles and their trailers [Official Journal L 42, 23.02.1970].

As amended by the following measures:

Council Directive [78/315/EEC](#) of 21 December 1977 [Official Journal L 81 of 28.03.1978];

Council Directive [80/1267/EEC](#) of 16 December 1980 [Official Journal L 375 of 31.12.1980];



[Ex. of technical harmonization 2/3

Council Directives [87/358/EEC](#) and 87/403/EEC of 25 June 1987 [Official Journal L 192 of 11.07.1987];

Council Directive [92/53/EEC](#) of 18 June 1992 [Official Journal L 225 of 10.08.1992];

Commission Directive [93/81/EEC](#) of 29 September 1993 [Official Journal L 264 of 23.10.1993];

Commission Directive [95/54/EC](#) of 31 October 1995 [Official Journal L 266 of 08.11.1995];



[Ex. of technical harmonization 3/3

Council Directive [96/27/EC](#) of 20 May 1996
[Official Journal L 169 of 08.01.1996];
European Parliament and Council Directive
[96/79/EC](#) of 16 December 1996 [Official
Journal L 18 of 21.01.1997];
European Parliament and Council Directive
[97/27/EC](#) of 22 July 1997 [Official Journal L
233 of 25.08.1997];
Commission Directive [98/14/EC](#) of 6 February
1998 [Official Journal L 91 of 25.03.1998]



[Analysis and Proposals 1/3

In this context the introduction of an uncoordinated approach based on eSecurity could jeopardize the European automotive sector in consideration with lawyer risks in case of accident involving hardware dysfunction. In fact if OEM concepts for security associated with quality standards and harmonized technical specifications differ from official eSecurity concepts then OEM could be prosecuted for non compliance with them in case of accident.



[Analysis and Proposals 2/3

In the field of Legal Metrology the cooperation between industry, public authorities, test laboratories and other stakeholders was very effective and gave good results.

At the European market level, eSecurity could be an opportunity to foster European industry and products.



[Analysis and Proposals 3/3

But eSecurity should be based on a similar cost effective cooperation as in legal metrology with automotive and telecom stakeholders.

If eSecurity standards are needed they must be studied and introduced within technical harmonization rules, so that every aspect from conception to field verification is known and accepted by OEM



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[Thank You

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