

# „Why ISO/TS 22163 certification is important for railway infrastructure Companies?”



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**IV Międzynarodowa Konferencja Naukowo-Techniczna "Nowoczesne technologie w projektowaniu, budowie i utrzymaniu rozjazdów kolejowych" Gdańsk - 18.01.2018**

# What is the ISO / TS 22163 standard previously known as IRIS.

Railway applications — Quality management system — Business management system requirements for rail organizations: ISO 9001:2015 and particular requirements for application in the rail sector.

The aim of this document is the development and continual improvement of a business management system to ensure product quality and safety in the global rail sector.

According to the principle that "the system is as secure as its weakest link"

## TECHNICAL SPECIFICATION

## ISO/TS 22163

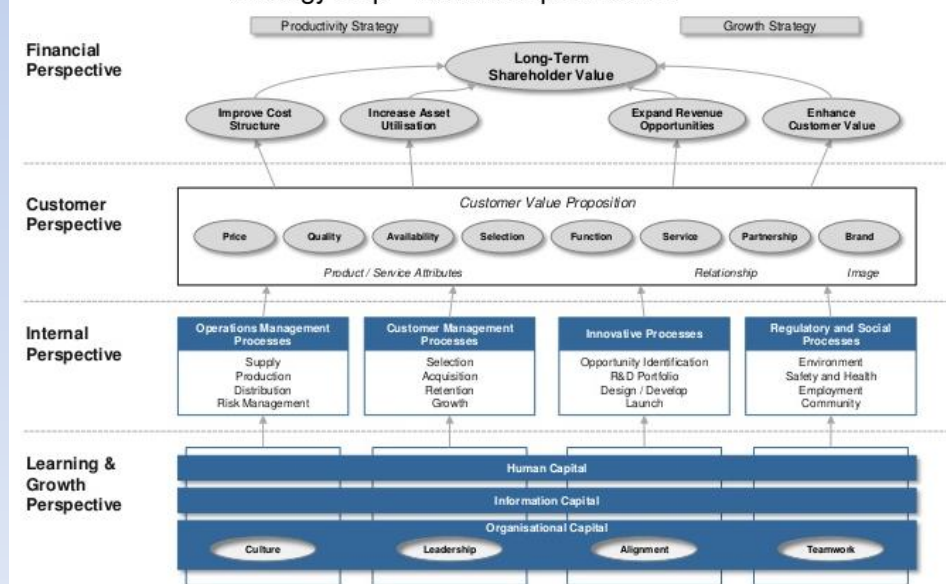
First edition  
2017-05

**Railway applications — Quality management system — Business management system requirements for rail organizations: ISO 9001:2015 and particular requirements for application in the rail sector**

*Applications ferroviaires — Système de management de la qualité — Exigences liées au système de management de l'activité à destination des organismes ferroviaires: ISO 9001:2015 et exigences particulières concernant les applications dans le secteur ferroviaire*



## Strategy Map – Classic Kaplan/Norton



# What is the ISO / TS 22163 standard.

## 3 Pillars of ISO/TS 22163:

- I. The questionnaire requirements - General
- II. Assessment of processes - Performance Evaluation
- III. Assessment of the customer satisfaction - Customer Perception

The screenshot displays the IRIS Certification software interface. The top menu bar includes options like File, Edit, Find, Preferences, Update, and Help. The left sidebar lists various audit-related functions such as Summary, Action plan preview, Report Preview, Certificate Preview, Assessment Sheet Report, Participants Report Preview, Company master data, Audit master data, Audit plan, Readiness Review, Customer Perception, Performance Evaluation, Assessment Sheet, Audit summaries, Actions, Re-Audit, and Status.

The main window is titled "Certification audit, IRIS Certification™" and shows a summary of audit results for "Thoni Alutec MA preliminary 2017.irs". The summary is divided into three main sections: General, Customer Perception, and Performance Evaluation.

**General:**

- Final Result: Not passed due to open corrective actions
- Result in %: 70%
- Points: 558 / 792

**Customer Perception:**

- Result in %: 69%
- Points: 25 / 36

**Performance Evaluation:**

- Result in %: 81%
- Points: 13 / 16

**Additional:**

- Product categories: 01, 03, 07, 11, 16, 19
- Surveillance audit deadline: 14/12/2018

**Overview table:**

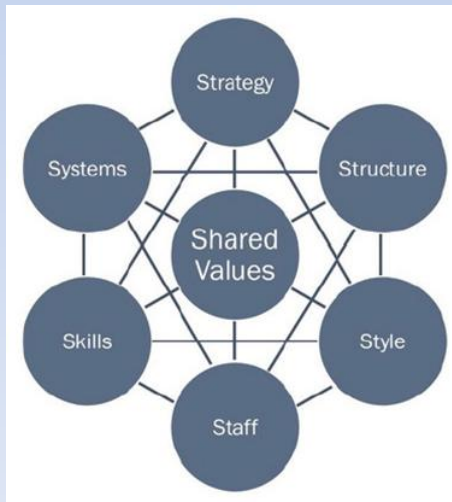
Level	Clause 4	Clause 5	Clause 6	Clause 7	Clause 8	Clause 9	Clause 10
N/A	0	0	0	1	8	0	0
Optimized	0	0	0	0	0	0	0

## What is the ISO / TS 22163 standard

The potential benefits to an organization of implementing a quality management system based on this International Standard are:

- a) the ability to consistently provide products and services that meet customer and applicable statutory and regulatory requirements;
- b) increasing customer satisfaction;
- c) addressing risks and opportunities;
- d) the ability to demonstrate conformity to specified quality management system requirements.

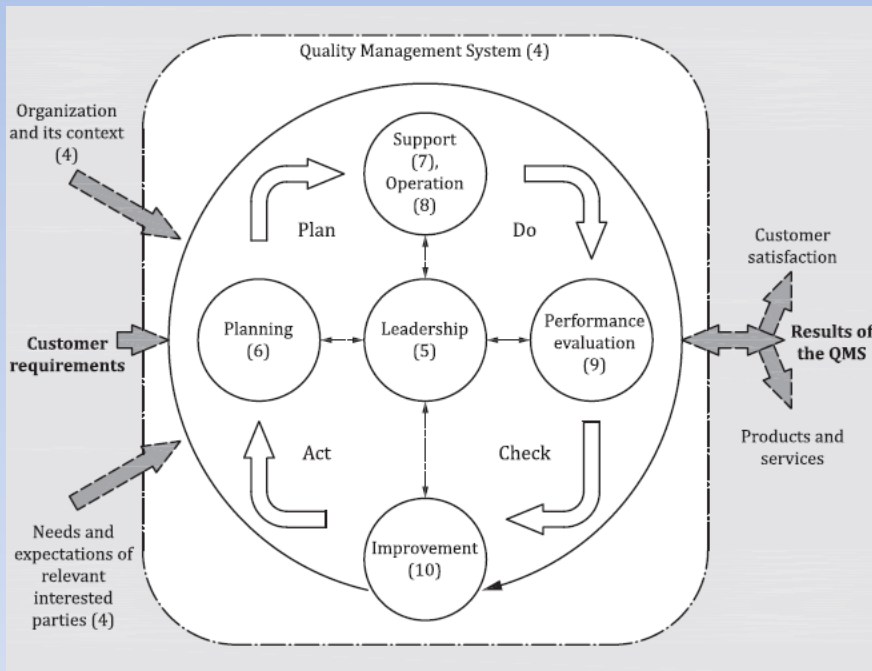
This International Standard employs the process approach, which enables an organization to plan its processes and their interactions and incorporates the Plan-Do-Check-Act (PDCA) cycle and risk-based thinking which enables an organization to determine the factors that could cause its processes and its quality management system to deviate from the planned results, to put in place preventive controls to minimize negative effects and to make maximum use of opportunities as they arise.



McKinsey 7S model

# What is the ISO / TS 22163 standard

The PDCA cycle can be applied to all processes and to the quality management system as a whole.



The PDCA cycle can be briefly described as follows:

**Plan:** establish the objectives of the system and its processes, and the resources needed to deliver results in accordance with customers' requirements and the organization's policies, and identify and address risks and opportunities;

**Do:** implement what was planned;

**Check:** monitor and (where applicable) measure processes and the resulting products and services against policies, objectives, requirements and planned activities, and report the results;

**Act:** take actions to improve performance, as necessary.

**Representation of the structure of this International Standard in the PDCA cycle –**  
NOTE Numbers in brackets refer to the clauses in this International Standard.

# What is the ISO / TS 22163 standard


## Process approach

This International Standard promotes the adoption of a process approach when developing, implementing and improving the effectiveness of a quality management system, to enhance customer satisfaction by meeting customer requirements.

The application of the process approach in a quality management system enables:

- a) understanding and consistency in meeting requirements;
- b) the consideration of processes in terms of added value;
- c) the achievement of effective process performance;
- d) improvement of processes based on evaluation of data and information.

PROCESS APPLICATION	The process is documented, established, implemented and maintained.	The process is documented, established, implemented and maintained.	The process is documented, established, implemented and maintained.
	However the process is NOT delivering the STAKEHOLDER EXPECTED PERFORMANCE and appropriate action is not being taken.	However the process is NOT delivering the STAKEHOLDER EXPECTED PERFORMANCE but appropriate action is being taken.	Furthermore the process is delivering the STAKEHOLDER EXPECTED PERFORMANCE and there are no nonconformities identified.
	The process is documented, established, PARTIALLY implemented and THEREFORE PARTIALLY maintained.	The process is documented, established, PARTIALLY implemented and THEREFORE PARTIALLY maintained.	The process is documented, established, PARTIALLY implemented and THEREFORE PARTIALLY maintained.
	However the process is NOT delivering the STAKEHOLDER EXPECTED PERFORMANCE and appropriate action is not being taken.	However the process is NOT delivering the STAKEHOLDER EXPECTED PERFORMANCE but appropriate action is being taken.	However the process is delivering the STAKEHOLDER EXPECTED PERFORMANCE.
	The process is NOT documented, established, implemented and maintained.	The process is NOT documented, established, implemented and maintained.	The process is NOT documented, established, implemented and maintained.
	Furthermore the process is NOT delivering the STAKEHOLDER EXPECTED PERFORMANCE and appropriate action is not being taken.	However the process is NOT delivering the STAKEHOLDER EXPECTED PERFORMANCE but, appropriate action is being taken.	However the process is delivering the STAKEHOLDER EXPECTED PERFORMANCE.
PROCESS PERFORMANCE			


Gold Level

## THE IRIS CERTIFICATION™ QUALITY PERFORMANCE LEVELS?

According to the assessment results of the audit based on the three pillars, an organization achieves one of the following specific IRIS Certification™ quality performance level:.

**Bronze level** is the basic level. It is obtained when ISO TS 22163 requirements are in place and compliance with mandatory requirements is met.

**Silver level** implies, on top of the bronze level, a transparency on performance. This is assessed through customer perception performance and the performance evaluation. In addition, a higher maturity level for ISO/TS 22163 requirements is mandatory.

**Gold level** is the highest level and can be achieved by clear evidence of optimized customer perception performance. The fulfilment of specific determined recommended requirements is mandatory for the gold level. „full compliance with all indicators requested by customers”.

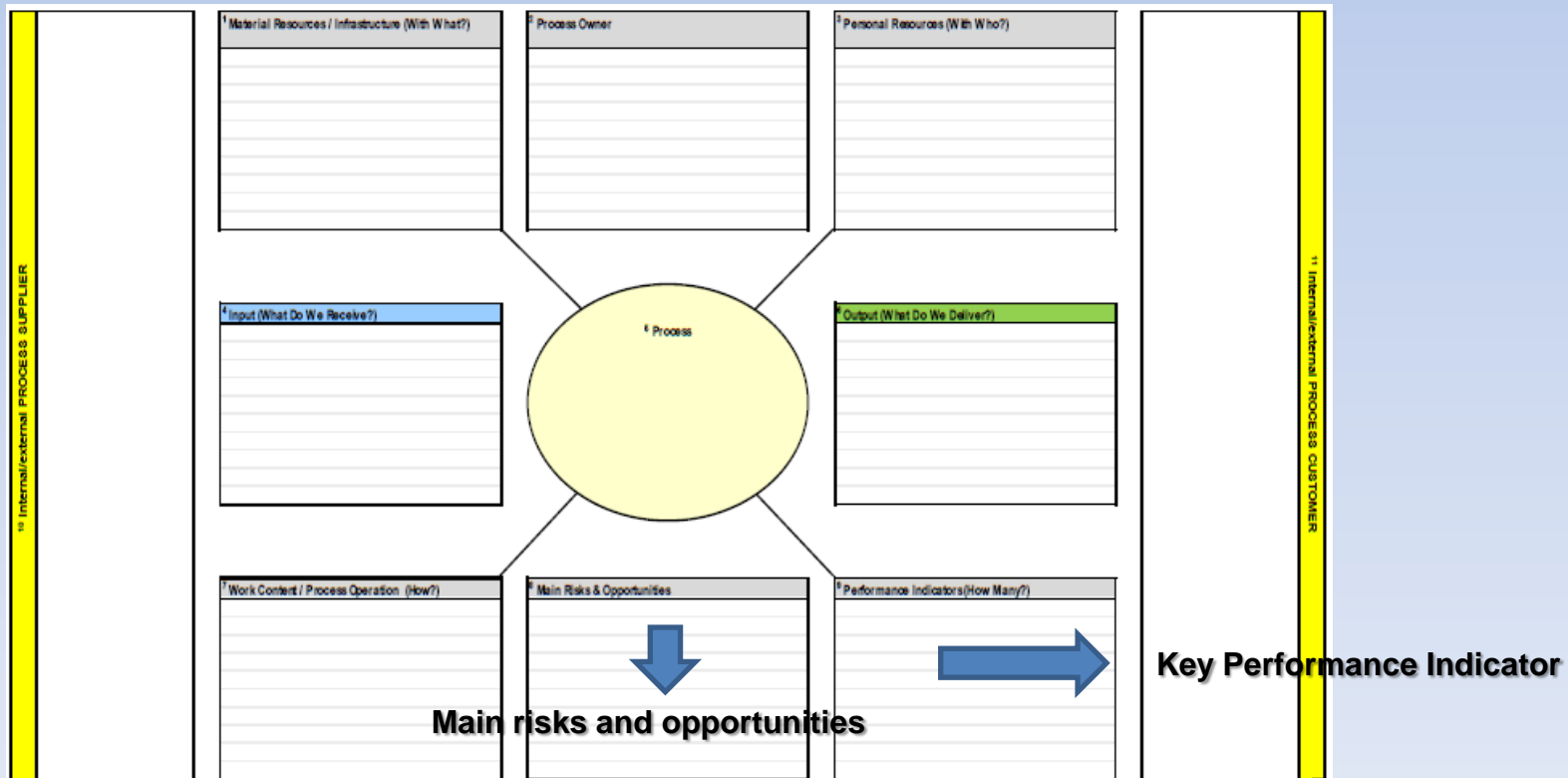


# What is the ISO / TS 22163 standard

## Risk-based thinking

To conform to the requirements of this International Standard, an organization needs to plan and implement actions to address risks and opportunities.

Opportunities can arise as a result of a situation favourable to achieving an intended result while Risk is the effect of uncertainty and any such uncertainty can have positive or negative effects. A positive deviation arising from a risk can provide an opportunity, but not all positive effects of risk result in opportunities.





**KPI's** measures are commonly used to help an organization define and evaluate how successful it is, typically in terms of making progress towards its long-term organizational goals.

**KPI's** can be specified by answering the question, "What is really important to different stakeholders?" As such, different levels of performance indicators can be specified, and aligned to the organization's business objectives.

Reviewing and understanding the current indicators can also provide a benchmark for judging the success of a project.



It is also important to note that **KPI's** should be monitored, in order:

- a) to assess the present state of the business and
- b) to assist in prescribing a course of action.

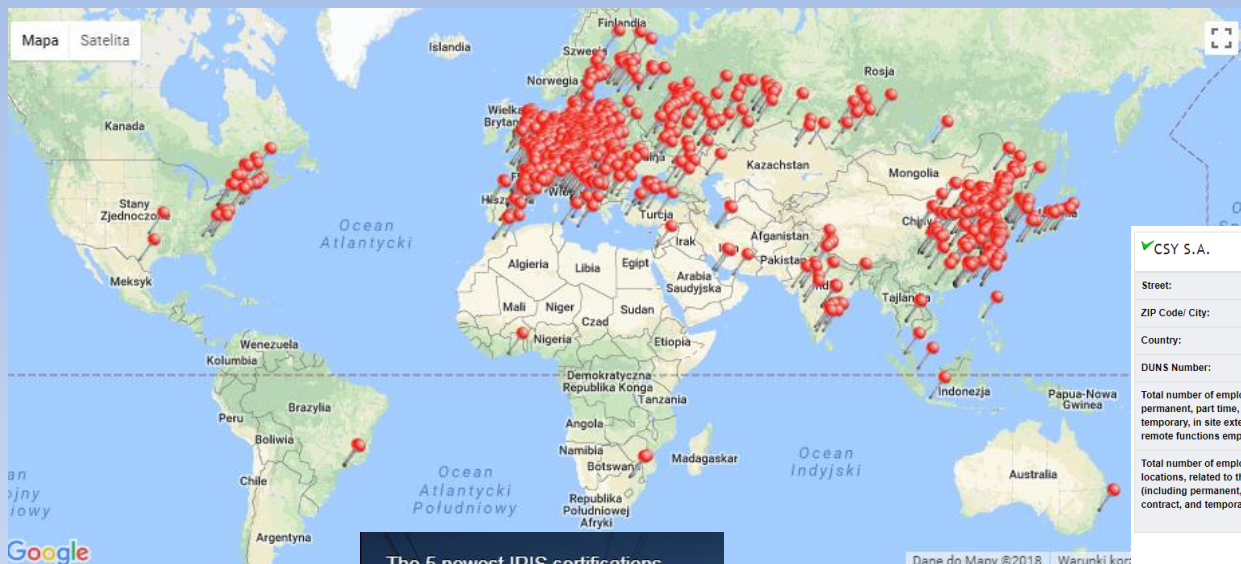
## Abbreviations Explanation

EPPPS	Externally Provided Process, Product and Services
FAI	First Article Inspection
FMEA	Failure Mode and Effects Analysis
FMECA	Failure Mode, Effects and Criticality Analysis
FRACAS	Failure Reporting Analysis and Corrective Action System
KPI	Key Performance Indicator
LCC	Life Cycle Costing
PDCA	Plan – Do – Check – Act
QDC	Quality Deficiency Cost
RAMS	Reliability, Availability, Maintainability, Safety
SIL	Safety Integrity Level

Sample software used for qualitative analysis of reliability and readiness and safety of complex technical systems, supporting calculations as below:

<a href="http://www.relexsoftware.it/">http://www.relexsoftware.it/</a>	(FRACAS, FMEA, Markov, LCC, RAMS)	modules
<a href="http://www.itemtoolkit.com/">http://www.itemtoolkit.com/</a>	(FMECA, Markov, Fault tree, RBD)	modules
<a href="http://www.reliasoft.com/solutions/transportation.htm">http://www.reliasoft.com/solutions/transportation.htm</a>		

# Who is the beneficiary of the ISO / TS 22163 ?



The 5 newest IRIS certifications

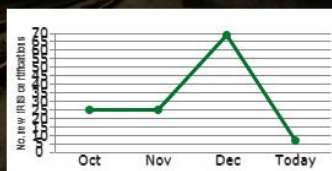
Beijing Gelinshi Technology  
Country: China / City: Qingdao City, Shando

Qingdao Jinhong Chantun Vehi...  
Country: China / City: Qingdao

CSY...  
Country: Poland / City: Ilawa

Rezhovsk Cable Plant  
Country: Russian Federation / City: Rezh

XINXINAG PINGYUAN AVIATION  
Country: China / City: Xinxiang



✓ CSY S.A.			
Street:	Grunwaldzka 13	Phone:	+48 896482131
ZIP Code/ City:	14-200 Ilawa		
Country:	Poland	Url:	<a href="http://www.csy.ilawa.pl">www.csy.ilawa.pl</a>
DUNS Number:	522199413		
Total number of employees (including permanent, part time, contract, temporary, in site extensions and in remote functions employees):	123	Total number of employees on site, related to the rail business (including permanent, part time, contract, and temporary employees):	123
Total number of employees in remote locations, related to the rail business (including permanent, parttime, contract, and temporary employees):	0	Total number of employees in site extensions, related to the rail business (including permanent, parttime, contract, and temporary employees):	0

## Contact Person

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Phone: +48 728446727

## Certificates

Performance Level	Standard	Product Categories	Activity	Date of Audit / Audit valid until	Certificate valid from / Certificate valid until / Current date
✓	ISO/TS 01, V1.0	• 19 - Single railway components	Manufacturing	16.11.2017 / 15.11.2018	27.12.2017 / 15.11.2020 / 03.01.2018

# Who is the beneficiary of the ISO / TS 22163 ?

## ACCESSIBILITY OF DATA

The IRIS Certification™ portal contains an on-line database that provides all important and necessary information about the audit results.

On level 1 of the database (all public), only non-detailed data on passed audits and certifications are available:

- general client information (name, address, contacts),
- the approval status,
- the validity of the certificate,
- the quality performance level, and
- the client scope of certification (see appendix 1).

On level 2 of the database, only accessible with adequate access rights, all detailed data on passed audits and certifications:

- audit reports,
- the respective corrective action plans, including their status reports,
- the achieved scores,
- the certificates,
- the performance level documents, and
- any other relevant document chosen by the client or the certification body.

All detailed data are strictly confidential.

# Who is the beneficiary of the ISO / TS 22163 ?

**1603** certificates issued in the world  
**109** certificates issued in the world (No 18 – Infrastructure)  
**56** certificates issued for Polish companies  
**7** certificates issued for Polish companies (No 18 – Infrastructure)

Performance Level	Headquarter	Company	Country	Product Scopes	Activities	IRIS revision	Certificate valid until	Last day of certification audit	Last day of surveillance audit
⚠		AVIOTECH ELECTRIC SP. Z O.O. <a href="#">PL 05-080 IZABELIN</a>	Poland	12, 16, 19, 20	Design Manufacturing Maintenance	IRIS Rev 02, V2.4	18.10.2019	-	-
✓		Bombardier Transportation (Rail Engineering) Polska Sp. z o.o. <a href="#">00-876 Warszawa</a>	Poland	19	Design	IRIS Rev 02, V2.4	-	-	18.11.2016
				19	Design	IRIS Rev 02, V2.3	15.02.2018	-	-
✓	Bombardier Transportation Headquarter	Bombardier Transportation (ZWUS) Polska Sp. z o.o. <a href="#">40-142 Katowice</a>	Poland	9, 19	Design Manufacturing Maintenance	IRIS Rev 02, V2.4	-	-	16.03.2017
				9, 19	Design Manufacturing Maintenance	IRIS Rev 02, V2.3	18.06.2018	-	-
✓		KOLEJOWE ZAKŁADY NAWIERZCHNIOWE "BIEZANOW" SP. Z O.O. <a href="#">30-740 KRAKÓW</a>	Poland	18, 19	Design Manufacturing	IRIS Rev 02, V2.4	-	-	14.02.2017
				18, 19	Design Manufacturing	IRIS Rev 02, V2.4	11.04.2019	12.04.2016	-
✓		Krakowskie Zakłady Automatyki S.A. <a href="#">30-552 Kraków</a>	Poland	19	Design Manufacturing	IRIS Rev 02, V2.4	-	-	27.10.2017
				19	Design Manufacturing	IRIS Rev 02, V2.4	-	-	20.10.2016
				19	Design Manufacturing	IRIS Rev 02, V2.4	29.11.2018	-	-
✓		SABEL Biuro Wdrożeniowo-Projektowe Roman Sabat Sole proprietorship <a href="#">53-609 Wrocław</a>	Poland	19	Design Manufacturing	IRIS Rev 02, V2.4	-	-	28.02.2017
				19	Design Manufacturing	IRIS Rev 02, V2.4	30.03.2019	31.03.2016	-
✓		Thales Polska Sp. z o.o. <a href="#">01-518 Warszawa</a>	Poland	19	Manufacturing Maintenance	IRIS Rev 02, V2.4	02.02.2020	03.02.2017	-

previously the infrastructure had code 19

no requirement to have got from customers

## IRIS Certification™ scopes of certification

The IRIS Certification™ scopes of certification are aligned with the standard EN 15380-2 Railway applications - Designation system for railway vehicles - Part 2: Product groups.

The table below establishes the link of the level one (1) main product groups (MPG) of the IRIS Certification™ scopes of certification to the associated main product groups (MPG) of the EN 15380-2, when applicable.

No.	IRIS Certification™ description	EN 15380-2 MPG designation
01	Vehicle body	B
02	Vehicle fitting out	C
03	Guidance	E
04	Power system, drive unit	F
05	Auxiliary systems	H M Q
06	Braking system	R
07	Interiors	D
08	Control apparatus for train operations	G
09	Passenger Information Systems (PIS)	P
10	Communication, monitoring and safety equipment	J
11	Carrier systems, enclosures	T
12	Electrical wiring	U
13	Doors, entrances	N
14	Heating, Ventilating and Air Conditioning (HVAC)	L
15	Lighting	K
16	Vehicle linkage devices	S
17	Rolling stock	V
18	Infrastructure	W
19	Single rail components	X
20	Components related to special process work	Y

MPG designation <sup>a</sup>	Name of the MPG
B	Vehicle body
C	Vehicle fitting out
D	Interior appointments
E	Running gear
F	Power system, drive unit
G	Control apparatus for train operations
H	Auxiliary operating equipment
J	Monitoring and safety equipment
K	Lighting
L	Air conditioning
M	Ancillary operating equipment
N	Doors, entrances
P	Information facilities
Q	Pneumatic/hydraulic equipment
R	Brake
S	Vehicle linkage devices
T	Carrier systems, enclosures
U	Electrical wiring

<sup>a</sup> The main product groups shall not be used as a single designation. Table 1 contains only a summary of the MPG.  
According to the requirements of EN 61346-2:2000, the designations A and V to Z are pre-allocated.

Code letters for		Name
MPG	SPG	
B	A	Vehicle body
	B	Underframe
	C	Side walls
	D	Roof
	E	Head of vehicle
	F	End walls
	G	Weld-on/add-on parts
	H	Intermediate floor
	J	Partitions

Źródło: PN-EN 15380-2

Źródło: IRIS CERTIFICATION™ RULES REV 3.0, June 2017

# Who prepared the rules for achieving and maintaining IRIS Certification™?

Rules for achieving and maintaining has been originated by the “IRIS Working Group” (IRIS Certification™) whose stakeholders consists on:

- **UNIFE™**, The Association of the European Rail Industry, and

- **its industry members:**

Alstom,  
Bombardier Transportation,  
CAF,  
Siemens,  
Ansaldo STS,  
Faiveley Transport,  
HARTING KGaA,  
Knorr-Bremse,  
Schaeffler,

- **rail operators:**

a) *DB AG*,  
b) *Metro Barcelona*,  
c) *NedTrain*,  
d) *RZD*,  
e) *SBB CFF FFS*,  
f) *SNCB*,  
g) *SNCF*

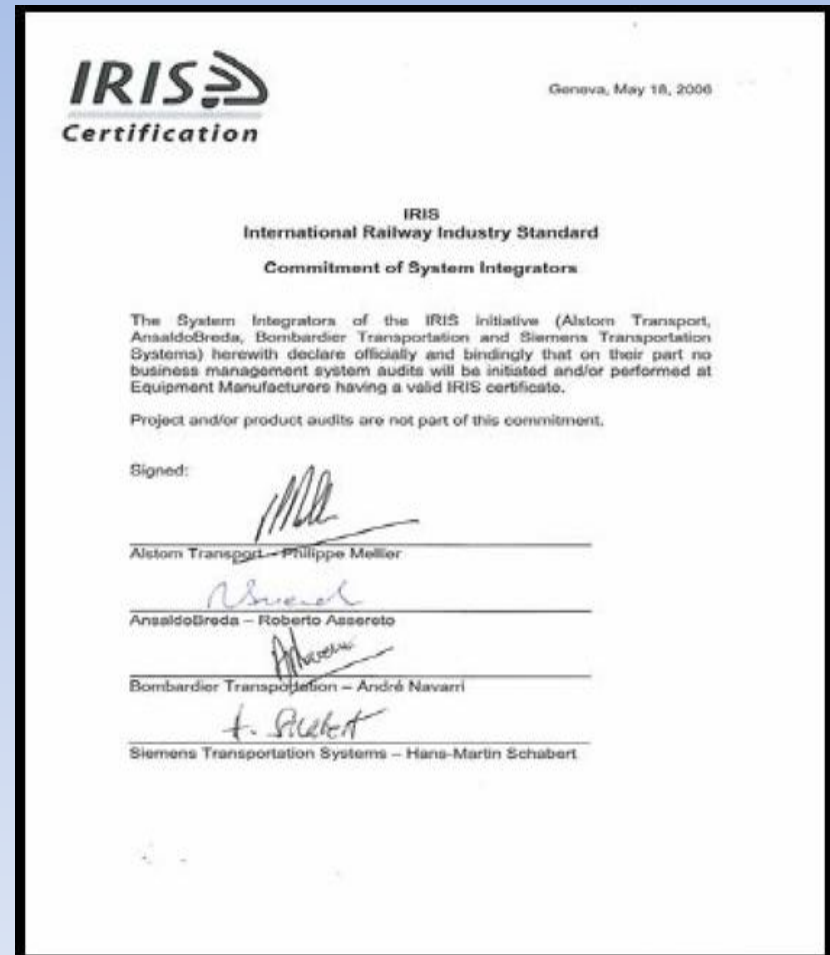


Pour : BUREAU VERITAS POLSKA SP ZOO  
Client : 70036578  
Commande : N20170629-313320-T  
le : 29/06/2017 à 09:58

# Who prepared the ISO / TS 22163 ?

Geneve, May 18, 2006

Alstom Transport, AnsaldoBreda, Bombardier Transport and Siemens Transportation System herewith declare officially and bindingly that on their part no business management system audits will be initiated and/or performed at Equipment Manufacturer having a valid IRIS certificate.





## Summary

1. All business processes carried out in the Organization focused on the client,
2. Standardization of work including work in projects,
3. The whole organization has an impact on the preparation of documentation based on the process approach,
4. Risk management and potential opportunities at every stage of the project implementation,
5. Knowledge management,
6. Project management,
7. RAMS/LCC - Reliability, Availability, Maintainability, Safety / Life Cycle Costing,
8. FRACAS -Failure Reporting Analysis and Corrective Action System,
9. KPI – Key Performance Indicator,
10. Management by targets.

# ISO/TS 22163 = SUCCESS



Thank You for your attention