EUROVENT

Association for Indoor Climate, Process Cooling, and Food Cold Chain Technologies

www.eurovent.eu

An insight towards the work of Eurovent

Danish Technical Institute Conference: Refrigeration in the supermarket sector

Speaker

Mr Francesco Scuderi

Deputy Secretary General

EUROVENT
EUROPEAN INDUSTRY ASSOCIATION

Eurovent Association
Brussels, Belgium

www.eurovent.eu

CEN/TC44/WG6 Convenor
ISO/TC86/SC7/WG2 Convenor

Roadmap

1. **Who are we?**
2. Eurovent Product Groups and activities
3. How does Eurovent support the industry internationally?
4. Eurovent Recommendation on air curtain units and their application in cold rooms
5. Eurovent Certita Certification and Eurovent Market Intelligence
6. Eurovent Certitia Certification program for Remote Display Cabinets
7. Q&A

EUROVENT
EUROPEAN INDUSTRY ASSOCIATION

- Eurovent is Europe's Industry Association for **Indoor Climate, Process Cooling, and Food Cold Chain Technologies** – thinking beyond 'HVAC&R'
- Members from 20+ countries in Europe, the Middle East and Africa (EMEA)
- Strong network of EMEA's leading, national industry associations and their more than 1.000 'Affiliated Manufacturers'
- Corresponding Members in countries without national association

Our Members and their ‘Affiliated Manufacturers’

Our Members are leading national associations from the EMEA region…

And the more than 1.000 manufacturers within their networks (known as ‘Affiliated Manufacturers’ within Eurovent)

In a nutshell, we represent…

- **1.000+ companies throughout the EMEA region**
  - The majority small and medium-sized manufacturers
- **Which employ around 150.000 people**
  - Highly skilled labour that drives innovation, energy efficiency and reduces CO_2 footprints across the globe
- **And generate a combined annual turnover of EUR 30bn+**
  - Significant contributor to national public accounts

Democratic decision-making

- Structure as an ‘umbrella association’ ensures broad and truly credible representation of our industry vis-à-vis policy makers
- Truly democratic and rational decision-making procedures
- An equal representation of SMEs and multinationals with voting rights independent from the amount of membership contributions or company sizes

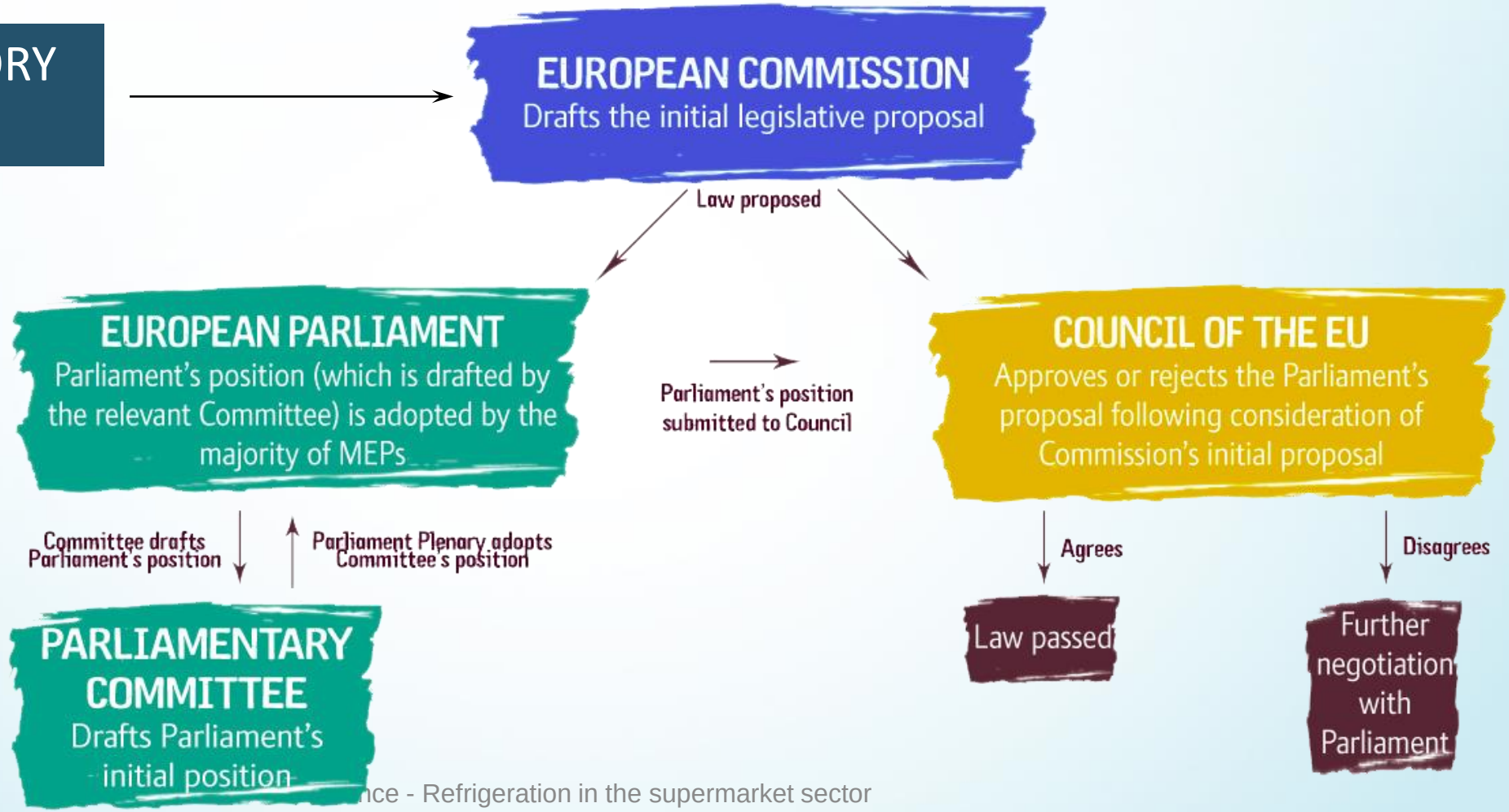
Eurovent and the European Union

Eurovent is a 'recognised stakeholder' at EU level and contributes to EU decision-making by:

- Defining common positions within Eurovent
- Communicating them with national and EU levels
  - Depending on the particular process
  - Towards European Commission, Parliament and the Council
- Communication, advocacy and learning enhanced through large network of national associations
- Monitoring and checking of national positions by Eurovent at EU level

EU decision-making process

PREPARATORY STAGES!



Policies area

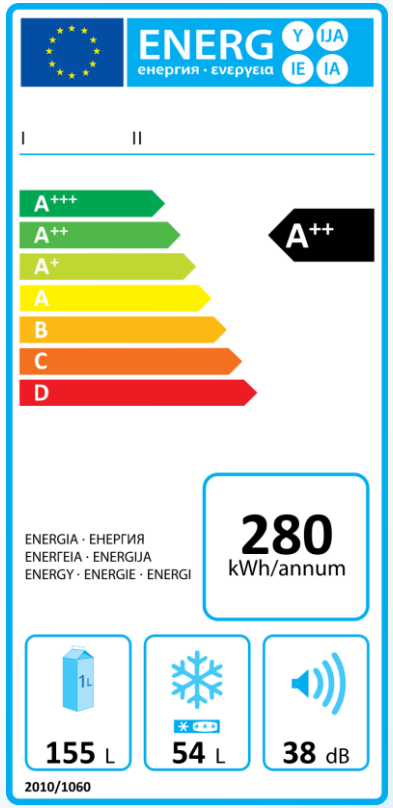
- Ecodesign Directive and implementing measures
- Energy Labelling framework Regulation and implementing measures
- Energy Performance of Building Directive
- Indoor air quality
- Fluorinated Gases

Ecodesign Directive/Regulations

- Provides consistent EU-wide rules for improving the environmental performance of products
- **Sets out minimum mandatory requirements for the energy efficiency and ecological performance of these products**
- Helps eliminate least performing products from the market, significantly contributing to the EU's 2030 Framework
- Supports industrial competitiveness and innovation
- Ecodesign Directive is implemented through product-specific Regulations (**E**nergy-**r**elated **P**roducts)

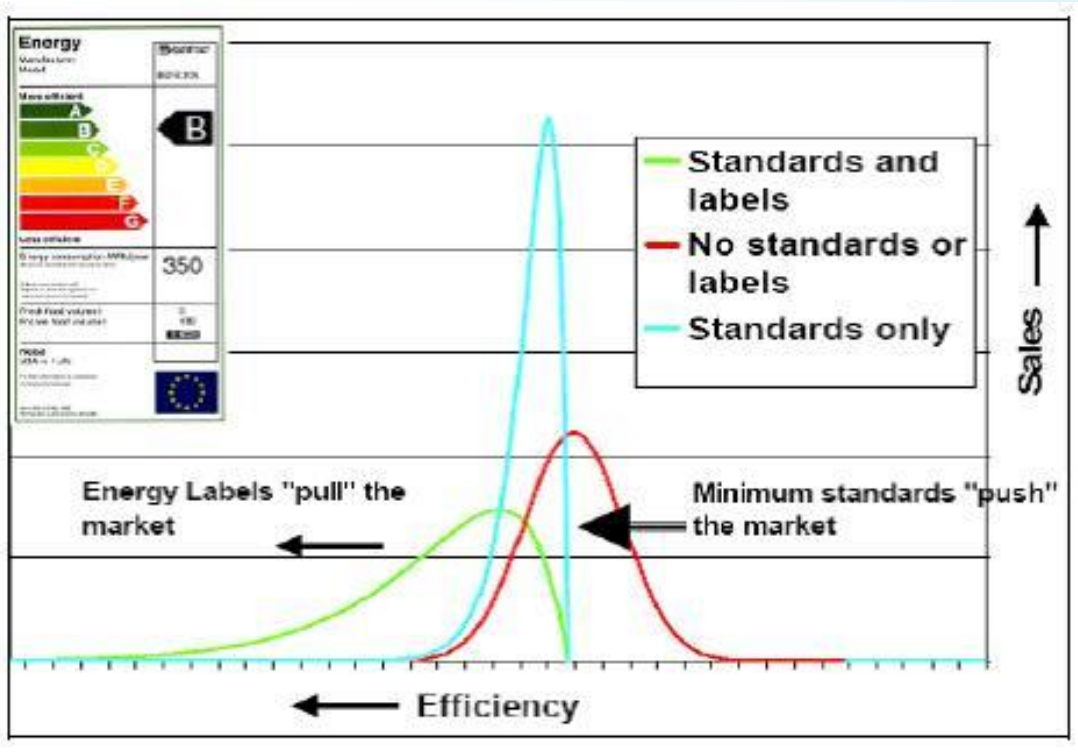
Energy Labelling Regulation

- **Complements those Ecodesign requirements with mandatory labelling requirements**
- Applies largely to B2C applications (e.g. room air conditioners) and not B2B (e.g. chillers)
- A-G energy labelling scale (no more A+++, …)
- Rescaled labels will have empty top classes (A and B)
- Process for rescaling the existing labels
- Introduction of a European product database



Ecodesign and Labelling

- Ecodesign Directive **'pushes'** the market away from the worst performing products
- Energy Label **'pulls'** the market towards more efficient products by better informing consumers



Energy Performance of Buildings Directive (EPBD) (Revision ongoing)

STATUS QUO

- Buildings responsible for 40% of energy consumption and 36% of CO_2 emissions in the EU
- **EU has set a target for all new buildings to be nearly zero-energy by 2020**
  - **As of 2018 for public buildings**
- **Minimum energy performance for renovations**
- Energy performance certificates provide information on the energy efficiency of buildings and recommended improvements
- Inspection heating and air conditioning systems

Indoor Air Quality
Priorities for buildings

- **The first priority is providing a healthy environment for citizens**
- Health costs, specially for older generation, are spiralling
- Energy related issues should consider this
- Consequences
  - Clean energy production
  - Limit energy requirements
  - Different approaches for new and existing buildings

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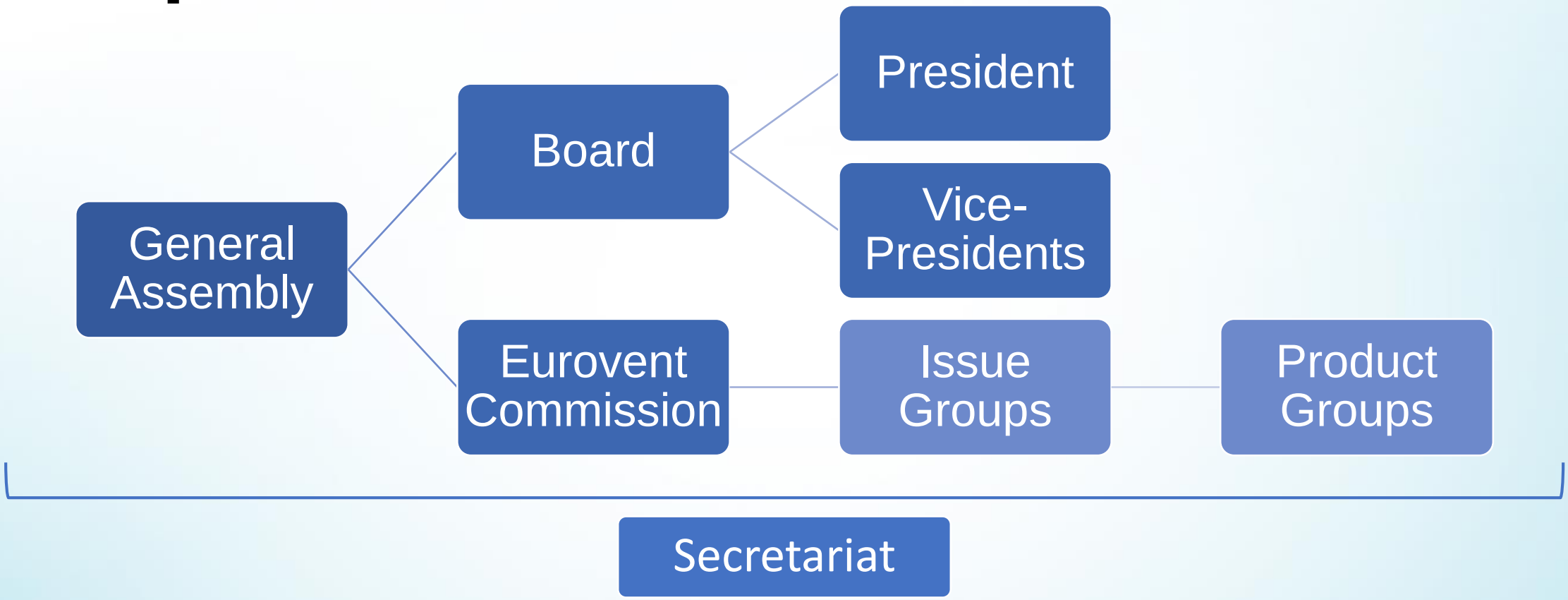
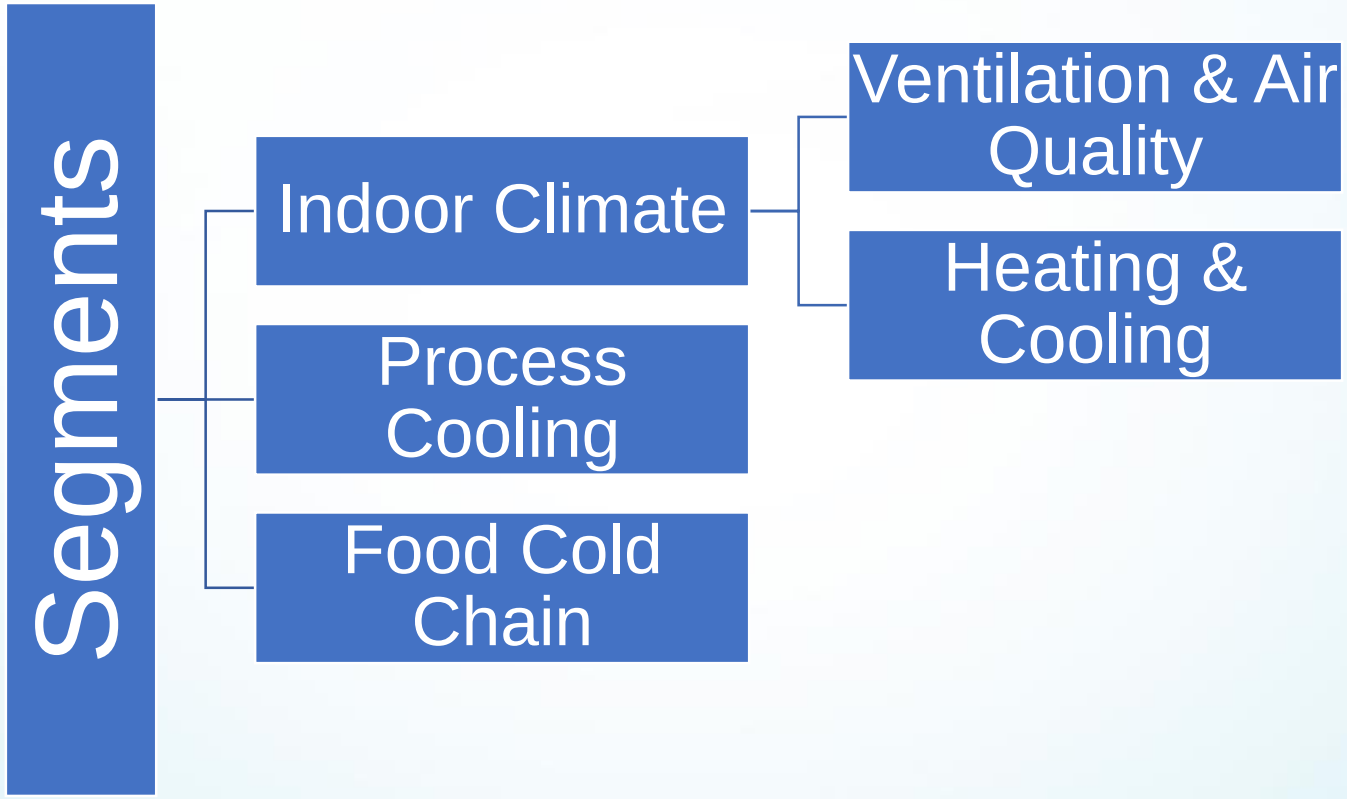
Corporate Structure



Our Technologies Segments



Our working groups

Issue Groups

- Actively participate in the development of implementing measures of the EU Ecodesign Directive, or horizontal issues (e.g. refrigerants, indoor air quality)
- Provide political decision-makers with information necessary to draft legislations that match industrial realities
- Share their expertise across borders, contributing to a true level-playing field towards markets with less barriers

Product Groups

- Actively participate in the development of European and international legislation, communicating and defending industry positions vis-à-vis political decision-makers and consultants
- Join forces to develop ‘codes of good practice’ for the industry, which later find their ways into standards and legislations
- Share their expertise across borders, contributing to a true level-playing field towards markets with less barriers

Product Group structure

Indoor Climate Technologies (Ventilation and Air Quality, Heating and Cooling)			Process Cooling and Food Cold Chain
PG-FANS Product Group 'European Fan Technology'	**PG-AHU** Product Group 'Air Handling Units'	**PG-AC** Product Group 'Air Conditioners and VRF systems'	**PG-CT** Product Group 'Evaporative Cooling Equipment'
PG-ERC Product Group 'Energy Recovery Components'	**PG-RAHU** Product Group 'Residential Air Handling Units'	**PG-LCP** Product Group 'Liquid Chilling Packages'	**PG-DRY** Product Group 'Dry Coolers'
PG-CUR Product Group 'European Air Curtains'	**PG-FIL** Product Group 'Air Filters'	**PG-FCU** Product Group 'Fan Coil Units'	**PG-CPR** Product Group 'Compression Equipment'
PG-SV Product Group 'Smoke Ventilation'	**PG-AD** Product Group 'Air Diffusers'	**PG-HP** Product Group 'European Heat Pumps'	**PG-RDC** Product Group 'Commercial Refrigeration Equipment'

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Founding member of ICARHMA

- Founding member of ICARHMA, a global network of HVAC&R associations from Australia, China, Europe, Japan, Korea, Latin and North America
- Close partnerships with sister associations across the globe
- Representative of Europe within ICARHMA

Eurovent Summit
The biennial key event for our industry

Eurovent Delegations

- On a regular basis, we organise Eurovent Delegation visits together with our members and partners to important HVAC&R-related events across the globe in, for example, China, Indonesia, Russia, Turkey, or the UAE.
- These visits are usually accompanied by dedicated Eurovent seminars that present European solutions to HVAC&R topics

EUROVENT MIDDLE EAST

In a nutshell

- Issue Group within Eurovent Association launched by 34 leading manufacturers and 4 related organisations
- Representative of Eurovent members based in and/or active in the Middle East region
- Discussion partner for authorities and standardisation organisations in the Middle East
- Working towards sustainability and efficiency
- Education on state-of-the-art appliances

Eurovent MEmbers

BALTIMORE AIRCOIL COMPANY
CLIVET COMFORT AND ENERGY SAVING
COOLEX COMFORT BEYOND EXPECTATIONS
DAIKIN
ebmpapst The engineer's choice
EFLOW
Enventus ENERGY RECOVERY
Epta
evapco for LIFE
FRICO
FRITERM since 1979
Hoval
Lindab
Midea
MULTI-WING
RIC صناعات التبريد REFRIGERATION INDUSTRIES
SPX
systemair
Swegon
WIKA
CLIMA UNO
TROX TECHNIK The art of handling air
GENERAL
TAQEEF تكييف
İSKİD AIR CONDITIONING & REFRIGERATION MANUFACTURERS' ASSOCIATION
REHVA Federation of European Heating, Ventilation and Air Conditioning Associations
ce is centro de ensayos, innovación y servicios

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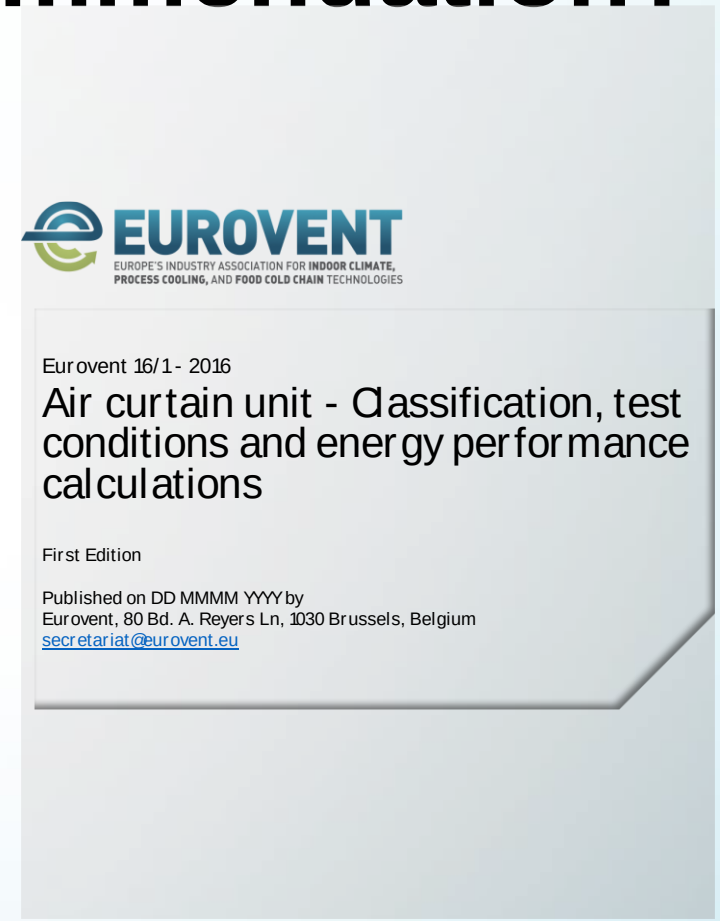
What is an Industry Recommendation?

An Industry Recommendation is a **set of written regulations issued by an Industry/Experts association**

An Industry Recommendation is usually prepared in an joint effort by the major player of the industry and it can be understood **as a standardisation preparatory working document**


EUROVENT
EUROPE'S INDUSTRY ASSOCIATION FOR INDOOR CLIMATE, PROCESS COOLING, AND FOOD COLD CHAIN TECHNOLOGIES

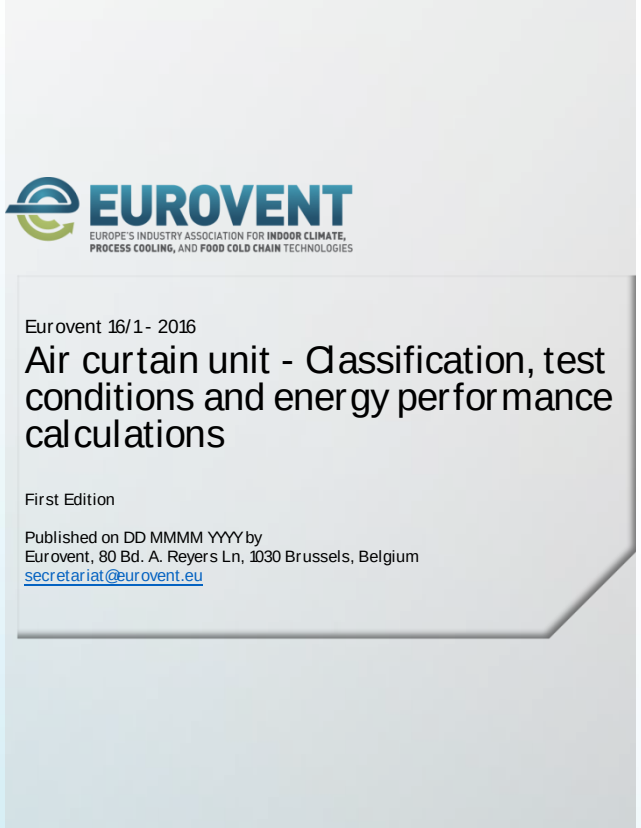
Eurovent 16/1 - 2016

Air curtain unit - Classification, test conditions and energy performance calculations

First Edition

Published on DD MMMM YYYY by
Eurovent, 80 Bd. A. Reyers Ln, 1030 Brussels, Belgium
secretariat@eurovent.eu

Eurovent Industry Recommendation on air curtains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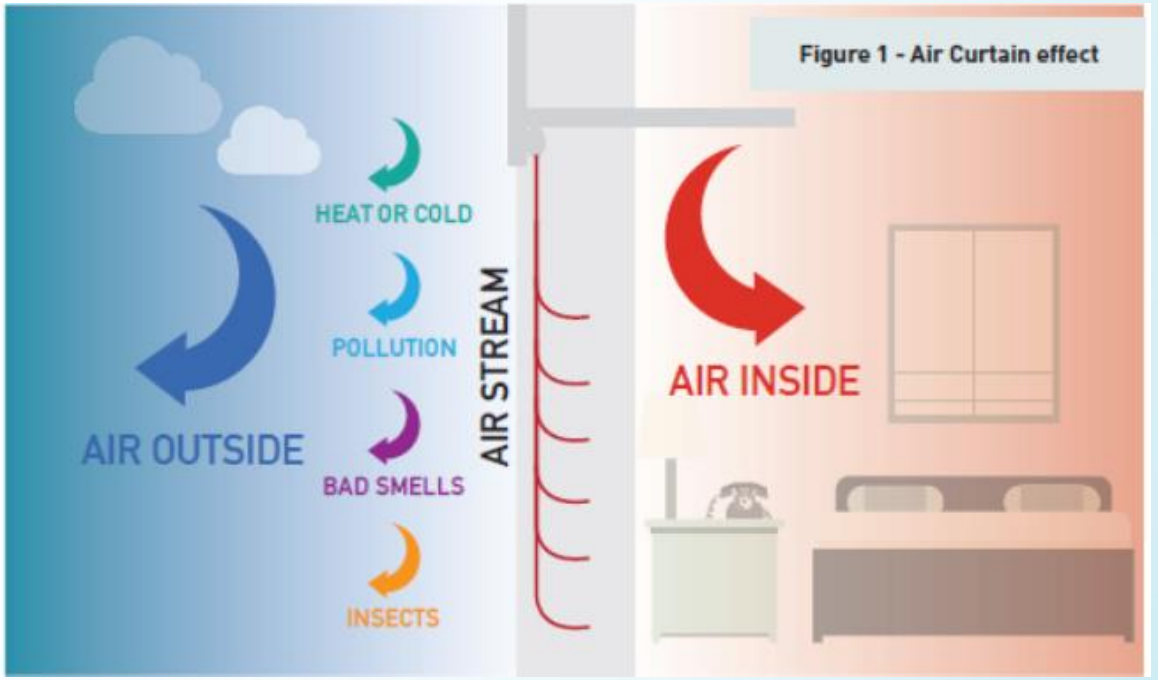
https://eurovent.eu/?q=content/eurovent-161-2016-air-curtain-unit-classification-test-conditions-and-energy-performance

Eurovent Industry Recommendation on air curtains
What are Air Curtains?

An air curtain is a **directionally-controlled airstream** which can reduce **the infiltration or transfer of air** from one side of the opening to the other and/or inhibit the passage of insects, dust and debris



Eurovent Industry Recommendation on air curtains **Cold storage applications**

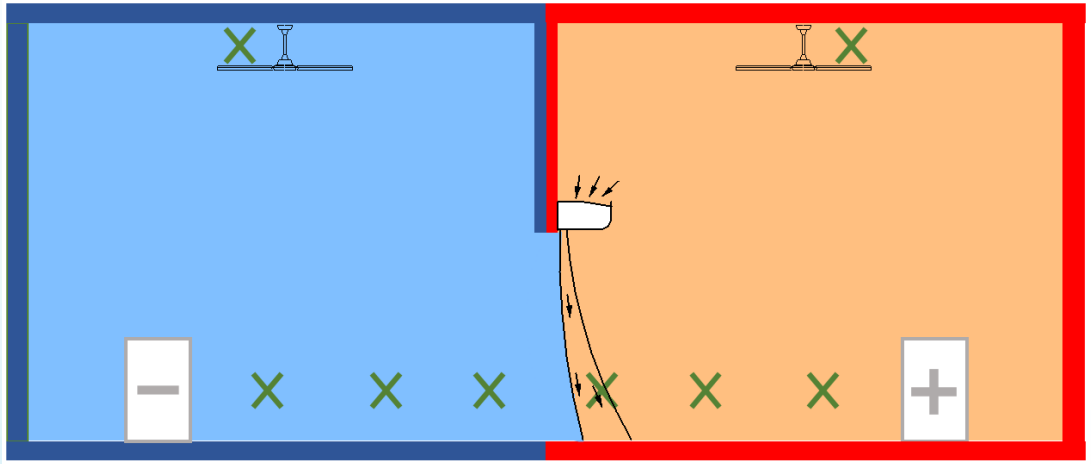
Eurovent Industry Recommendation on air curtains
Categories and standard rating conditions

Categories

Air curtain class.	H door [m]	W door [m]	Warm cell temp [°C]	Cold cell temp [°C]	DT [°C]	DP [Pa]	Wind load [m/s]	Climate classes
Commercial/comfort	2.0	1.5	20	2	18	0	2	ACUCC1
Industry	3.0	2.0	15	2	13	0	2	ACUI1
Cold storage	**2.0**	**1.5**	**20**	**5**	**15**	**0**	**0**	**ACUCS1**

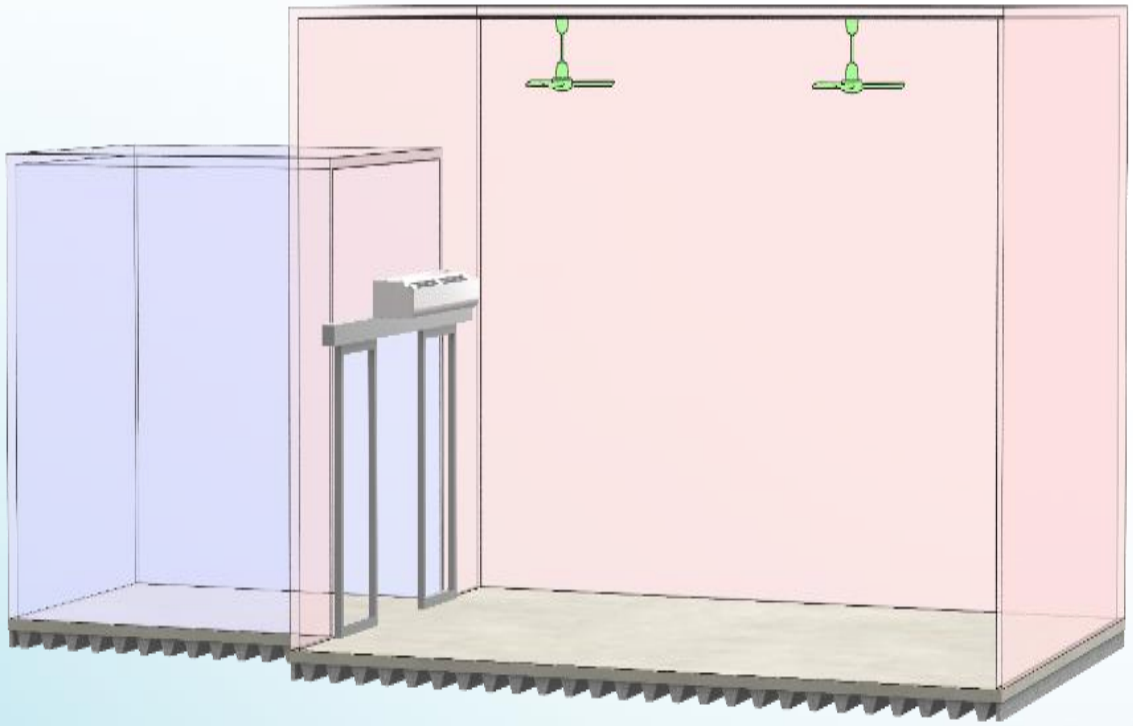
Std. door dimensions

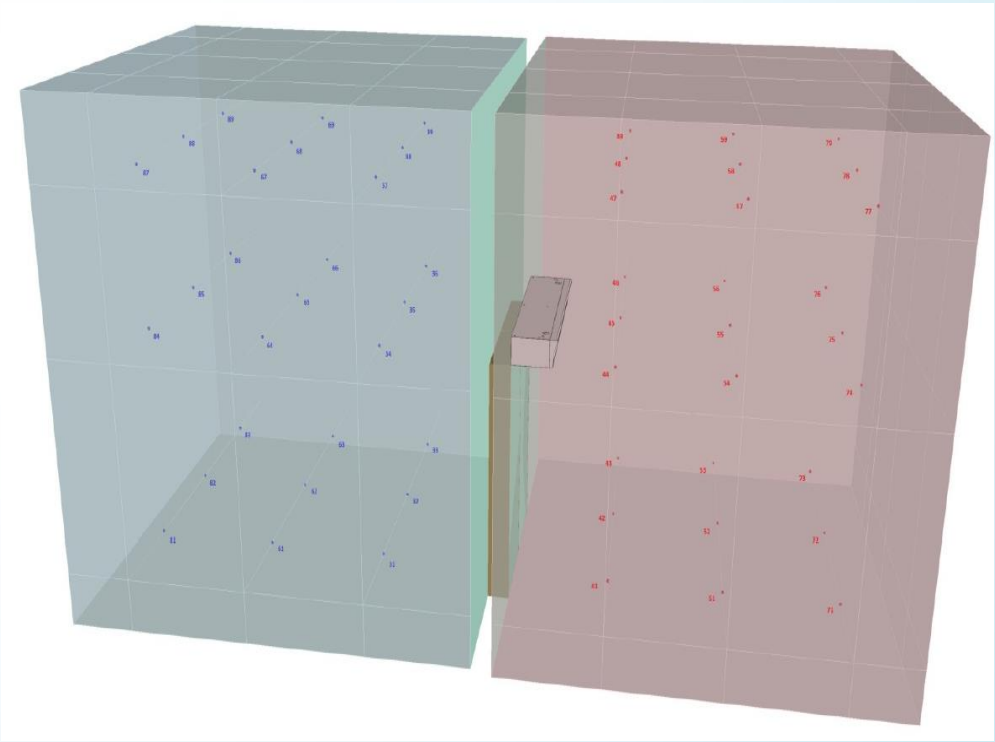
Eurovent Industry Recommendation on air curtains
Test environment



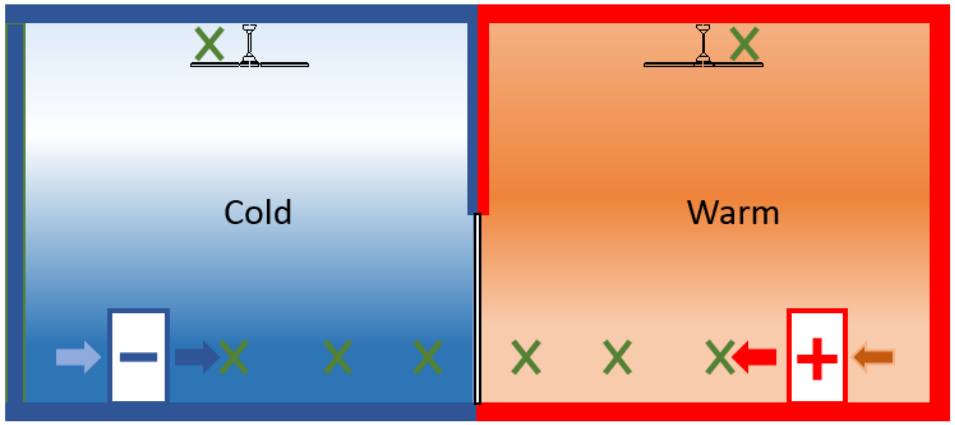
Dimension	Min	Max
Width [m]	3	6
Length [m]	3	8
Height [m]	3	5
Volume [m^3]	50	200

Eurovent Industry Recommendation on air curtains'
Test environment (cont.)

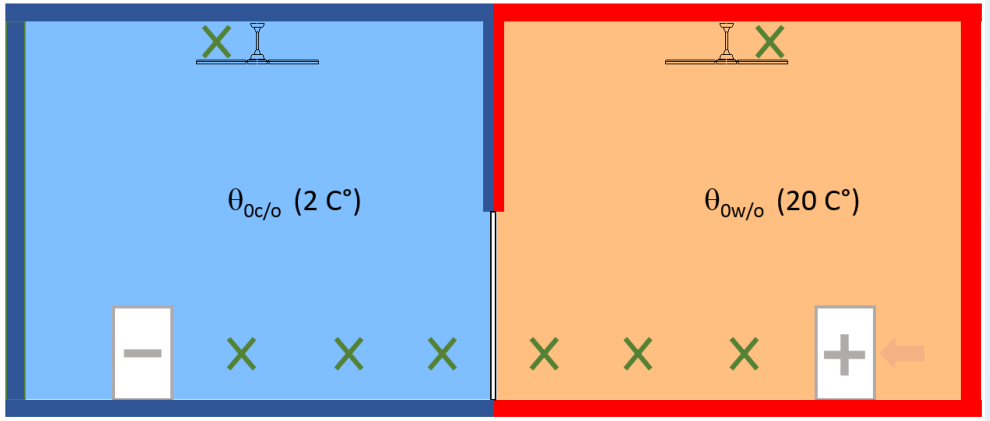




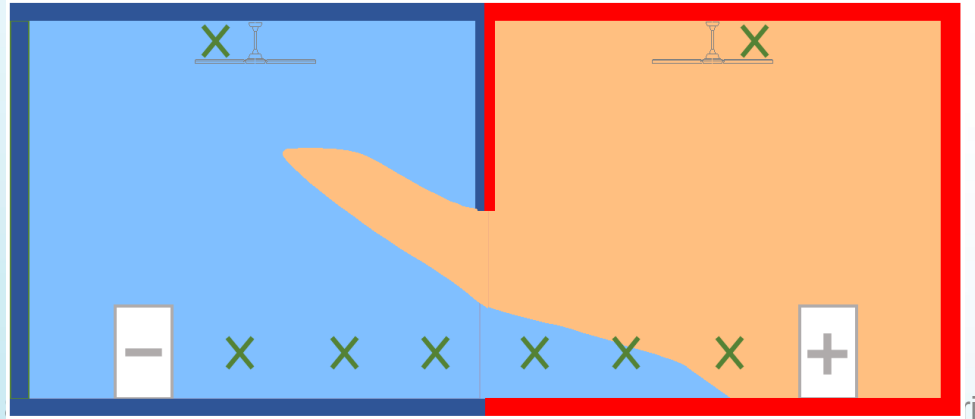
Eurovent Industry Recommendation on air curtains **Temperature test without ACU**



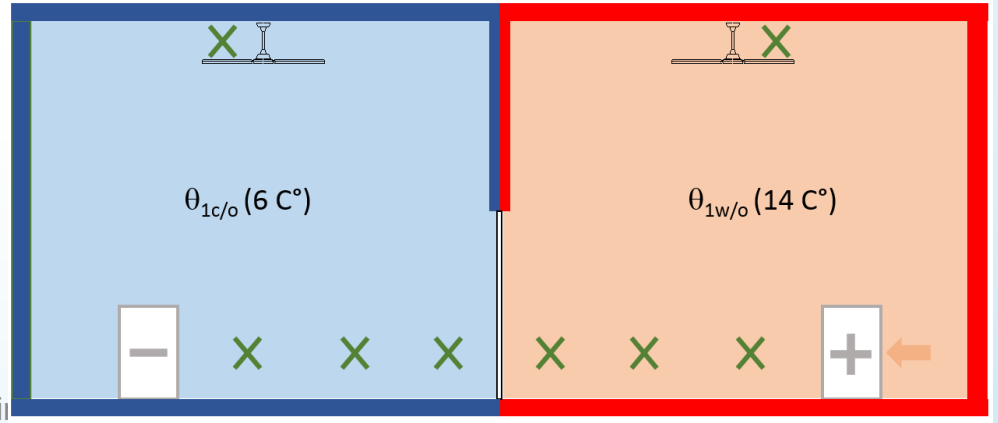
Two closed rooms with heating/cooling



Equalization of the temperature, standard deviation < 0,3K

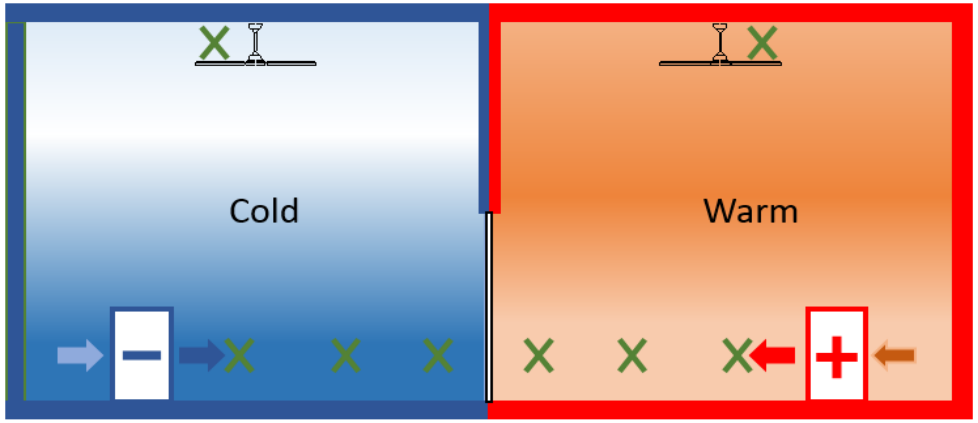


Open door, test period 60s

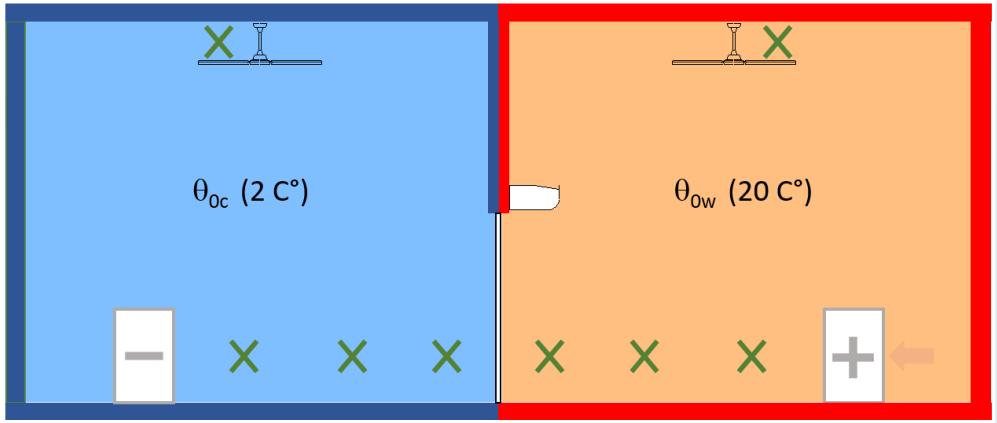


Equalization of the temperature, standard deviation < 0,3K

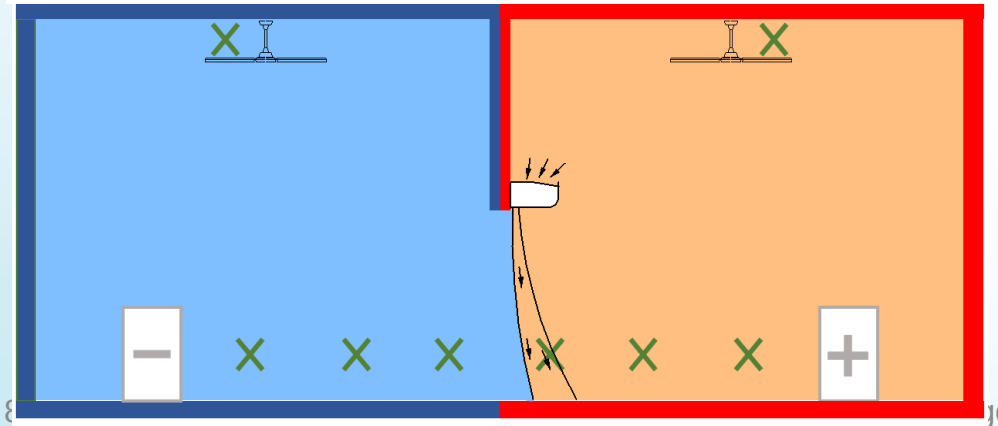
Eurovent Industry Recommendation on air curtains
Temperature test with ACU



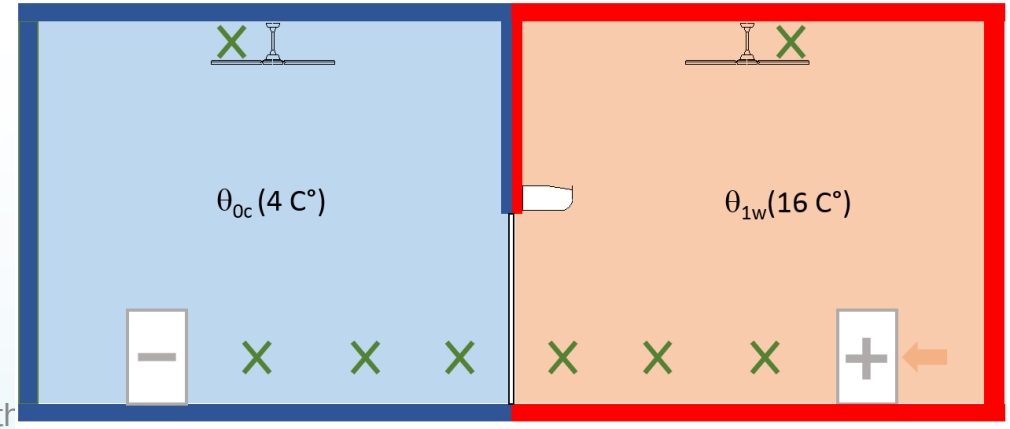
Two closed rooms with heating/cooling



Equalization of the temperature, standard deviation < 0,3K

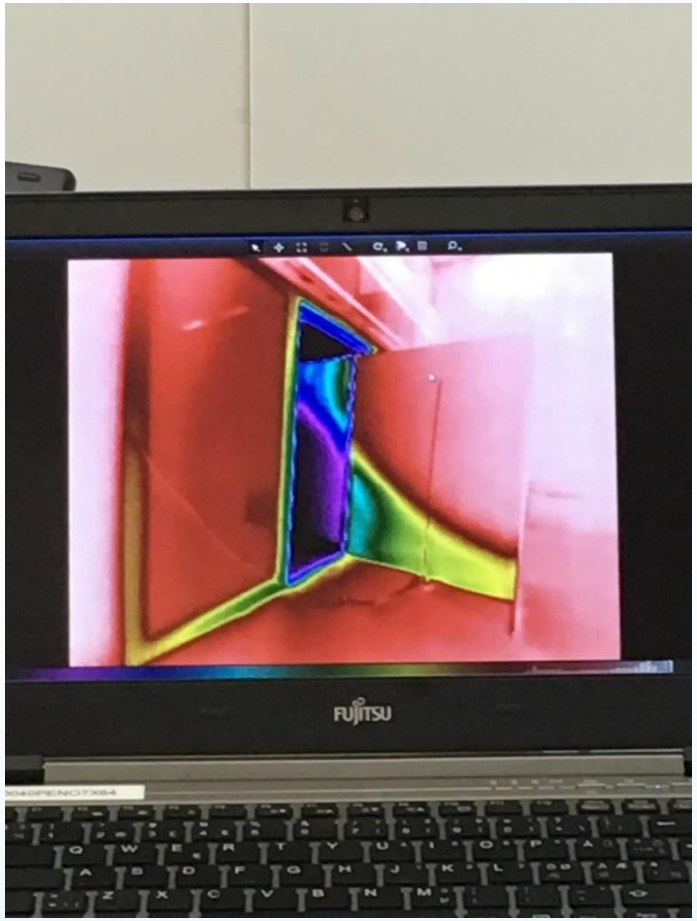


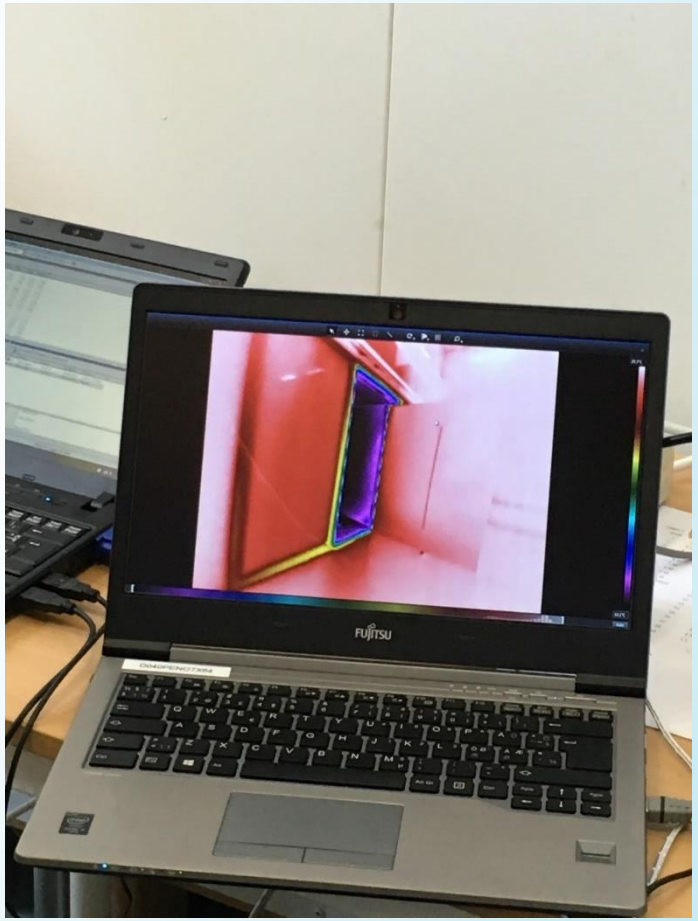
Open door with ACU, test period 60s



Equalization of the temperature, standard deviation < 0,3K

Eurovent Industry Recommendation on air curtains
Temperature test performed in laboratory





Eurovent Industry Recommendation on air curtains
Heat loss and CSE due temperature difference

Heat loss through an open door subjected to temperature difference, Q_T

$$Q_{T\ without} = \frac{V \cdot \rho \cdot c_p \cdot (\theta_{0w/o} - \theta_{1w/o})}{T} \quad [kW]$$

$$Q_{T\ with} = \frac{V \cdot \rho \cdot c_p \cdot (\theta_{0w} - \theta_{1w})}{T} \quad [kW]$$

Where:

V = Volume of the warm cell	[m^3]
ρ = Air density of the warm cell	[kg/m^3]
c_p = Specific heat of air	[kJ/kg K]
T = Door opening time	[s]
θ = Average cell temperature	[°C]

Climate Separation Efficiency due to temperature difference:

$$CSE_T = 1 - \frac{Q_{T\ with} + P_e}{Q_{T\ without}} \quad [\%]$$

Where:

P_e = Motor input power	[kW]

Walk-In cold room: Air curtains application

Cold storage temp: -23°C
Heated area temp: +26 °C
Door dimensions: 2.4 x 2.1 m
Door opened 100 times a day

Walk-In cold room: Air curtains application (Cont.)

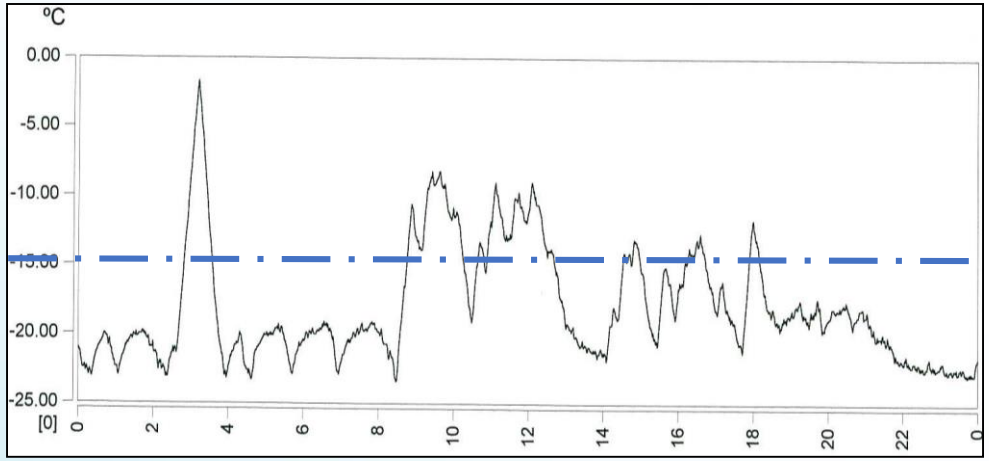
Huge energy losses
Temperature rise in the cold sections
Ice on the refrigeration units
Ice on the floor

Walk-In cold room: Air curtains application (Cont.)

Lower cold losses
Frost free result
Easier to pass through the door without the plastic strips

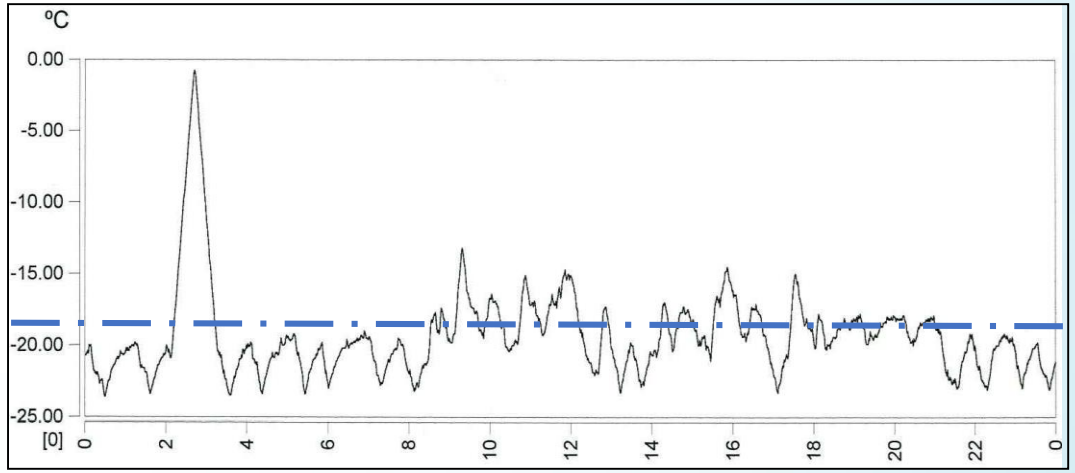
Walk-In cold room: Air curtains application (Cont.)

Without Air Curtain



Average cold room temperature: -15°C

With Air Curtain



Average cold room temperature: -19°C

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Our independent subunits in Paris

Eurovent Certita Certification (ECC)

ECC is a major European certification body in the field of HVAC&R, operating 38 performance certification programmes.

Eurovent Market Intelligence (EMI)

EMI is the European Statistics Office on the HVAC&R market, and has been providing key market data since 1994.

Eurovent Certified Performance

ECC is known for its globally-recognised

‘Eurovent Certified Performance’ mark:

Eurovent Market Intelligence (EMI)

EUROVENT Market Intelligence

EMI provides reliable and representative HVAC&R market intelligence data based on information supplied by market participants.

Its EMEA-wide data sets are frequently being used to support the development of legislation in the EU and beyond.

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Third party certification: what does it mean?

General Purpose:

- The value of 3rd party certification is to build up **customer** confidence by levelling the competitive playing field for all manufacturers and by increasing the integrity and accuracy of the industrial performance ratings
- Encourage honest competition
- **Ensure level playing field**
- Provide the garantee **that equipment** not only complies with the standards but also **performs as claimed**

Third party certification for commercial refrigeration equipment

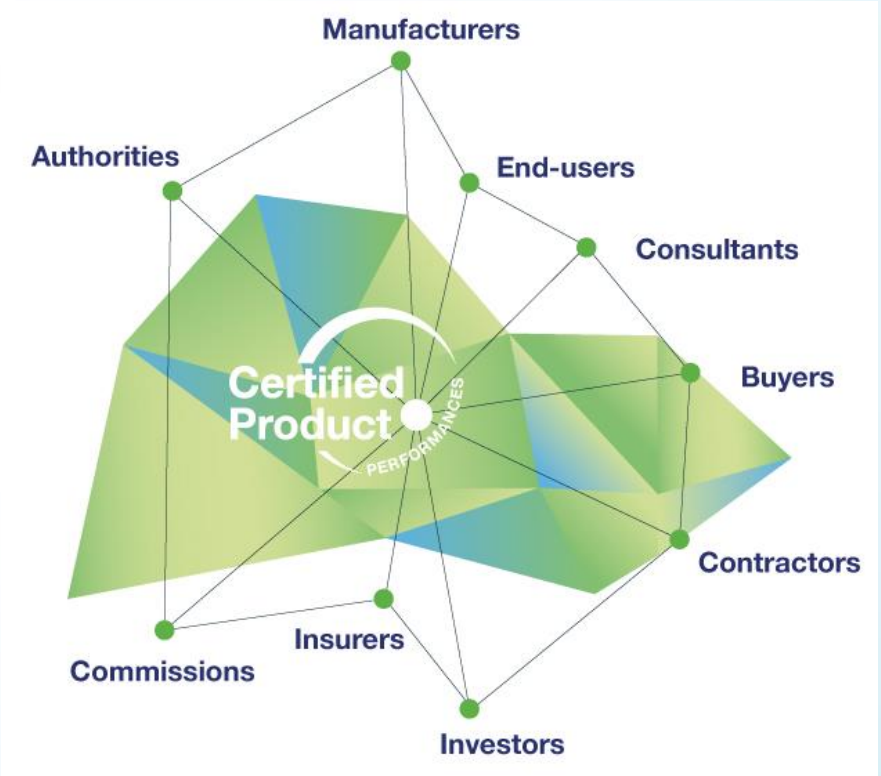
Eurovent Certita Certification is a major European certification body providing **voluntary 3rd party certification** in the field of Heating, Ventilation, Air Conditioning and Refrigeration (HVAC-R)

Eurovent Certita Certification certifies the performance ratings of products, **according to European and International standards,** on the full range of HVAC-R products

Third party certification for commercial refrigeration equipment (cont.)

Eurovent Certita Certification as a certification body accredited by Cofrac – Accreditation 5-5017 –

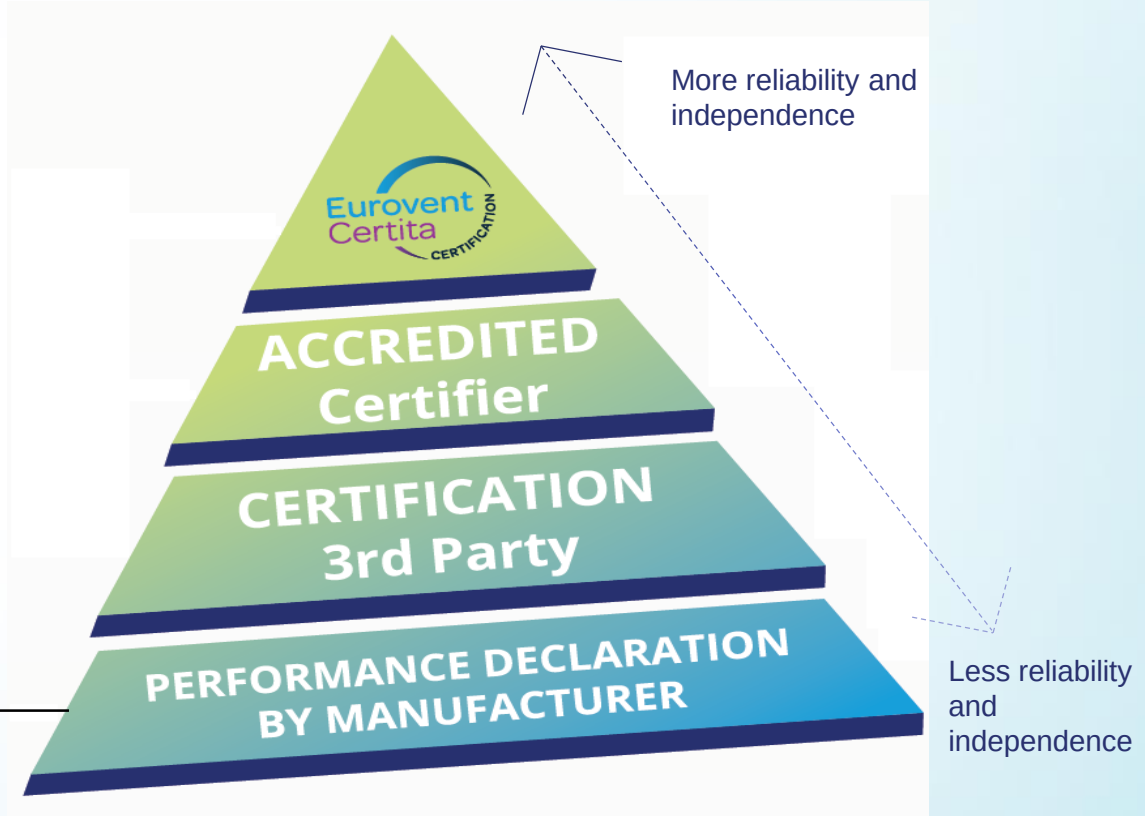
Eurovent Certita Certification fulfills the requirements of the standards **EN ISO/CEI 17065:2012.**



Third party certification for commercial refrigeration equipment (Cont.)

4) PERFORMANCE DECLARATION BY THE MANUFACTURER

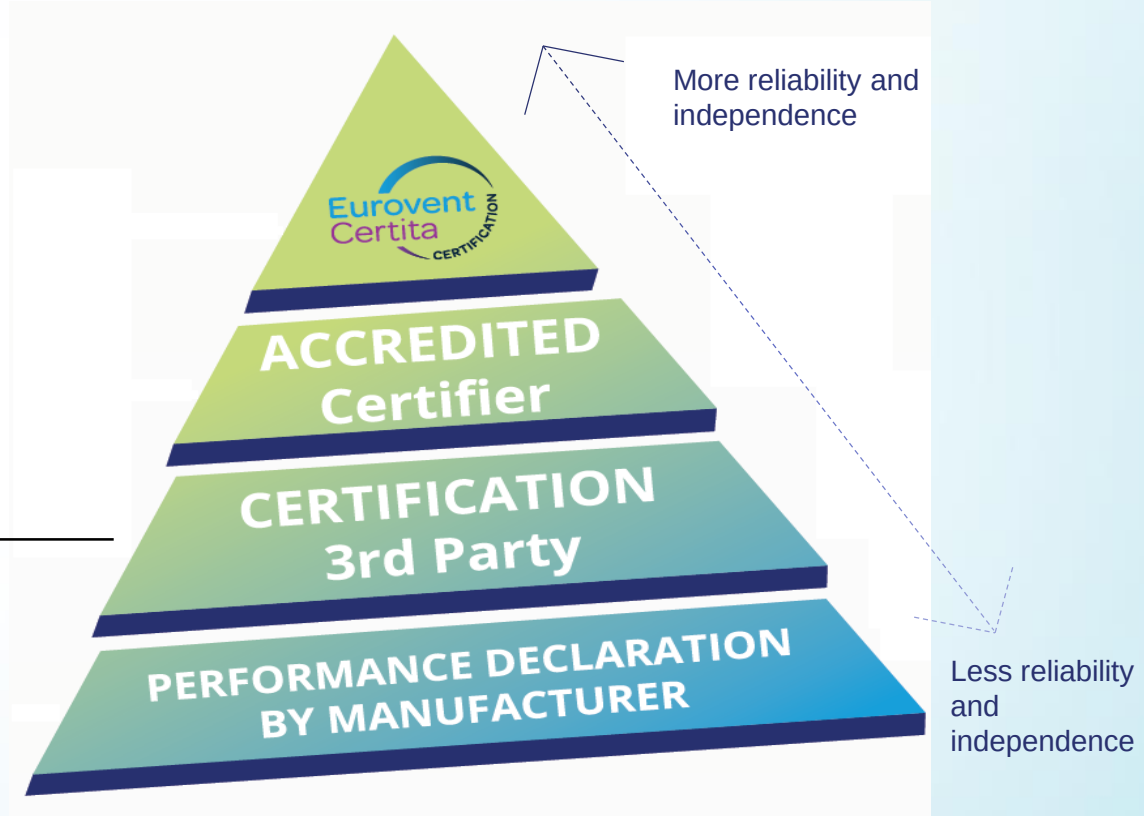
- ✓ Self assessment of the products' compliance to the ISO & EN Standards
- ✓ Consumer trust relies on the manufacturers' reputation



Third party certification for commercial refrigeration equipment (Cont.)

3) CERTIFICATION – 3RD PARTY

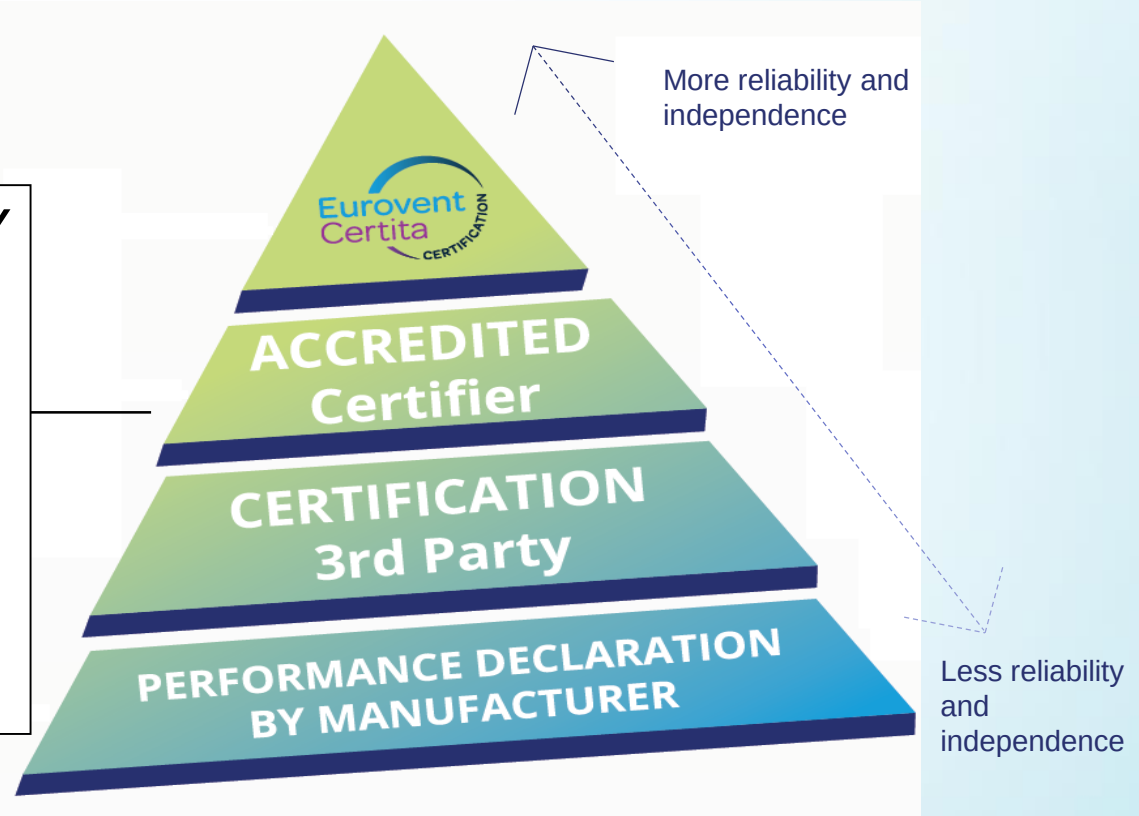
- ✓ Complies to test & Certification protocols approved by an independent body
- ✓ Consumers and authorities are part of validation



Third party certification for commercial refrigeration equipment (Cont.)

2) ACCREDITED CERTIFICATION BODY

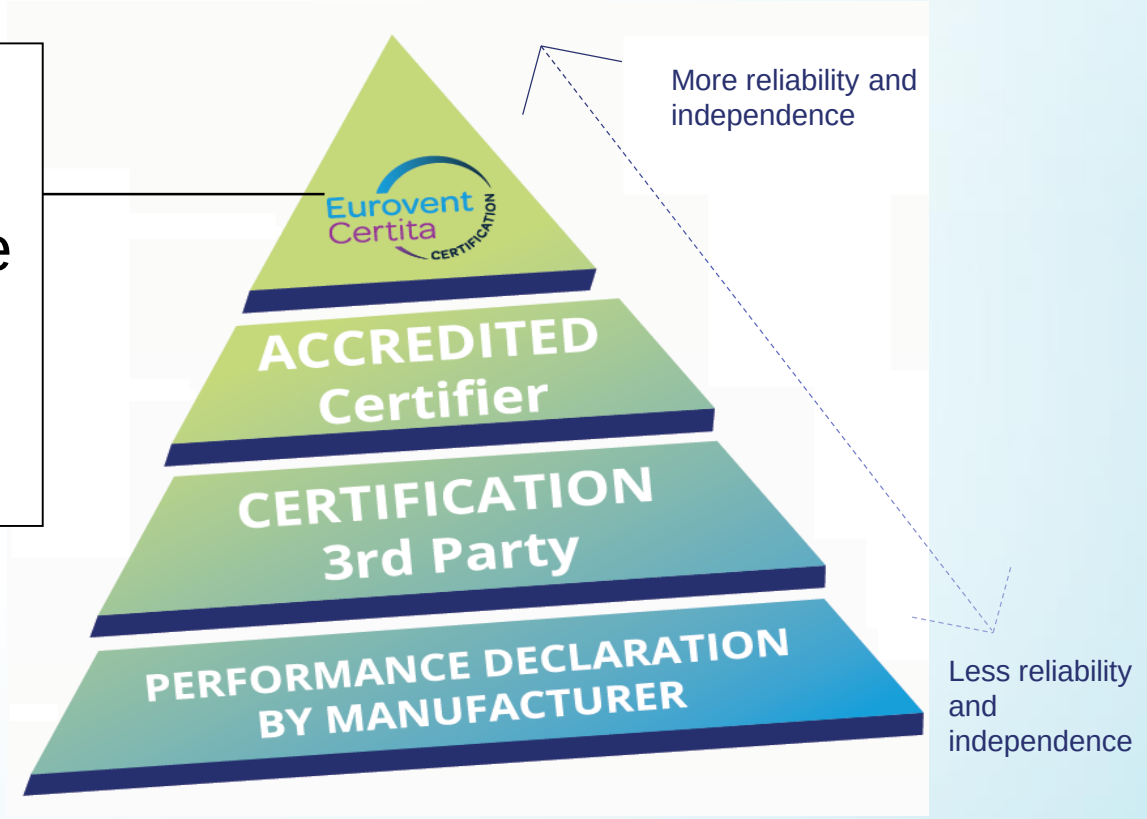
- ✓ Certification protocols are verified & accredited
- ✓ Certificate No 5-0517 scope available on www.cofrac.fr
- ✓ Consumer trust relies on independence



Third party certification for commercial refrigeration equipment (Cont.)

1) CERTIFICATION – 3rd PARTY

- ✓ Over 600 manufacturers worldwide
- ✓ 38 Certification programmes
- ✓ 66% of HVAC-R products sold in Europe are ECP certified



Third party certification for commercial refrigeration equipment (cont.)

The Eurovent Certified Performance energy efficiency label to make the right choice

Energy efficiency classes:

- From A+ (= highest energy efficiency)
- To E (= lowest energy efficiency)

Third party certification for commercial refrigeration equipment (Cont.)

ECC RDC program

Testing **of 2 cabinets** per year in accordance with EN/ISO 23953:2015 Standard

Third party certification for commercial refrigeration equipment (Cont.)

ECC RDC program

A continuous verification process

Comparison between the measured values and the declared values

Production sites **audits**

Product performance testing in an **independent laboratory**

Corrective actions progress assessment (if any)

EUROVENT Association and Food Co

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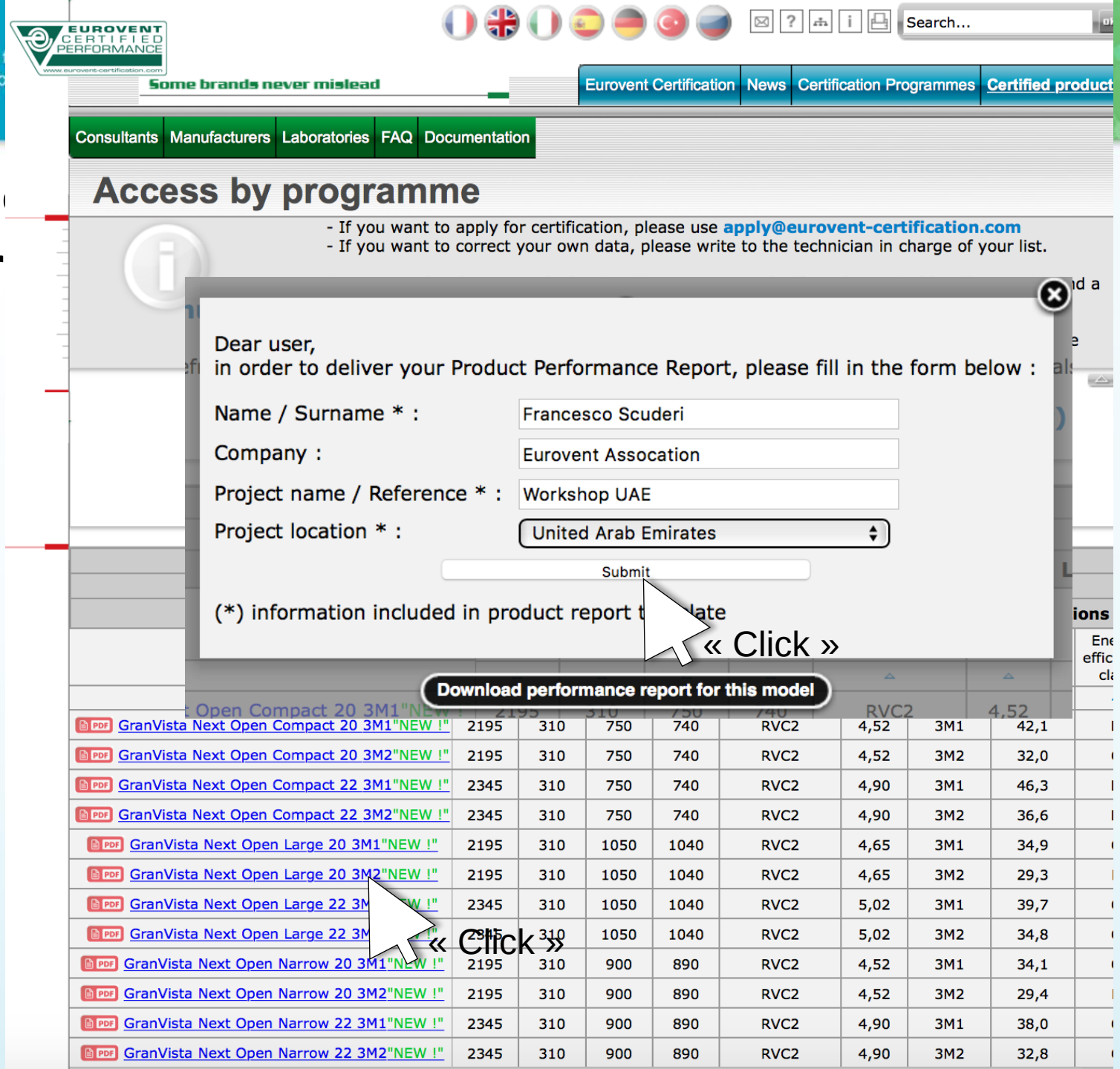
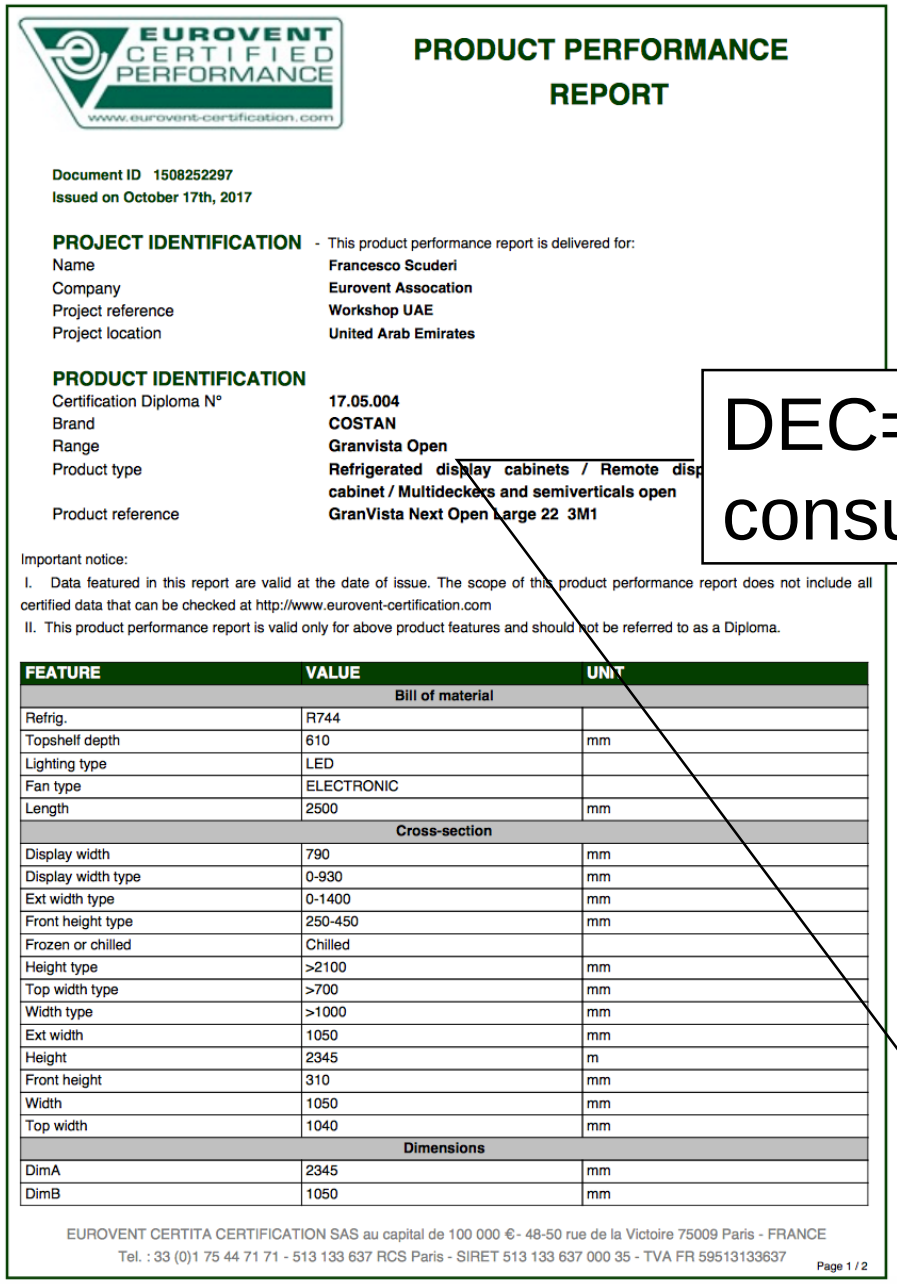
ECC R

www.eu



GranVista Next Open Compact 20 3M1"NEW !"	2195	310	750	740	RVC2	4,52	3M1	42,1
GranVista Next Open Compact 20 3M2"NEW !"	2195	310	750	740	RVC2	4,52	3M2	32,0
GranVista Next Open Compact 22 3M1"NEW !"	2345	310	750	740	RVC2	4,90	3M1	46,3
GranVista Next Open Compact 22 3M2"NEW !"	2345	310	750	740	RVC2	4,90	3M2	36,6
GranVista Next Open Large 20 3M1"NEW !"	2195	310	1050	1040	RVC2	4,65	3M1	34,9
GranVista Next Open Large 20 3M2"NEW !"	2195	310	1050	1040	RVC2	4,65	3M2	29,3
GranVista Next Open Large 22 3M	2345	310	1050	1040	RVC2	5,02	3M1	39,7
GranVista Next Open Large 22 3M	2345	310	1050	1040	RVC2	5,02	3M2	34,8
GranVista Next Open Narrow 20 3M1"NEW !"	2195	310	900	890	RVC2	4,52	3M1	34,1
GranVista Next Open Narrow 20 3M2"NEW !"	2195	310	900	890	RVC2	4,52	3M2	29,4
GranVista Next Open Narrow 22 3M1"NEW !"	2345	310	900	890	RVC2	4,90	3M1	38,0
GranVista Next Open Narrow 22 3M2"NEW !"	2345	310	900	890	RVC2	4,90	3M2	32,8



EUROVENT CERTIFIED PERFORMANCE
www.eurovent-certification.com

PRODUCT PERFORMANCE REPORT

Document ID 1508252297
Issued on October 17th, 2017

PROJECT IDENTIFICATION - This product performance report is delivered for:

Name	Francesco Scuderi
Company	Eurovent Assocation
Project reference	Workshop UAE
Project location	United Arab Emirates

PRODUCT IDENTIFICATION

Certification Diploma N°	17.05.004
Brand	COSTAN
Range	Granvista Open
Product type	Refrigerated display cabinets / Remote disp cabinet / Multideckers and semiverticals open
Product reference	GranVista Next Open Large 22 3M1

Important notice:

I. Data featured in this report are valid at the date of issue. The scope of this product performance report does not include all certified data that can be checked at http://www.eurovent-certification.com

II. This product performance report is valid only for above product features and should not be referred to as a Diploma.

FEATURE	VALUE	UNIT
Bill of material		
Refrig.	R744	
Topshelf depth	610	mm
Lighting type	LED	
Fan type	ELECTRONIC	
Length	2500	mm
Cross-section		
Display width	790	mm
Display width type	0-930	mm
Ext width type	0-1400	mm
Front height type	250-450	mm
Frozen or chilled	Chilled	
Height type	>2100	mm
Top width type	>700	mm
Width type	>1000	mm
Ext width	1050	mm
Height	2345	m
Front height	310	mm
Width	1050	mm
Top width	1040	mm
Dimensions		
DimA	2345	mm
DimB	1050	mm

EUROVENT CERTITA CERTIFICATION SAS au capital de 100 000 €- 48-50 rue de la Victoire 75009 Paris - FRANCE
Tel. : 33 (0)1 75 44 71 71 - 513 133 637 RCS Paris - SIRET 513 133 637 000 35 - TVA FR 59513133637

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PRODUCT PERFORMANCE REPORT

Document ID 1508252297

DimC	790	mm
DimE	310	mm
DimG	1830	
DimH	1040	
ISO family [R/I+V/H/C+N]	RVC2	
Light (true or false)	True	
TDA	5.02	m
Night curtain	true	
Laboratory conditions		
ISO T class	3M1	
Evap temp average 24h	-9.0	C
DEC	2.64	kWh/day
REC		
TEC		
Efficiency (lab)		
Energy efficiency class		

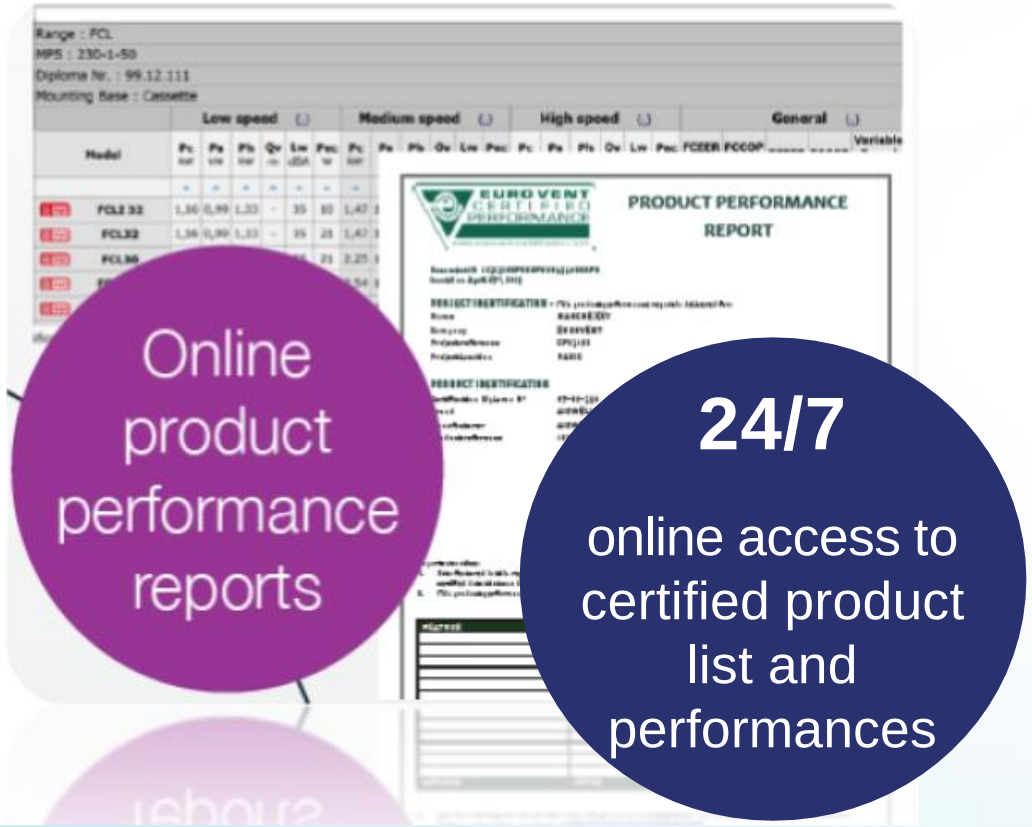
DEC= Fans+Lighting consumption [kWh/day]

REC= Refrigeration consumption [kWh/day]

Temperature class

TEC= Total Consumption [kWh/day]

Third party certification for commercial refrigeration equipment (Cont.)
ECC RDC program



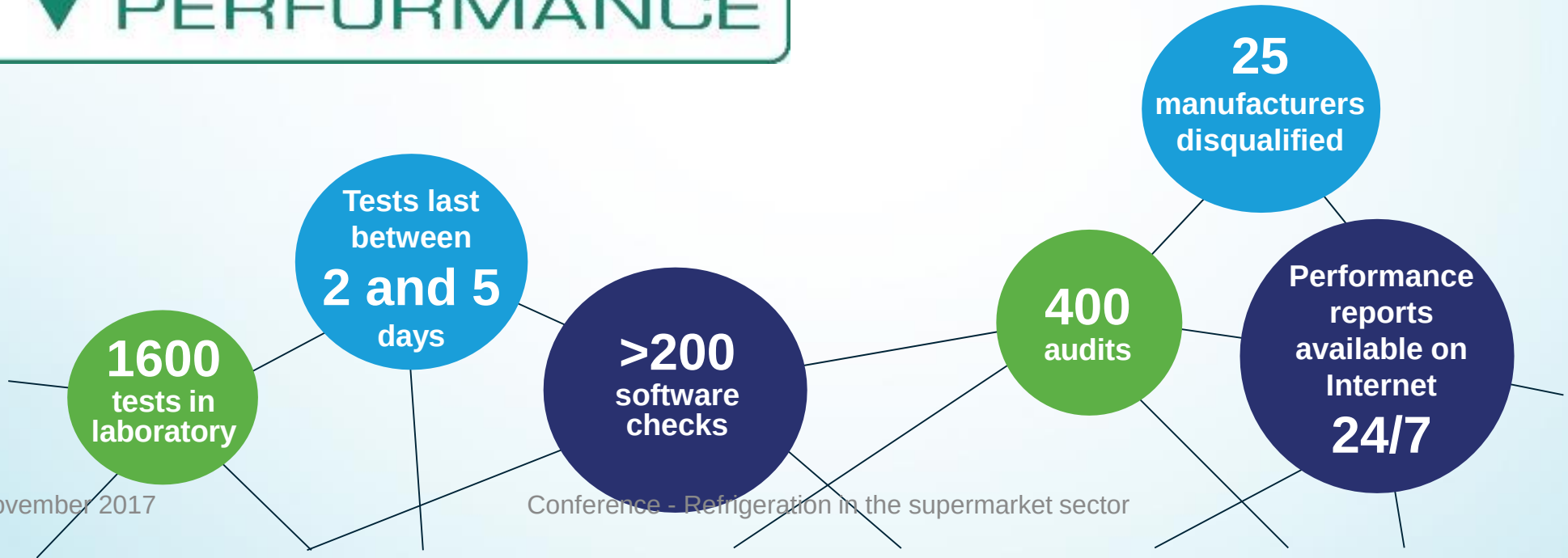
- Temperature class (performances)
- REC→easy to dimension the total cooling demand
- DEC→Easy to dimension the electrical capacity
- REC and DEC according to the temperature class

Third party certification for commercial refrigeration equipment (Cont.)

ECC RDC program

EUROVENT CERTIFIED PERFORMANCE

Some brands never mislead



Roadmap

1. Who are we?
2. Eurovent Product Groups and activities
3. How does Eurovent support the industry internationally?
4. Eurovent Recommendation on air curtain units and their application in cold rooms
5. Eurovent Certita Certification and Eurovent Market Intelligence
6. Eurovent Certitia Certification program for Remote Display Cabinets
7. **Q&A**

Q&A

Thanks for you attention!