



IO2. Guideline for Training and Qualification

A. QUALIFICATION STANDARD (QSLOT)

B. MINIMUM REQUIREMENTS FOR THE EDUCATION, TRAINING, EXAMINATION AND QUALIFICATION OF PERSONNEL DEDICATED TO LOGISTICS IN FABRICATION

Logistics Technologist

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Introduction

The present Guideline for Training and Qualification (GTQ) is the technical frame for the introduction and implementation of the qualification and certification as Logistics Technologist (LoT). It is composed of two parts:

1. A qualification standard for LoT, which contains the job description and the main requirements of the qualified personnel to assure the job's activities and responsibilities
2. Set of minimal requirements for the training, qualification and certification as LoT.

The qualification standard is presented in Chapter 1.

The minimal requirements for the training are presented in Chapter 2.

The minimal requirements for the examination for qualification and the qualification and certification conditions are presented in Chapter 3.

The qualification is assumed to be assimilated with one of the European Qualifications Framework (EQF) level. According to EQF a certified qualification can be obtained after specific education and training, which is followed by examination session to prove the knowledge and the skills accumulated by the candidate to qualification.

Chapter 1. Qualification standard

1.1. Generals

LoT is defined as level 4 qualification, according to the EQF.

It is an operational level qualification, having several limited management tasks.

1.2. Logistics Technologist – Job description and general requirements

LoT performs actions inside a fabrication system facility, being involved in the organizing and the coordination of the main logistics processes which are designed to support the fabrication process.

The personnel qualified as Logistics Technologist should be able to perform the following actions:

1. To manage and optimize the logistics system built as support for the fabrication processes
2. To ensure that all supplies and equipment for a certain location are taken care of: choosing, ordering, and distributing of important equipment and consumables
3. To analyse the supplies status by inventory and, if low, to be able to order them before they run out
4. Develop and use the specific databases and other systems to track, store, and analyse logistics data.
5. To accurate records all the purchased and delivered supplies
6. To drive and operate a forklift could be a task if specialized forklift personnel is not available
7. Plan and schedule and tracking the shipping of the products
8. Plan and schedule the warehousing of the supplies
9. Take stock for warehouses and reconcile any discrepancies
10. To apply analysis of the logistics system within a fabrication system and take decisions based on the results of the analysis
11. To manage the logistics teams and to assure the quality of all personnel involved in the logistics operations
12. To know very well its own tasks and responsibilities and to be in continuous improvement of skills and competences.

Due to these tasks, the main qualification requirements are presented in Table 1.

Table 1: LoT – General requirements for the qualified personnel

Qualification requirements			
Knowledge	Skills	Autonomy and Responsibility	EQF Level
Fundamental factual and theoretical knowledge of the theory, principles, methodologies and applicability of the logistics processes specific to a fabrication system	Fundamental range of cognitive and practical skills required in basic and specific problems, principles and applicability of logistics operations dedicated to the supporting of the fabrication processes, in basic and specific applications	Self-manage in working procedures, within the logistics activities. Take responsibility without autonomy for decision making in basic work. Limited management related to the team and to the planning and to the implementation of the planning	4

The elements that describe the job for the LoT personnel is presented in Table 1.

Table 2: Job description of LoT

Modules	Logistics Technologist
Business Principles	<ol style="list-style-type: none"> 1. Understands the logistics strategic planning of the factory 2. Understands the concepts of quality and productivity and profit and loss related to own fabrication system 3. Monitors the application of the logistics strategic planning of the factory
Core Management Skills	<ol style="list-style-type: none"> 1. Understands and is able to apply the relevant management principles 2. Plans own and team professional development 3. Participates in cross functional teams 4. Has appropriate behavior and communication skills 5. Demonstrates decision making ability for job level 6. Chairs the meetings related to the management of the logistics system 7. Manages own team of logistics activities implementation
Process Management	<ol style="list-style-type: none"> 1. Describes the logistics chain of the manufacturing system in which he/she is involved 2. Understands the effect of changing the product characteristics on the logistics system 3. Understands the basic concept of lean manufacturing 4. Understands how to calculate the costs related to the logistics processes inside a fabrication facility 5. Understands specific types of data, related to logistics and fabrication, used in own organization 6. Understands the necessity to use of a Quality Management Systems and to apply and respect it
Project Management	<ol style="list-style-type: none"> 1. Fills, updates and archives specific project documentation 2. Understands and applies specific project management tools
Demand, Production and Distribution Requirements Planning	<ol style="list-style-type: none"> 1. Calculates total logistics lead time 2. Uses specific digital tools to solve its tasks related to forecasting, demanding and planning 3. Receives and analyses information on the existent stocks to calculate and predicts evolution of the stocks; reports on the results 4. Coordinates the transfer of the ordered materials and tools and consumables, from the storing shop to the workshops of the company 5. Coordinates inventories on the components of the logistics related to fabrication 6. Understands and applies different planning techniques to own tasks related to the distribution of materials and tools among the facilities
Warehousing	<ol style="list-style-type: none"> 1. Understands the key challenges in warehouse management and searches for best available solutions 2. It has a detailed understanding of the processes implemented during the warehousing 3. Understands and applies different order picking strategies and methods 4. It has the capacity to operate the appropriate warehouse equipment for the handling of solid and liquid elements 5. It has the capacity to design and modify a warehouse layout 6. Implements the stock taking decisions 7. Implements warehouse safety procedures 8. Understands and applies the functionalities of Warehouse Management Systems
Transportation inside facility	<ol style="list-style-type: none"> 1. Understands the importance of the materials and tools and consumables and products inside the fabrication facility

	<ol style="list-style-type: none"> 2. Proposes solutions and administrates the transport ways inside the fabrication facility, from storage shop to workshops and back and from workshop to workshop 3. Understands the risks related to transport inside a facility 4. Understands the costs related to the transport inside a facility 5. Implements transport safety procedures
Sourcing	<ol style="list-style-type: none"> 1. Understands the procedures related to the procurement process cycle and actively participate to that process 2. Understands supplier evaluation and selection of supplier process and uses Key Performance Indicators (KPIs) to measure supplier performance, and participate with relevant information to the process of selection 3. Understands and uses all the digital tools related to the procurement process

Chapter 2. Minimum requirements to access education and training for qualification purpose

GTQ is document which specifies the minimum requirements for education, training and examination, in terms of Learning outcomes, Actions, Performance Criteria, Knowledge, Competences and Skills, and the workload required for the training of personnel as Logistics Technologist (EQF 4 level).

Applicants entering in the training process shall be high school or VET graduated. Expertise in logistics activities, proved by specific involvement (as employee, or volunteer, or other) in the field of logistics is recommended, but not a restrictive condition.

2.1 Training conditions and procedures

Conditions

When organize a training activity for qualification purposes a minimum of conditions should be fulfilled:

- Appropriate facilities – teaching room and training laboratory – with specific climate (temperature, humidity, air movement and refreshment, etc.)
- Equipment for teaching / presentation: board, video and audio devices, electronic and digital tools, etc.
- Specific equipment for the practical training

Procedures

The main procedures dedicated to the training activity are related to:

- Trainees will be briefed in the beginning on the objectives and tasks of the theoretical and practical exercises
- A program of the activity to be implemented will be elaborated by the trainer(s) in respect to the trainee's speed of understanding and learning style (to give sufficient planning time before the exercises start)
- Implement activity to accommodate the trainees with the equipment and tools dedicated to the training process
- The taught information level and the exercises level will be chosen adequate to the trainees' level of education and understanding
- Continuous guidance stimuli to be considered in the teaching and training activity
- All the activities developed by the trainees should be carefully monitored and guided
- The trainees will be debriefed after the theoretical teaching and practical training, to ensure that the training objectives are reached (specific knowledge and specific skills were acquired).

Criteria for the selection of lecturers / trainers

The trainer is essential for the transfer of minimal required information to the trainees. The role of the trainer is multiple:

- To facilitate the education and training of the trainees

- To educate with an emphasis on conceptual knowledge, basic skills and an introduction to the actual work
- To educate taking account of the trainee’s learning style
- To train with an emphasis on the actual tasks
- To apply training in authentic setting
- To facilitate a continuous improvement of the training process
- To help the trainees to accumulate information and to develop specific skills

Due to these tasks, a trainer should meet the following requirements:

- to be a qualified trainer, from the teaching / pedagogical point of view
- to have a full understanding of the training program to be applied
- to have practical expertise and specific theoretical expertise in the topics of the course
- to be open to a continuous improvement of the training process
- to be able to transform the subject of discussion in specific training program
- to be able to use the teaching and training dedicated equipment and dedicated digital tools
- to be able to facilitate the solving of the problems raised by the trainees.

The guideline is structured in 6 chapters. These chapters include the minimum requirements for education and training, the course overview, tasks and responsibilities of the trainees after performing the course, the competence units and the learning outcomes. The last chapter includes the rules for examination and qualification.

2.2 Organizing a learning activity (course) dedicated to the qualification

Education & training providers allowed to organize learning activities according to the GTQ

The education of the trainees must follow the specifications of the sub-chapters 1.6-1.8 of the GTQ and it can be organized by education & training providers which prior proved the capability to organize training activities according to the present guideline. The capability is evaluated by the NCC, which has the task to apply audit to the education & training providers and if the real conditions comply with the requirements (appropriate facility, appropriate equipment for theoretical and practical training, course support according to the present GTQ, qualified trainers, ...etc.) then the education & training provider receives the permission to organize course dedicated to the qualification as LoT, according to the present GTQ.

Any training course, organized by an accredited provider of education & training, based on the present GTQ, is announced at least 15 days before start and it shall be approved by the NCC.

The education & training provider will assure appropriate number of trainers to ensure that the entire information specified by the curriculum is appropriate and in due time transferred to the trainees.

2.3 Minimal Curriculum

Table 3: Structure of the training courses

Chapters	Teaching hours*	
	Theoretical	Practical
Chapter 1: Basics of logistics related to fabrication	6	6
Chapter 2: Fabrication processes and their logistics	6	6
2.1 Fabrication. Generals		
2.2 Casting processes and their logistics		
2.3 Metal cutting processes and their logistics		

2.4 Plastic deformation processes and their logistics 2.5 Joining and cutting processes and their logistics 2.6 Health and safety specific to the logistics operations related to fabrication		
Chapter 3: Auxiliary processes and their logistics 3.1 Manufacturing Inventory 3.2 Manufacturing Inventory Management 3.3 Inventory Record Accuracy 3.4 Parts and materials inventory 3.5 Material handling	5	3
Chapter 4: Hardware and Software equipment used in logistics of fabrication 4.1 Hardware for scanning 4.2 Software for databases 4.3 Software for managing	6	6
Chapter 5: Logistics of the product to deliver 5.1 Packaging 5.2 Labelling 5.3 Temporary storage	6	6
Chapter 6: Collateral impacts of digital technologies' implementation 6.1 New Business Models 6.2 Future Professions & Professionals 6.3 Cybersecurity risks 6.4 Legal implications 6.5 Environmental Impacts	5	3
TOTAL	34	30
	64	
* A teaching hour is considered to be 50 minutes		

2.4 General Learning Outcomes (GLOs)

Associated to each action from Sub-Chapter 1.1, are specific:

- Performance Criteria (including the steps needed to accomplish the respective task),
- Knowledge – technical and economic information in appropriate scientific level,
- Autonomy and Responsibility – when perform the requested actions
- Skills – practical abilities for undertaken in normal and in special conditions, as well as demonstrative application of the tasks related to logistics.

Table 4: GLOs

Chapter	Action	Performance Criteria	Knowledge	Autonomy and Responsibility	Skills	EQF
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Chapter 1: Basics of logistics related to fabrication	Distinguish and choose between the logistics processes and distinguish between all processes involved in the fabrication system and relate its basics to the logistics operations types	<ul style="list-style-type: none"> - Identify a specific logistics process by sketches and symbols and direct recognition during performing - Identify to which fabrication process is applied a specific logistics process / operation - Identify who / what / when / how applies specific logistics process / operation which is dedicated to a fabrication process - Choose different solutions of implementing a specific logistics process / operation based on their advantages and disadvantages against the requirements of the served fabrication process - Organize the workplace to implement the chosen solution - Identify the specific documentation related to the undertaken logistics process(es) / operation(s) - Identify the specific faults, imperfections, defects and failures in logistics processes - Evaluate of own team's performances 	Fundamental and theoretical knowledge of the basic theory, principles and applicability of the logistics process and its specific operations for different fabrication processes from industrial engineering	Self-manage and managing team of junior logistics personnel, within the guidelines of work, in different predictable contexts, but subjected to change. Take responsibility of work and of team for basic work. Take responsibility of specific inspection at specific level, in specific conditions, for own team tasks	Fundamental range of cognitive and practical skills required to identify/choose proper technical solutions when run operations related to the logistics processes for basic and specific problems	4
Chapter 2: Fabrication processes and their logistics	Distinguish between the fabrication processes which involve logistics processes as support	<ul style="list-style-type: none"> - Identify a specific fabrication process by sketches and symbols and direct recognition during performing - Identify the specific logistics process(es) / operation(s) which are necessary to be applied to a fabrication process - Propose and implement different logistics solutions when a fabrication process is changed. - Identifying the equipment necessary to implement a specific process of fabrication - Evaluate of own team's performances 	Fundamental and theoretical knowledge of the basic principles of the fabrication processes which require support of logistics process(es)	Self-manage within the relation between the fabrication and logistics processes. Take responsibility of work and of the inspections related to own work	Fundamental range of cognitive and practical skills required to identify/choose proper logistics process / operation to solve support for the fabrication processes	4
Chapter 3: Auxiliary processes and their logistics	Distinguish between the auxiliary to fabrication processes which involve logistics processes as support	<ul style="list-style-type: none"> - Identify a specific auxiliary process by sketches and symbols and direct recognition during performing - Identify the specific logistics process(es) / operation(s) which are necessary to be applied to an auxiliary process - Propose and implement different logistics solutions when an auxiliary process is changed. - Identifying the equipment necessary to implement a specific auxiliary process related to fabrication. 	Fundamental and theoretical knowledge of the basic principles of the auxiliary processes which require support of logistics process(es)	Self-manage within the relation between the auxiliary to fabrication processes and the logistics processes. Take responsibility of work and of the inspections related to own work	Fundamental range of cognitive and practical skills required to identify/choose proper logistics process / operation to solve support for the identified auxiliary processes	4

		<ul style="list-style-type: none"> - Identify the specific documentation related to the undertaken logistics process(es) / operation(s) - Identify the specific faults, imperfections, defects and failures in logistics processes - Evaluate of own team's performances 				
Chapter 4: Hardware and Software equipment used in logistics of fabrication	Distinguish and choose between the equipment used in logistics of fabrication	<ul style="list-style-type: none"> - Identify the type of equipment dedicated to a specific logistics operation - Evaluate the operational performances of the available equipment and choose the appropriate equipment for a specific activity - Implement in fabrication the chosen equipment - Evaluate of own team's performances 	Fundamental and theoretical knowledge of the basic principles of the types, structures, functionality and technical performances of the equipment dedicated to the logistics operations	Self-manage when choose, evaluate and operate the equipment dedicated to the logistics operations. Take responsibility of own and teams work. Take the responsibility of the inspections related to own work	Fundamental range of cognitive and practical skills required to identify and evaluate and choose and operate the appropriate equipment dedicated to a specific logistics operation.	4
Chapter 5: Logistics of the product to deliver	Distinguish and choose between the solutions related to packaging, labelling, temporary storage, manipulation and transportation of the product to be delivered	<ul style="list-style-type: none"> - Identify the type and the main versions of the products' conditioning processes, by sketches and symbols and direct recognition during performing - Identify the structure, the functionality and the performances of the process of the products' conditioning - Choose between solutions of conditioning - Organize the workplace to implement the chosen solutions of conditioning - Identify the specific documentation related to the undertaken logistics process(es) / operation(s) - Identify the specific faults, imperfections, defects and failures in logistics processes. - Evaluate of own team's performances 	Fundamental and theoretical knowledge of the basic principles of the types, structures, functionality and technical performances of the equipment dedicated to the logistics operations	Self-manage when choose, evaluate and operate the equipment dedicated to the logistics operations. Take responsibility of own and teams work. Take the responsibility of the inspections related to own work	Fundamental range of cognitive and practical skills required to identify and evaluate and choose and operate the appropriate equipment dedicated to a specific logistics operation.	4
Chapter 6: Collateral impacts of digital technologies' implementation	Distinguish the main characteristics of the new digital fabrication and its specific technologies. Participate in the process of transition from logistics that supports the old technologies to	<ul style="list-style-type: none"> - Identify and difference the structure and main concepts about new business models applied in logistics comparing it with the classic ones. - Develop the skills and abilities linked with demanded professions and professionals while identifying future challenges and opportunities. - Know and identify the cybersecurity risks related with vulnerabilities while developing protection 	Conceptual and practical comprehension about the primary impacts influenced by the digital changes in industry 4.0	Manage risks, opportunities and responsibilities detected from the implementation of new technology within team members, equipment and infrastructure	Primary soft and hard skills to identify, evaluate and react when detecting opportunities and challenges related with the impacts of digital transformation in the	4

	the logistics which is required by the new digital technologies	measures to minimize the impact in the supply chain. - Understand the legal implications associated with data regulation and safety while interacting inside a logistic facility. - Understand and quantify the environmental impacts associated with logistics 4.0			logistic industry	
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2.5 Specific Learning Outcomes (SLOs)

The following table identifies what to be performed during the course, in order to produce specific learning outcomes.

Table 4: SLOs

Chapter	Action	Knowledge	Skills	Training Materials / Resources	EQF	Workload (h)
Chapter 1: Basics of logistics related to fabrication				•		
Chapter 2: Fabrication processes and their logistics	Manage and operate the logistics system (processes, equipment, personnel) implementing the company's strategy related to logistics with all the modifications / upgrades required by the fabrication system	Fundamental factual and theoretical knowledge in: 1 Generals on the fabrication processes 2 Casting processes and their logistics 3 Metal cutting processes and their logistics	Fundamental range of cognitive and practical skills required to: 1.1 Identify the elements of a fabrication process 1.2 Identify the best logistics solutions to solve the necessities of the fabrication process 2.1 Identify the casting processes and its related elements (equipment, materials, etc.) 2.2 Identify the best logistics solutions to solve the necessities of the casting processes 3.1 Identify the metal cutting processes and its related elements (equipment, materials, etc.) 3.2 Identify the best logistics solutions to solve the necessities of the	<ul style="list-style-type: none"> teaching materials learning materials equipment for oral presentation equipment for practical training consumables individual and collective protection equipment. 	4	Theoretical training: 8 Practical training: 6 Self-study: min 8

		<p>4 Plastic deformation processes and their logistics</p> <p>5 Joining and related processes and their logistics</p> <p>6 Quality in logistics dedicated to the fabrication processes</p> <p>7 Health and safety specific to the logistics operations related to fabrication</p>	<p>metal cutting processes</p> <p>4.1 Identify the plastic deformation processes and its related elements (equipment, materials, etc.) 4.2 Identify the best logistics solutions to solve the necessities of the metal cutting processes</p> <p>5.1 Identify the joining and related processes process and its related elements (equipment, materials, etc.) 5.2 Identify the best logistics solutions to solve the necessities of the joining and related processes</p> <p>6.1 Indicators of quality for the logistics processes 6.2 Optimization solutions</p> <p>7.1 Specific elements of health and safety conditions</p>			
Chapter 3: Auxiliary processes and their logistics						
Chapter 4: Hardware and Software equipment used in logistics of fabrication						
Chapter 5: Logistics of the product to deliver						
Chapter 6: Collateral impacts of digital technologies'	Acquire vision, knowledge and experience about the several impacts that affects the logistic technologist field	1. New Business Models	<p>1.1 Disruptive business models (Collaborative, digital/ connected & smart)</p> <p>2.1 Skills Demanded</p>	<ul style="list-style-type: none"> teaching materials learning materials 	4	<p>Theoretical training: 4</p> <p>Practical training: 2</p> <p>Self-study: min 5</p>

<p>implementation</p>	<p>to get ready to the new environment influenced by industry 4.0.</p>	<p>2. <i>Future Professions & Professionals</i></p> <p>3. <i>Cybersecurity risks</i></p> <p>4. <i>Legal implications</i></p> <p>5. <i>Environmental Impacts</i></p>	<p>2.2 Human-Machine Interaction</p> <p>2.3 Next/future Challenges & Opportunities</p> <p>3.1 Connected /Network Logistics 4.0</p> <p>3.2 Data protection & Risks (cyber-Threats and Vulnerabilities)</p> <p>3.3 Protection measures/ recommendations/ best practices</p> <p>4.1 EU Regulation (GDPR)</p> <p>4.3 Health & Safety</p> <p>5.1 Circular Logistics</p> <p>5.2 Cost Benefit Analysis</p>	<ul style="list-style-type: none"> • equipment for oral presentation • equipment for practical training • consumables individual and collective protection equipment. 		
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3. Examinations

3.1 Introduction

The GTQ aims to achieve harmonization of examination and qualification of personnel involved in the logistics processes which are dedicated to the supporting of the fabrication systems.

3.2 Admission to the examination

It will be allowed to participate to the examination process, which leads to the award of the Logistics Technologist certificate, to those who simultaneously fulfil the both of the next conditions:

- a) persons who comply with the minimum requirements specified in the Chapter 1 / Access conditions
- b) persons who have attended a course organized according to the present GTQ, course that was approved by the NCC.

3.3 Examination procedures and administration

Examination Committee

The examination of the trainees is supervised by an Examination Committee (EC). The members of the EC should be other than the trainers from the learning activity, but they should be proved as experts in the logistics field. The members of the ECs are nominated by the NCC. The independence, integrity and fairness of the examination system are the responsibility of the EC.

Procedure

The examination of the candidate is dedicated to the evaluation of the knowledge and understanding of different information and situations related to the logistics processes which support the fabrication systems.

The education & training provider announces the NCC on the examination date and place. The NCC agrees on the date and place of the examination and nominates the members of the EC.

The examination process will have two components:

- theoretical examination
- practical examination.

The theoretical examination will be based on a written exam. Each candidate will receive questionnaire containing:

- 24 multiple choice questions with one correct answer (simple choice) relevant for the 6 chapters.
- 6 open questions relevant for the 6 chapters.

The questions must be relevant and they must reflect the course topics. The questions will be randomly chosen from a specific database of European Certification Board for Logistics (ECBL), requested in due time by the NCC.

The duration of the written examination shall be of 2 hours.

After the examination, the NCC asks the ECBL to send the correct answers and it send them to the EC members for the evaluation of the questionnaires filled by the examined trainees.

The practical examination will consist of analysis of study case which is relevant for the topics.

The performance of the candidate will be scored with PASS or FAIL.

If a trainee passed the theoretical examinations and the practical examination, he/she will receive a certificate for the LoT qualification.

Evaluation of performance

In order to pass the examination, the candidates should meet the both of the following requirements:

- a) to provide correct answers for at least 60% of the questions per module
- b) to be granted with mark PASS to the practical examination session.

Re-examination and appeals procedure

If a candidate does not fulfil both requirements for passing the examination, the candidate is eligible to a re-examination for the not-passed theoretical examination or for the practical examination.

Re-examination may be retaken within max 3 months of the initial examination.

Failure in this second attempt will result in the candidate being treated as an initial candidate and a retake of the whole course.

Candidates who feel they have been unfairly treated during the examination procedure have the right to appeal to the NCC.

Certificate

After successful examination, the applicable certificates are awarded by the ECBL through NCC to the candidates. The certificate will contain at least:

- the personal data of the qualified person
- the qualification title
- the essential parameters of the qualification
- validity of the certificate

Annex 1

Minimal requirements for the practical examination session

1. Recognizing and explaining the function of different types of equipment dedicated to logistics (forklifts, scanners, etc.)
2. Recognizing a manufacturing process
3. Other decided by the examiner

Annex 2

Template for the practical examination session

Study case for <input type="checkbox"/> Chapter 1: Basics of logistics related to fabrication <input type="checkbox"/> Chapter 2: Fabrication processes and their logistics <input type="checkbox"/> Chapter 3: Auxiliary processes and their logistics <input type="checkbox"/> Chapter 4: Hardware and Software equipment used in logistics of fabrication <input type="checkbox"/> Chapter 5: Logistics of the product to deliver <input type="checkbox"/> Chapter 6: Collateral impacts of digital technologies' implementation
Date of examination:
Study case:
Start time: Duration of test:
Candidate section Surname, Name: Company: Number of written pages: Signature: Analysis: Conclusions: Proposal of potential solutions: Other comments:
Comments of the EC members EC member #1: EC member #2:
Scoring performance: <input type="checkbox"/> PASS <input type="checkbox"/> FAIL