EUROVENT
MIDDLE EAST

HVACR Leadership Workshops

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HVACR Leadership Workshops

Welcome to:
Value of Product Certification

HVACR Leadership Workshop by Eurovent Middle East

Moderated by

Markus Lattner
Managing Director
Eurovent Middle East

EUROVENT MIDDLE EAST

HVACR Leadership Workshops

Eurovent Middle East

Association of the **H**eating, **V**entilation, **A**ir-**C**onditioning and **R**efrigeration Industry in the Middle East

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HVACR Leadership Workshops

Workshop Partners

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climate control MIDDLE EAST

KEY PERSPECTIVES ON THE REGION'S HVACR INDUSTRY

EUROVENT MIDDLE EAST

HVACR Leadership Workshops

Event Introduction:
Value of Product Certification

Brian Suggitt
President
Eurovent Middle East

Agenda

- Fundamentals of Product Compliance
- Safety, Performance and Energy Efficiency
- Accreditations per ISO17025 and ISO17065
- Safety and Performance Certifications
- Benefits of Third-Party Certification

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HVACR Leadership Workshops

Underwriters Laboratories

Mr Stefano Traversi
Engineering Leader HVAC
Underwriters Laboratories (UL)

EUROVENT MIDDLE EAST HVAC/R Leadership Workshops

Version 1.0 / 09.06.20 / Stefano Traversi – Engineering Leader HVAC

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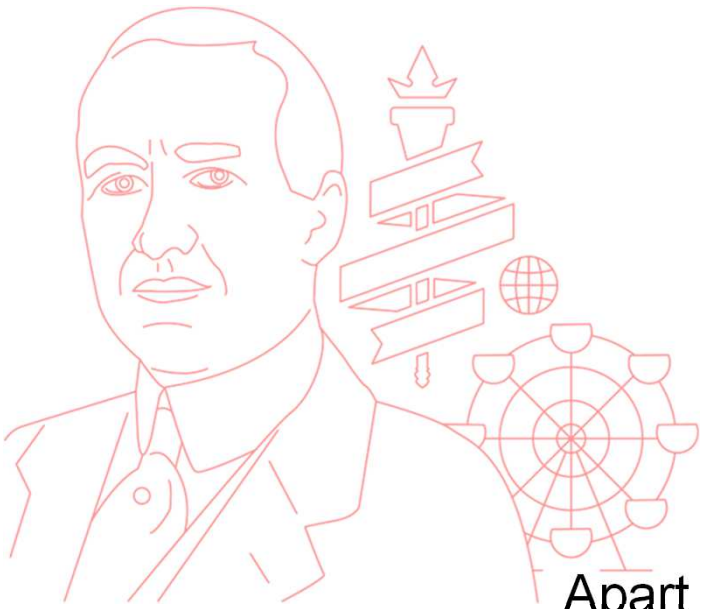
Agenda

- More about UL
- General Considerations: Safety, Performance, Energy Efficiency and Environmental
- ISO 17065: Fundamentals of Accredited Independent Third Party Certification
- ISO 17025: Fundamentals of Testing and Calibration Laboratories
- Safety certifications:
  - UL Certification Mark
  - IEC CB Scheme
  - CE Marking
  - MENA Regulation
- Performance Certification
  - UL Verified Leaf Mark

More about UL

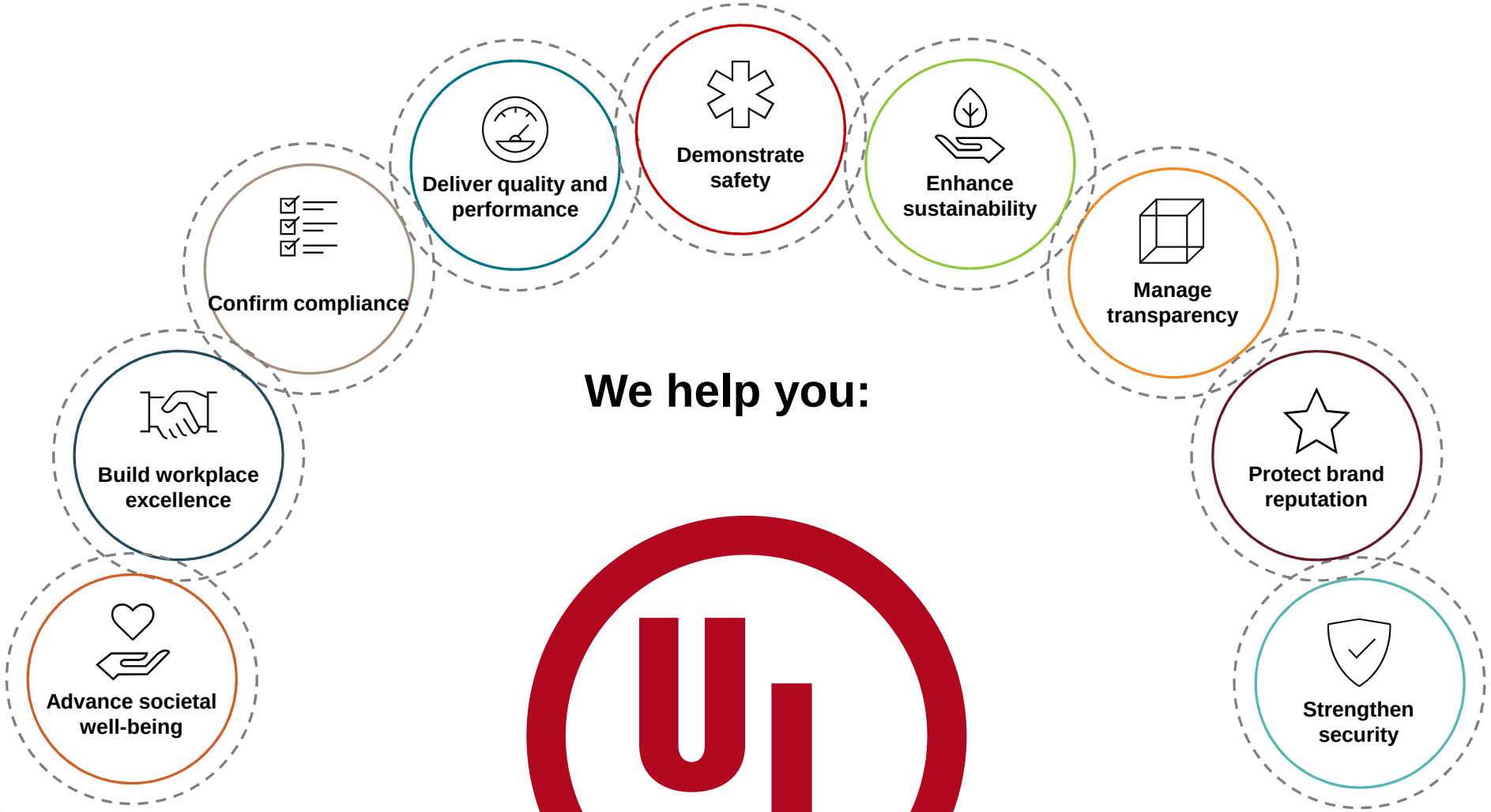
UL MARK – A short History



UL was founded in 1894.

Apart from the Testing, Inspection and Certification Services, UL develops safety standards that are broadly adopted for the North American Market but as well recognized in other regions around the world.

We help you:


Confirm compliance
Deliver quality and performance
Demonstrate safety
Enhance sustainability
Manage transparency
Protect brand reputation
Strengthen security
Advance societal well-being
Build workplace excellence

To meet these needs, we offer services designed to help you innovate safely, harness your information ecosystem securely, and create more sustainable products, businesses and experiences.

- Advisory
- Analytics and intelligence
- Auditing
- Certification
- Digital applications
- Inspection
- Learning and development
- Testing
- Verification

Our diverse customers are based in more than

100

COUNTRIES

Our mission-driven employees are based in more than

40

COUNTRIES

WE HAVE ENHANCED TRANSACTION SECURITY FOR:

500+ banks

20+ payment schemes

60+ mobile network operators

50+ governments/ transport operators

We work with more than **60%** of **FORTUNE 500** and **GLOBAL 500** COMPANIES

Science and global expertise

Our software is used by **10,000+** ORGANIZATIONS across nearly *every industry*

Our **SUSTAINABILITY CERTIFICATIONS** are referenced in **900+** sustainable product specifications or purchasing guidelines around the globe

We have helped to set more than **1,600** standards defining safety, security, quality and sustainability

Our team

14,000+

EMPLOYEES

General Considerations

Safety, Performance, Energy Efficiency and Environmental

Why do we need Standards?

- Product standards build a common framework for all affected stakeholders in a country such as regulators, suppliers, manufacturers, transportation, vendors, end users etc..
- Product Standards help to protect people and the environment.
- Product standards help drive the industry and market by increasing energy efficiency and environmental requirements.

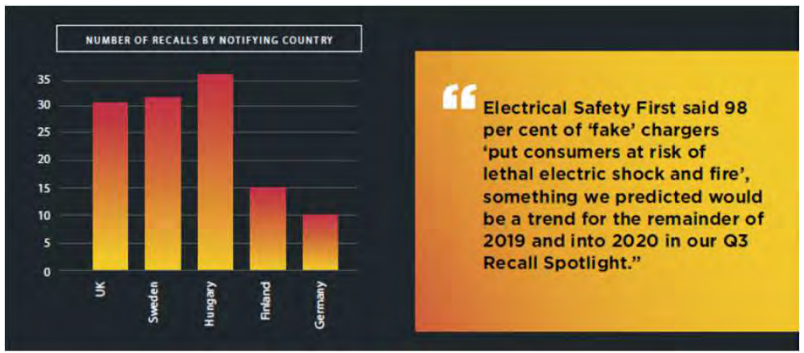
Implication: Safety Recall

What happens when there are no standards or when the products are not complying with the standards....

PORTABLE GAS HEATER

Publication Date	December 13, 2019
Image	
Risk Type	Burns

Technical defect	The surface temperature of the appliance rises too much during use.
Risk	This poses a risk of burns to the user. The product does not comply with the requirements of the Gas Appliance Directive and the relevant European standard EN 449.
Measures adopted by notifying country	Withdrawal of the product from the market



ISO 17065

Fundamentals of Accredited Independent Third Party Certification

Conformity Assessment Activities - Fundamentals

- TESTING: determination of one or more characteristics of an object of conformity assessment;
- CERTIFICATION: third party assurance that a product (services), process, personnel, organization or management system conforms to specific requirements
- INSPECTION: Examination of a product design, product, process or installation and determination of its conformity with specific requirements.
- ACCREDITATION: third-party attestation related to a conformity assessment body conveying formal demonstration of its competence

ISO/IEC 17065: Requirements

The overall aim of certifying products, processes or services is to:

give confidence to all interested parties that a product, process or service fulfills specified requirements

The value of certification is the degree of confidence and trust that is established by an impartial and competent demonstration of fulfillment of specified requirements by a third-party.

ISO/IEC 17065: Objectives

- **Consistency**: there is conformity in application of the requirements; being consistent for a certification body means that the certification scheme is applied the same way for all clients.

- **Impartiality**: the certification body is free from conflicts of interest;

- **Competency**: all personnel working for the certification bodies are capable of making required technical judgments;

ISO/IEC 17065: UL Accreditation

UL is an accredited certification body (accredited to ISO 17065) operating as independent third party to demonstrate compliance of products, processes and services to defined requirements (certification schemes) trough testing and inspection issuing at the end an attestation (mark).

ISO 17025

Fundamentals of Testing and Calibration Laboratories

ISO/IEC 17025: Requirements

Basic requirements that a laboratory should comply with to demonstrate it is competent to perform specified tests and calibrations:

- Management system requirements are common to all laboratories irrespective of the technical work they perform.

- Technical requirements have to be applied according to the specific field of work and require the laboratory to apply additional requirements specific to the field.

ISO/IEC 17025: Requirements

The **scope** for which the laboratory does testing needs to be clearly specified and stated**.**

Usually the scope is supported by listing the specific test methods the laboratory uses in case of testing and specific measurements and associated uncertainty in the case of calibration laboratories.

It also allows for the customers of the laboratory to identify a suitable laboratory for their purposes and have confidence in the tests and measurements made by the laboratory.

When a laboratory is accredited to ISO/IEC 17025 its compliance is not only assessed to the generic standard ISO/IEC 17025 but also to any field specific requirements and to the laboratories' competence to perform the specific test methods.

Safety Certification

UL LISTED Mark - Definition

- If a product carries one of these marks, it means UL found that representative product samples met UL's requirements.

- There are multiple variations of marks for UL's Listing service, some of which are for use in the United States, others for use in Canada and still others for use in both markets. A combination mark indicates compliance with both Canadian and U.S. requirements.

- All of the products carrying these marks are covered by our Follow-Up Services program to determine that products continue to be manufactured in compliance with UL's safety requirements.

CB Scheme - Definition

The CB Scheme is:

- the world's first truly international system for mutual acceptance of test reports and certificates,
- dealing with the safety of electrical and electronic products and components.
- It is overseen by the International Electrotechnical Committee for Conformity Testing to Standards for Electrical Equipment (IECEE).

CB Scheme – Why it’s important

Because the scheme:

- Simplify certification at national level by eliminating duplication of testing thanks to a mutual recognition of test results;
- Facilitate customer access to national marks;
- Promote global harmonization of standards trough the adoption and use of IEC Standards.

CB Scheme – Who benefits from it?

- **Governments:** are able to reduce trade barriers caused by different certification criteria of countries.

- **Industry:** markets can be expanded and product to market time reduced as product can be certified once by a single National Certification Body (NCB) which can be accepted by others worldwide, usually without the need for further product assessment.

- **End users:** ultimately anyone using a product which has been tested and certified using the IECEE CB Scheme has the assurance that the goods purchased will perform to expectations and are reasonably safe when used as intended.

CE Marking – Definition

CE Mark proves that products sold in the European Economic Area (EEA) have been assessed to meet high safety, health, and environmental protection requirements.

By affixing the CE marking to a product, a manufacturer declares that the product meets all the legal requirements for CE marking and can be sold throughout the EEA.

This also applies to products made in other countries that are sold in the EEA.

CE Marking – Why it’s important?

There are two main benefits CE marking brings to businesses and consumers within the EEA:

- **Businesses** know that products bearing the CE marking can be traded in the EEA without restrictions.

- **Consumers** enjoy the same level of health, safety, and environmental protection throughout the entire EEA.

CE Marking – Obbligations

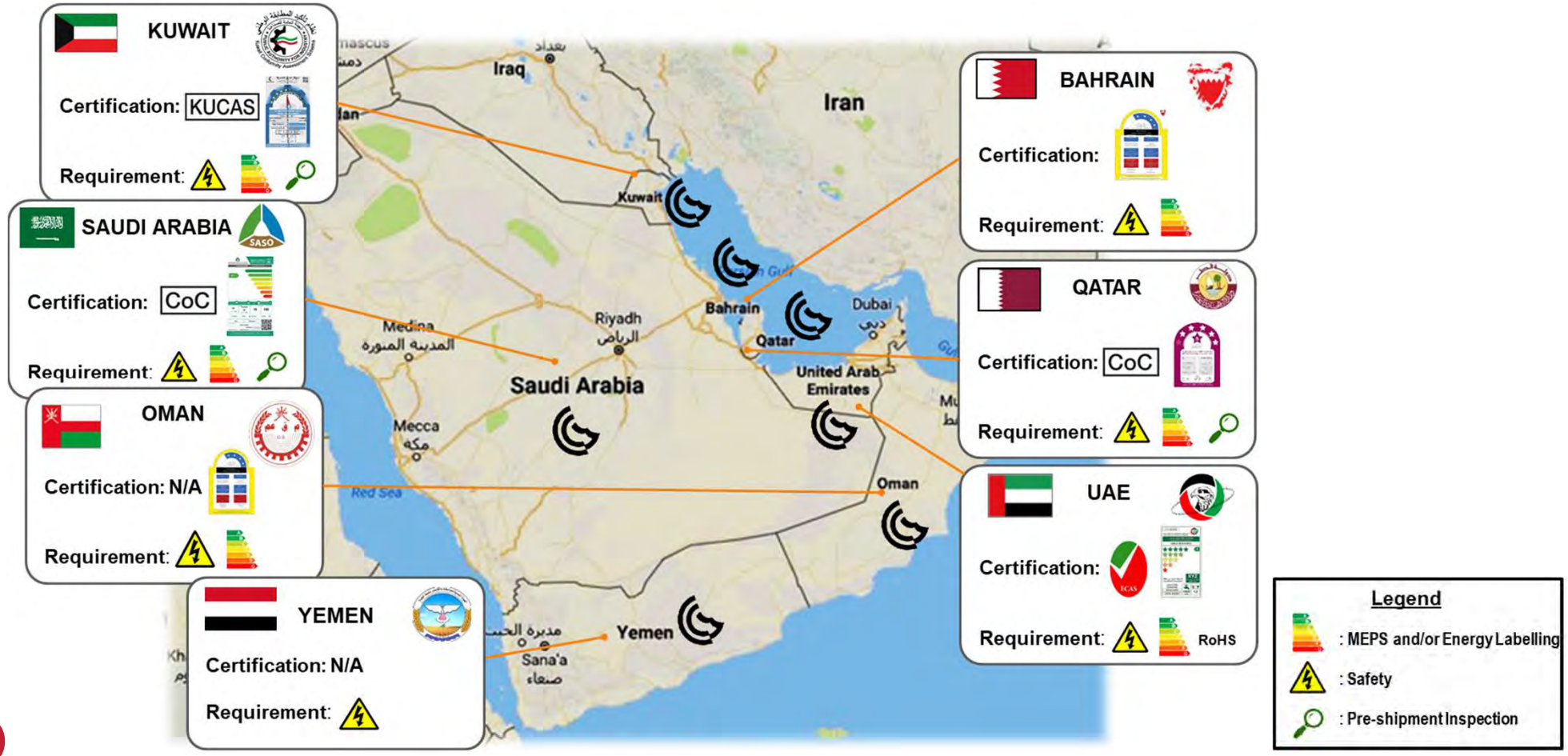
If you are a manufacturer, you have to follow these 5 steps to affix a CE marking to your product:

- Identify the applicable directive(s) and harmonised standards
- Identify whether an independent conformity assessment (by a notified body) is necessary
- Test the product and check its conformity
- Draw up and keep available the required technical documentation
- Affix the CE marking and draw up the EU Declaration of Conformity.

Importers and distributors help ensure that only products compliant with EU legislation and bearing the CE marking are placed on the EEA Market.

They must have overall knowledge of the legal requirements and make sure that the products they distribute or import meet them.

MENA Regulation: GSO Countries Overview



GSO Countries Overview – National Requirements

Country	Country requirements ** SEE SPECIFIC COUNTY OVERVIEW FOR DETAILS **				GSO conformity scheme (applicable only to list 2 products)
	Voltage and Frequency	Plug	Safety	Energy efficiency	
United Arab Emirates	230 V 50 Hz	D / G	ECAS or EQM Certificate of Conformity (CB Safety Test Report and Certificate)	EE Test Report required to get ECAS or EQM certificate, EE Labelling required for Air conditioners, Washing Machines and Dryers, Dishwashers, Refrigerators and Freezers, Water Heaters, Lamps.	 Gulf type examination certificate (including Safety and EMC conformity) Gulf conformity marking Manufacturer Declaration of Conformity Importer Declaration of Conformity Technical Documentation
Kingdom of Saudi Arabia	220 or 230 V 60 Hz	G	SASO Certificate of Conformity for each shipment (Safety Test Report + Pre-shipment inspection) SASO IECEE Recognition Certificate required for Water Pumps, Dishwashers, Luminaires and Lamps	EE Test Report, Registration, Certificate and Labelling required for Air Conditioners, Large Conditioners, Refrigerating Appliances, Washing Machines, Motors, Clothes Dryers, Water Heaters, Lamps.	
Kingdom of Bahrain	230 V 50 Hz	G	Safety Test Report	EE Test Report, Product Registration at Electricity & Water Authority (EWA) and Labelling required for Air Conditioners and Lamps (non-directional household lamps).	
Republic of Yemen	220 V 50 Hz	A / D / G	Safety Test Report	\	
Sultanate of Oman	240 V 50 Hz	C / G	Safety Test Report	EE requirements and labelling for Air Conditioners mandatory from July 2019.	
State of Kuwait	240 V 50 Hz	G	KUKAS Certificate of Conformity for each shipment: TER (Safety Test Report) + TIR (Pre-shipment inspection)	EE requirements and labelling for Air Conditioners (mandatory from August 2019) and Refrigerating Appliances (under discussion).	
State of Qatar	240 V 50 Hz	D / G	QA Certificate of Conformity for each shipment (Safety Test Report + Pre-shipment inspection) only for electrical products under Gulf Conformity Marking Regulation	EE Test Report, Labelling and Product Registration mandatory for Air Conditioners. Under discussion EE requirements and labelling for Energy Saving Lamps, Washing Machines, Refrigerators, Water Heaters.	

- **NOTE Additional country requirements:**
- **- EMC: no mandatory requirements for GSO countries national schemes**
- **- RoHS: requirements have been implemented for United Arab Emirates**

G-Marking Requirements – A/C

SAFETY STANDARDS

#	Category	HS commodity codes (1)	Product scope	Applicable GSO standards	Corresponding applicable IEC standards (2)
12	Plugs, Socket outlets, Adaptors, Cord Extension Sets and chargers	85 04 40 13	Battery chargers	GSO IEC 60335-1 GSO IEC 60335-2-29	IEC 60335-1 IEC 60335-2-29
13	Air conditioners	84 15 10 00 84 15 10 10 84 15 10 20	Electrical air-conditioners	GSO IEC 60335-1 GSO IEC 60335-2-40	IEC 60335-1 IEC 60335-2-40

EMC STANDARDS

Category	Applicable GSO standards	Corresponding applicable IEC standards (2)
All appliances	GSO CISPR 14-1 No GSO standard applicable + No GSO standard applicable GSO IEC 61000-3-2 GSO IEC 61000-3-3 GSO IEC 61000-3-12* GSO IEC 61000-3-11* + When applicable * Applicable in cases of equipment rated > 16 A	CISPR 14-1 CISPR 11 + CISPR 14-2 IEC 61000-3-2 IEC 61000-3-3 IEC 61000-3-12* IEC 61000-3-11* + When applicable * Applicable in cases of equipment rated > 16 A

Performance Certification

UL Verified Leaf Mark

UL Certified Enhanced Mark - General Information

The UL Leaf / Energy Verified Mark:

- Address compliance with testing regulation and procedures of an EE scheme
- Allows obtain the test results at UL test facilities but as well at customer facilities under Data Acceptancy Program and Witness Test Data Program.
- Ensures trustworthiness of the EE results/data achieved since they have been measured by the trustable 3rd party UL.
- Enables to use the UL Energy Verified Mark

UL Energy Verified

UL Leaf mark to be used for single listings

UL Certified mark for double listings (UL + UL Energy Verified)

UL Certified Enhanced Mark – Covered Standards

The UL Energy Verified Mark gives trust in test data and enables to show compliance for following Middle Eastern energy labeling programs:

- KWS 1893
- SASO 2663
- SASO2874
- UAE.S: 5010-1
- UAE.S 5010-5
- GSO 2530
- QS SASO 2663

Thank you

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HVACR Leadership Workshops

Eurovent Certita Certification

Mr Eric Foucherot
Director International Affairs
Eurovent Certita Certification (ECC)

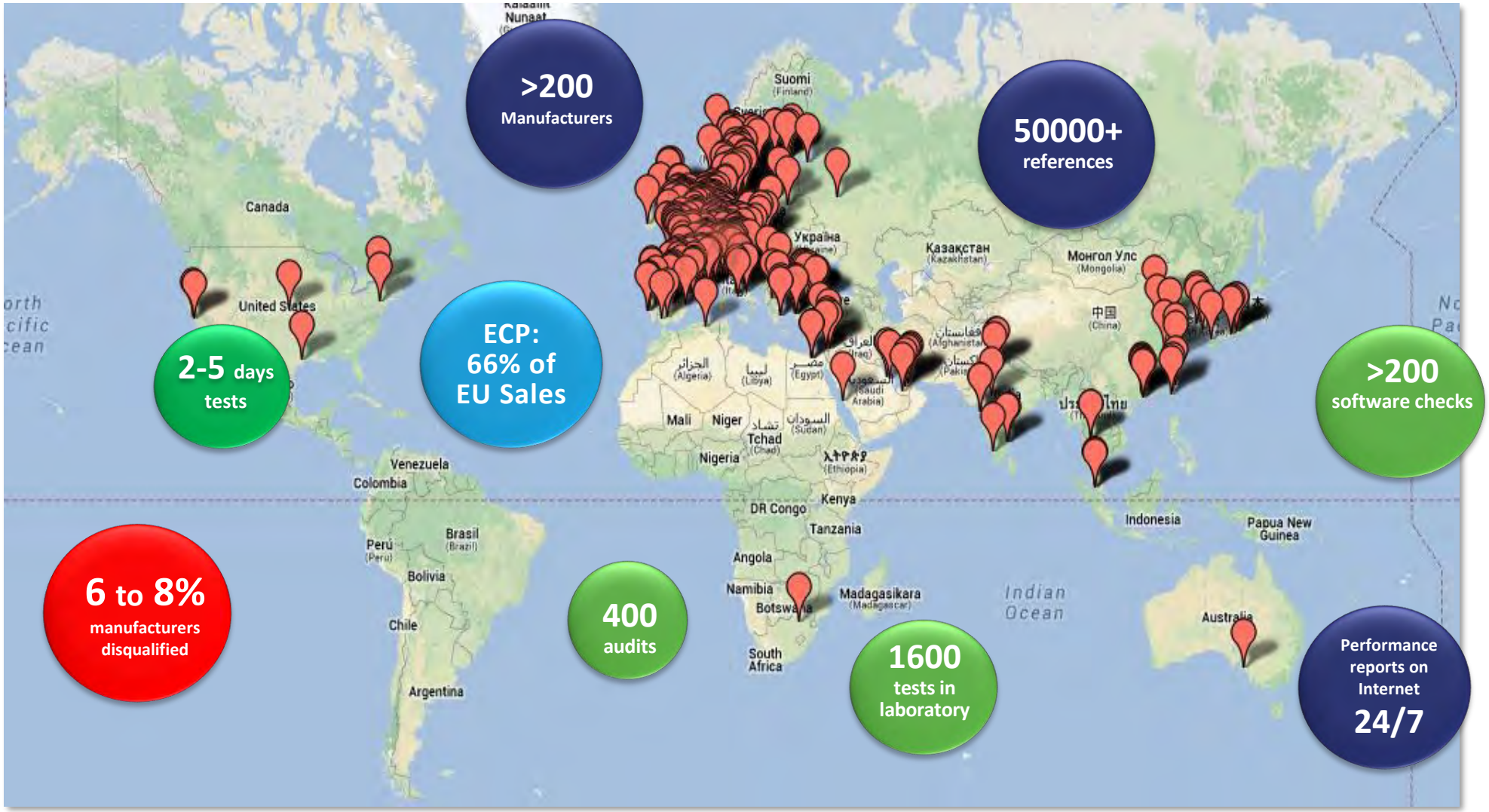
Best Confidence for Product Certification: With ISO 17065 Accredited Bodies

Eric Foucherot
International Affairs Manager
e.foucherot@eurovent-certification.com

An Independent, Impartial, Neutral Organization

- Voluntary Certification provider
- Launched in 1994 to build fair level playing fields for HVAC&R European Industry
- 60 professionals committed to bring Confidence to HVAC&R Market
- ISO 17065:2012 (Scheme 5) accredited
- Member of ISO TC 86, CEN TC 113 (official partner of GSO TC 03 since 2019)

An Increasing International Influence



Neutrally dedicated to all HVAC&R Technologies

VENTILATION & INDOOR AIR QUALITY

Air Handling Units (+ higienic option)

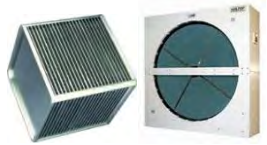
RECENT
Ventilation ducts

Air Filters

RECENT
Residential Air Filters

RECENT
Fans

RECENT
Air Cleaners


Air to air heat exchangers

Residential AHU

INDOOR CLIMATE

Variable refrigerant flow

RECENT
Liquid-to-liquid plate heat exchangers

Chilled beams

Fan coils

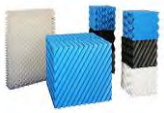
RECENT
Heat Interface Units

Rooftops

Air conditioners

PROCESS COOLING & FOOD COLD CHAIN

Refrigerated Display Cabinets

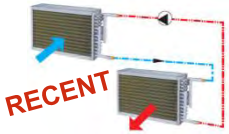

Drift eliminators

Chillers & Heat-Pumps

NEW
Condensing Units

RECENT
Evaporative cooling

Heating & Cooling Coils


RECENT
Heat Recovery Systems with intermediate heat transfer medium

Cooling towers

Heat Exchangers for refrigeration

Needs for De-Risk & Confidence

How do you compare?

Do you trust “Self Certified” Performances ?

Is Brand Names enough ?

What is the most fair prescription ?

…

DE-RISK

Where Independent Third Party Certification is missing

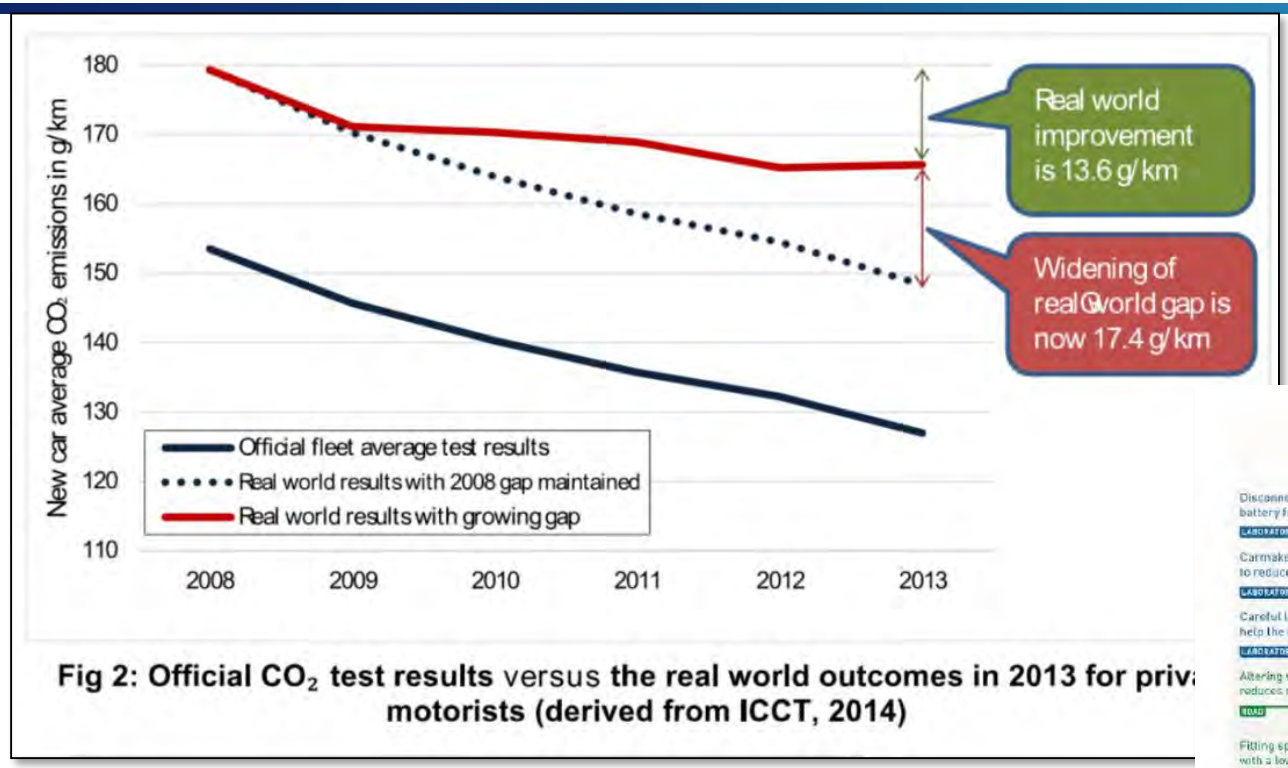
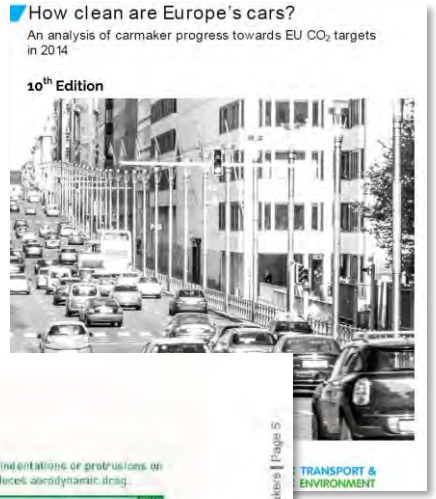
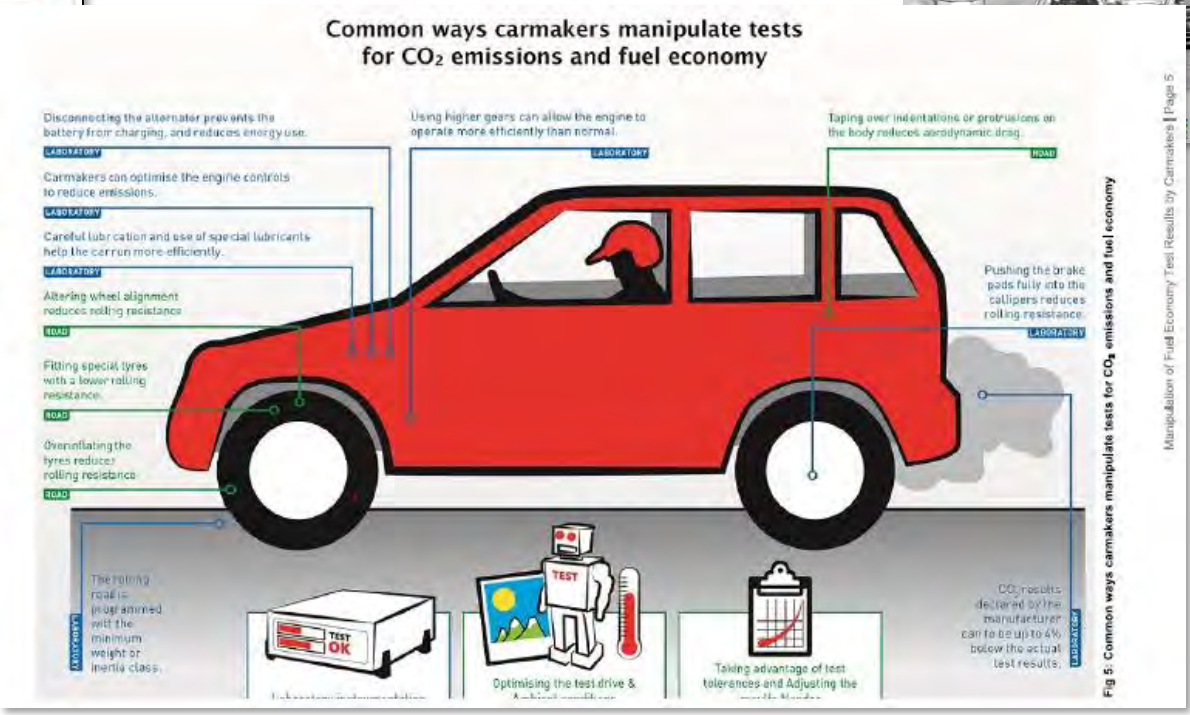


Fig 2: Official CO_2 test results versus **the real world outcomes in 2013 for priv motorists (derived from ICCT, 2014)**





Why third party certification?

Third-party certification establishes rules that enable an objective assessment of the performances

ISO 17065 Accreditation for a Sustainable Ecosystem

ISO 17065 Accreditation is the guaranty for all stakeholders that
3rd Party Independent Certification Body brings values to the Ecosystem

Manufacturers

Databases

End-Riskers
Designers, Users, Owners,
Direct & 3rd Party financers

ISO 17065 Accredited Certification Body

ISO 17025 Accredited Independent Laboratories

Authorities
Policies Makers

A strategic Investment by Industry to De-Risk Markets

- ❑ Independent Third Party Certification builds Fair Level Playing Fields
- ❑ Certification Programs and governance are in hands of all stake-holders: Manufacturers, Labs, Users & Authorities
- ❑ Best Confidence for Cost: the most effective and consitant way for Manufacturers' to bring Confidence to Market

Manufacturers

Brochures, Websites, Selection Software published with yearly Certified Data's

End-Riskers

Designers, Users, Owners,

Direct & 3rd Party financers

Yearly Assesment of Claimed vs Measured data's

Compliance to Local regulations (MEPS, labelling prgrm)

Protection from Unfair competition

Data check on Website by End User

ISO 17065 Accredited Certification Body

Partnership with Independent Laboratories

- ISO 17025 Accredited Only
- Fair Level Playing Fields for SME's & Large Industries

Manufacturers

Yearly Assesment of Claimed vs Measured data's
Compliance to Local regulations (MEPS, labelling programs)
Protection from Unfair competition

No direct communication between
Manufacturer & Laboratory

ISO 17065 Accredited
Certification Body

Trustability and Performance of testings
Level Playing field for Large & SME's
Additional audits + Round Robin Tests

ISO 17025 Accredited
Independent Laboratories

Reliable Data's sources for End-Riskers

Manufacturers

Brochures, Websites, Selection Software published with yearly Certified Data's

End-Riskers
Designers, Users, Owners,
Direct & 3rd Party financers

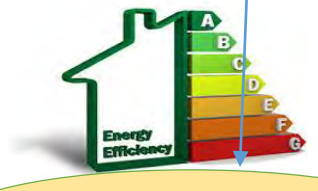
Independent Databases

Frequently refreshed Certified Datas

Data check on Website by End User

ISO 17065 Accredited Certification Body

States Data base, EPREL, etc…



Authorities

- ❑ Multiple sources
- ❑ Yearly refreshed certified Datas'
- ❑ Guaranteed compliance with Regulations

Independent partner for Authorities & Regulators

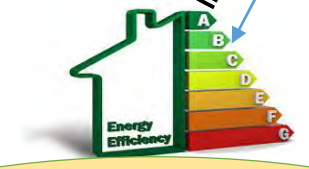
- ❑ Trustable and Updated Datas' for National Data Base
- ❑ A powerful Assistance for Market Surveillance Authorities
- ❑ Standards' partnership through National or International TC's

End-Riskers
Designers, Users, Owners,
Direct & 3rd Party financers

ISO 17065 Accredited Certification Body

Market Surveillance Contribution
Publication on State's data base
Contributions to Standards (TC's)

Market Protection & Standardization
Incentives, Tax refund, Super Esco's



Authorities Policies Makers

ISO 17065 Accreditation for a sustainable Sector

Manufacturers

Brochures, Websites, Selection Software published with yearly Certified Data's

Frequently refreshed Certified Datas

Yearly Assesment of Claimed vs Measured data's
Compliance to Local regulations (MEPS, labelling prgrm)
Protection from Unfair competition

Independent Databases

Frequently refreshed Certified Datas

End-Riskers
Designers, Users, Owners,
Direct & 3rd Party financers

Data check on ECC Website by End User

Market Protection & level-up
Incentives, Tax refund, Super Esco's

ISO 17025 Accredited Independent Laboratories

Trustability and Performance of testings
Level Playing field for Large & SME's
Additional audits + Round Robin Tests

ISO 17065 Accredited Certification Body

Compliant Certification Sch.
Market Surveillance Contributor

Authorities
Policies Makers

The Highest level of Protection: ISO 17065 Scheme 5

Reference Standards

- **ISO/IEC 17067 Conformity assessment -- Fundamentals of product certification and guidelines for product certification schemes;**

Table 1 — Building a product certification scheme

	Conformity assessment functions and activities[a] within product certification schemes	Types of product certification schemes[b]							
		1a	1b	2	3	4	5	6	N[c,d]
I	**Selection**, including planning and preparation activities, specification of requirements, e.g. normative documents, and sampling, as applicable	x	x	x	x	x	x	x	x
II	**Determination of characteristics**, as applicable, by: a) testing b) inspection c) design appraisal d) assessment of services or processes e) other determination activities, e.g. verification	x	x	x	x	x	x	x	x
III	**Review** Examining the evidence of conformity obtained during the determination stage to establish whether the specified requirements have been met	x	x	x	x	x	x	x	x
IV	**Decision on certification** Granting, maintaining, extending, reducing, suspending, withdrawing certification	x	x	x	x	x	x	x	x
V	**Attestation, licensing**								
	a) issuing a certificate of conformity or other statement of conformity (attestation)	x	x	x	x	x	x	x	x
	b) granting the right to use certificates or other statements of conformity	x	x	x	x	x	x	x	
	c) issuing a certificate of conformity for a batch of products		x						
	d) granting the right to use marks of conformity (licensing) is based on surveillance (VI) or certification of a batch.		x	x	x	x	x	x	
VI	**Surveillance**, as applicable (see 5.3.4 to 5.3.8), by:								
	a) testing or inspection of samples from the open market			x		x	x		
	b) testing or inspection of samples from the factory				x	x	x		
	c) assessment of the production, the delivery of the service or the operation of the process				x	x	x	x	
	d) management system audits combined with random tests or inspections						x	x	

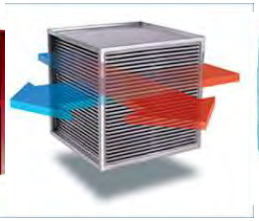
Where ISO 17065 Scheme 5 makes sense: AHU's Certification

- A typical Holistic program, started 1998
- Constant Improved by all Stakeholders during Program Committees (Manufacturers & Labs)

AHU

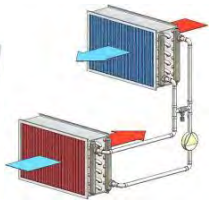
Rotary HEx

Plate HEx



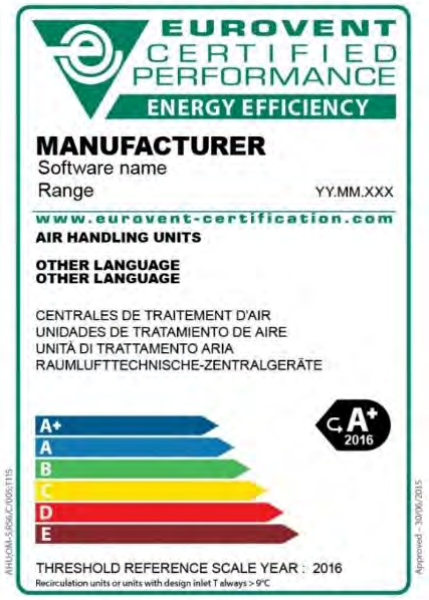
Filters

Run Around Coils

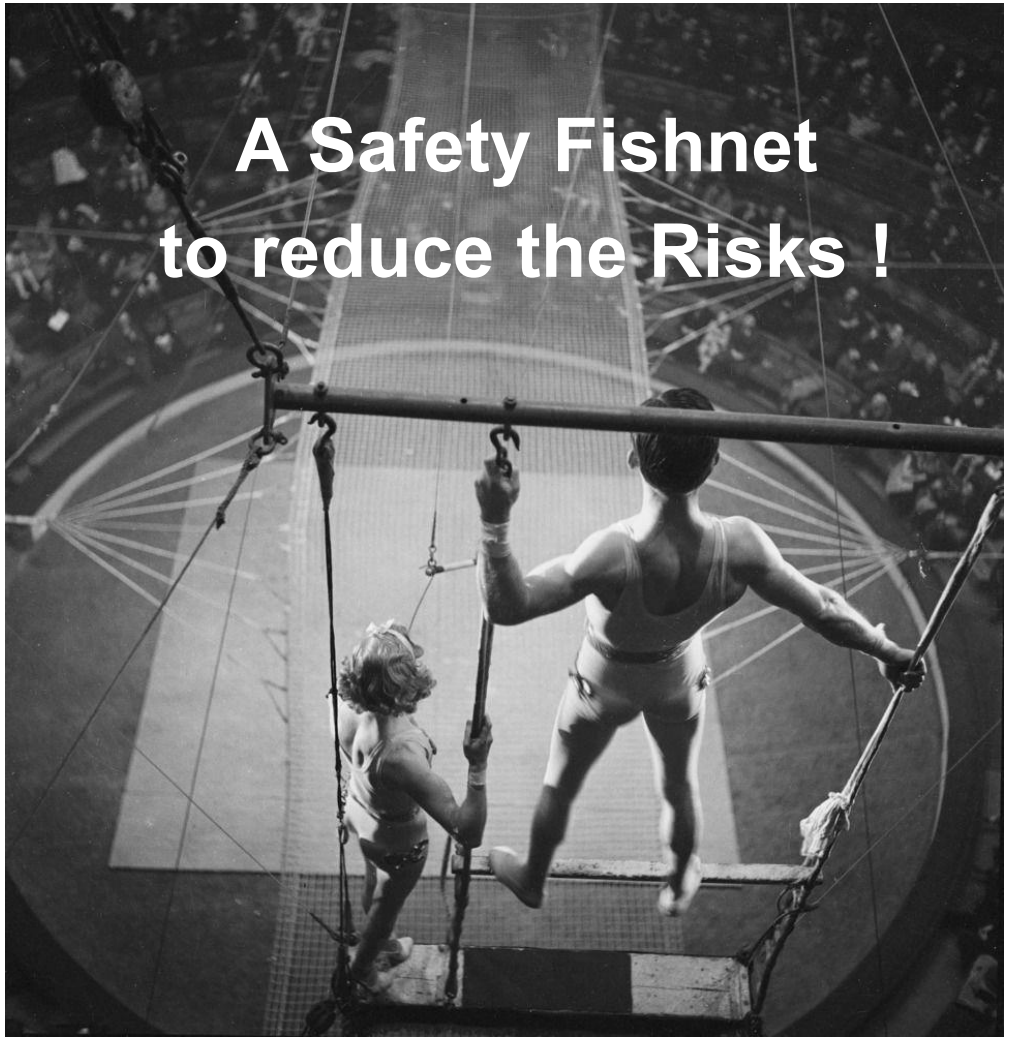


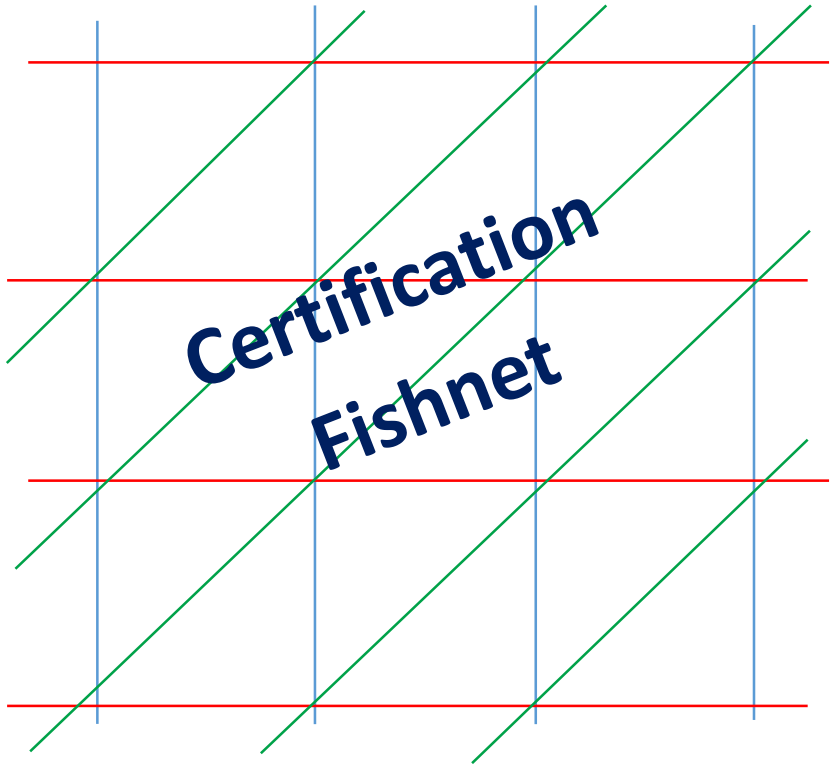
Coils

Fans



The philosophy of Risk reduction: the Safety Fishnet principle



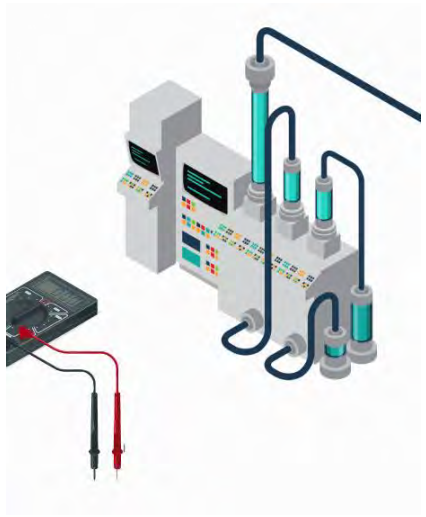


Risk reduction: the Fishnet principle

SELECTION SOFTWARE CHECK

1. **Pre-check** (remote)
   - ❑ Verification of compliance to **general** and **specific requirements**
2. **On-site check** (audit)
   - ❑ Verification that the **software version** submitted for certification is the one used in situ
   - ❑ Verification that all orders are treated fairly
3. **Software** / test **results** comparison (“**Test check**”)
   - ❑ Verification of consistency between software ratings and test results

Risk reduction: the Fishnet principle



LABORATORY's TESTS

❑ INDEPENDENT

Independent laboratories / test agencies must be **independent** and with no connection whatsoever to any Participant in the programme (*Art.49 of CM 16th edition*)

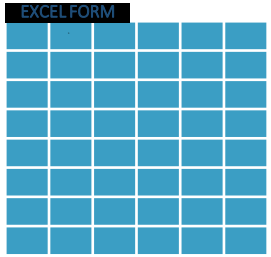
❑ QUALIFIED

ISO 17025 standard requirements for quality, administrative and technical operations

Round-Robin tests when more than one laboratory

Risk reduction: the Fishnet principle

FACTORY AUDIT



N products declared

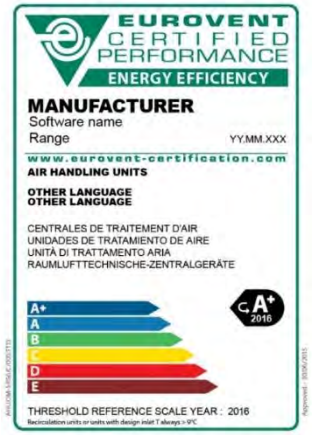
% of N products to be tested

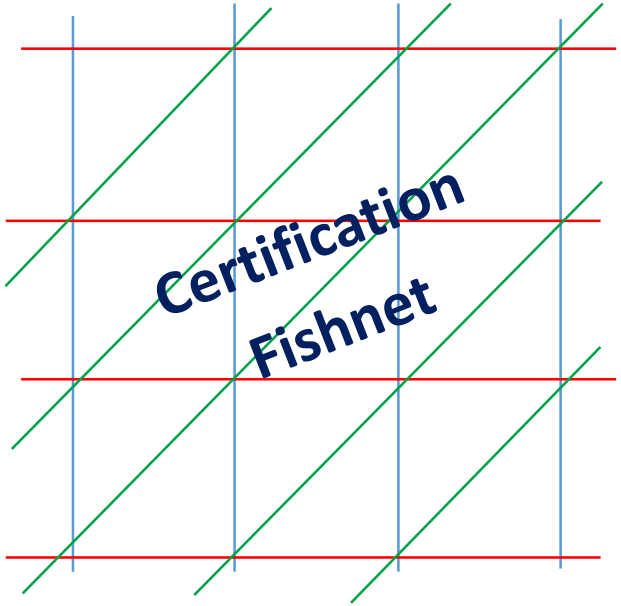
Factory audit

- Tests and audits are complementary checks that provide a 100% confidence level

The Permanent Annual process of Product Certification

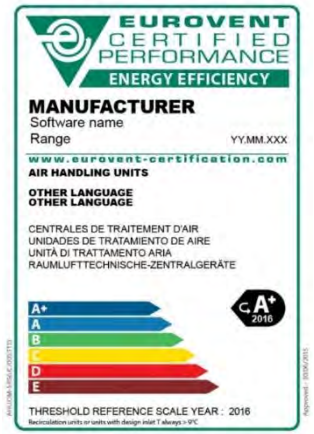
CERTIFICATION IS AN ANNUAL PROCESS





AN EASY AND OBJECTIVE COMPARISON

- ❑ Certified data available 24/7 without any login/password
- ❑ Data published with the same units to guarantee comparison and transparency

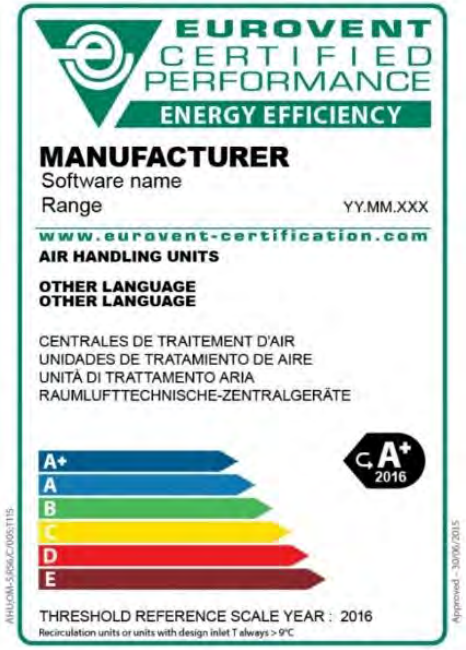


FREE AVAILABILITY ON-LINE

Eurovent Certita Certification website

Some Misunderstanding and Confusions

- Certifification assess conformity to Manufacturer's declaration: whatever the Level of Performances



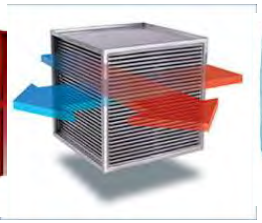
- Certified "Systems" as AHU's may (and get advantage to) use Certified Components

BUT

Using Certified Components is not sufficient !

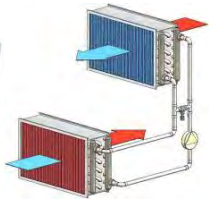
Rotary HEx

Plate HEx



Filters

Run Around Coils



Coils

Fans

Certification and Energy Efficiency

- Claimed performances can be used directly (No safety margins !)
- Accurate programs, for Real Life performances (Testing methods & Conditions) compliant with standards if any
- Enable fast development of Programs for new technologies (ie Evaporative Cooling or Hygienic option of AHU program), anticipate Standards (ESEER !)
- Protect from Misleading, Manipulation of testing's, Manufacturing deviations,…
- A best practice to De-Risk Energy Efficiency Investment & Third Party finance
- An increasing condition for eligibility to Incentives policies/Tax refund

The Added values* of Independent 3rd Party Certification

- ISO 17065 Accredited Bodies are the most reliable partners for Product Certification
- Scheme 5 of ISO 17065 Accreditation is perfectly dedicated to medium & large scales productions
- Inside the Certification Process, testings by Independent ISO 17025 Accredited Laboratories is the most reliable way
- Fair Comparison of Performances, whatever the Manufacturer's Size and Country of Origin
- Enable Robust & Sustainable Ecosystems for the Interest of ALL Stakeholders
- **Brings End-Riskers Confidence !**

**Interesting developments on Added Values of Third Party Certication on:*
https://www.tic-council.org/application/files/2915/5903/0284/THE_ADDED_VALUE_OF_3rd_PARTY_INSPECTION_AND_CERTIFICATION.pdf

Questions for De-Risk

Prescribe
Certified Products
by
ISO 17065
Accredited Bodies

EUROVENT MIDDLE EAST

HVACR Leadership Workshops

Discussion, Q&A

Brian Suggitt
Systemair

Stefano Traversi
UL

Eric Foucherot
ECC

Markus Lattner
Eurovent Middle East

Final Remarks

Markus Lattner
Managing Director
Eurovent Middle East

Take-Aways

- Third party certification, based on ISO 17065 is a useful tool for market surveillance
- Certificates need to be correctly understood and always checked for validity
- Great benefits for regulators, manufacturers, consultants, investors and end users

EUROVENT MIDDLE EAST

HVACR Leadership Workshops

Workshop partners

UL

Eurovent Certita CERTIFICATION

climate control MIDDLE EAST

KEY PERSPECTIVES ON THE REGION'S HVACR INDUSTRY

Thank You!
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