



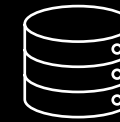
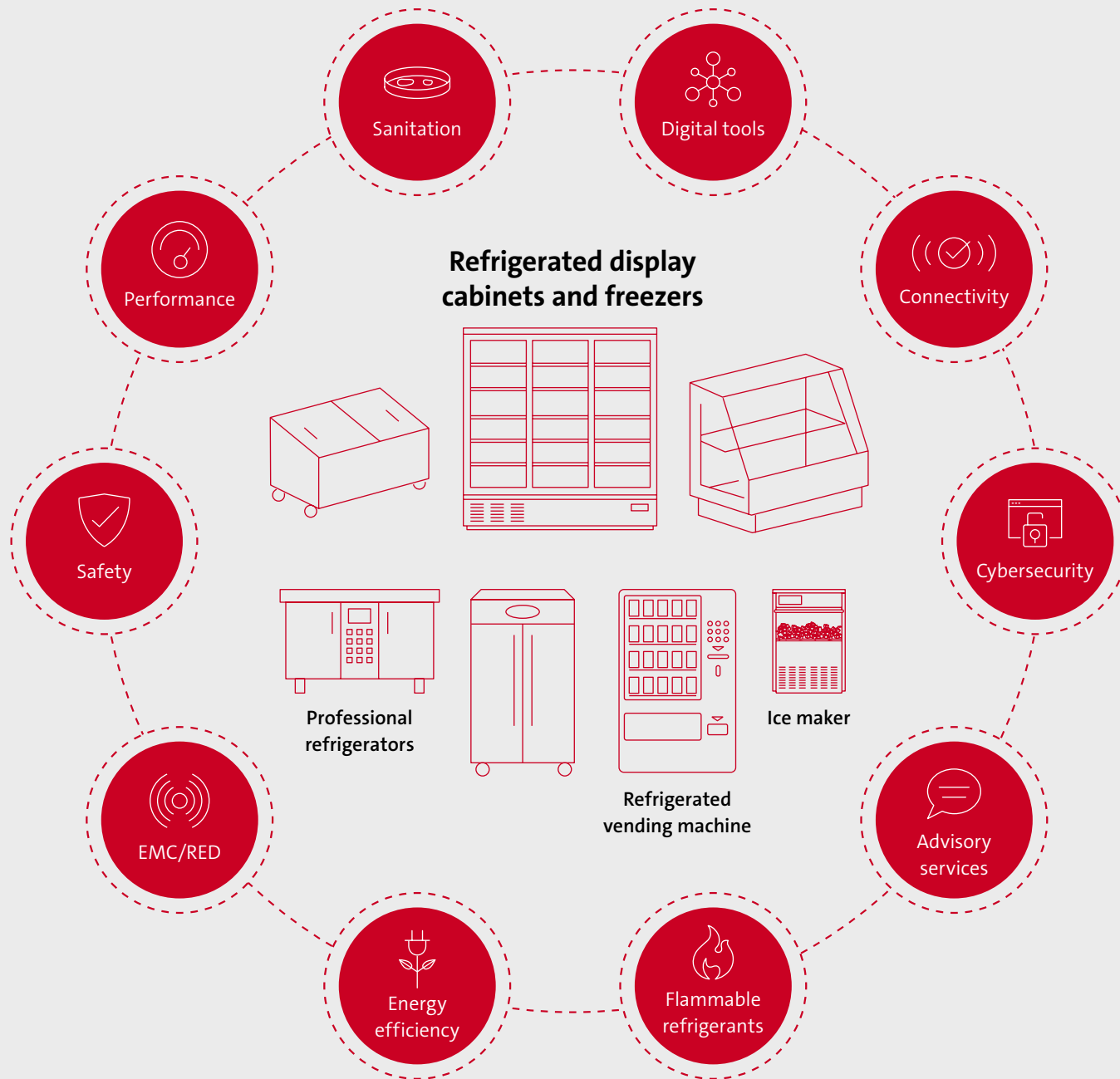
Full compliance  
for commercial  
and professional  
refrigeration

With broad business intelligence and a deep understanding of the regulatory landscape, UL Solutions helps thousands of manufacturers make informed decisions to demonstrate the safety and compliance of their products, deliver high-quality and high-performing devices, and enhance sustainability with a strong focus on the needs of European manufacturers.

We provide independent, comprehensive certification, testing and verification services at state-of-the-art laboratories for household, professional and commercial appliances, including heating, ventilation, air conditioning and refrigeration (HVAC/R) appliances of all sizes and purposes.

When preparing to launch your next product, consider UL Solutions to help meet your goals.





All our services for commercial and professional refrigeration products

# Safety testing and certification services



## How can you demonstrate the safety of your products?

When launching a new product, you want to be sure that your product is safe and complies with local market requirements. As a leading expert in safety science, we can provide certification and testing as well as market entry advisory and training services for your global access needs. In this way, we can help provide you with the tools necessary to understand the compliance and market access requirements.

### CE marking



If you are planning to export your products in Europe only, the CE Marking is an essential marking. The CE marking demonstrates that your product complies with all the applicable EU directives and regulations. Although the CE marking is a self-declaration, understanding how to navigate complex European mandatory CE marking requirements, as well as voluntary certification programs, can help speed up your time to market.

With an extensive knowledge of European standards, we support you in testing your products and in compiling the associated documentation required to declare CE Marking compliance.

We offer flexible, customized CE marking services to help you fulfill Declarations of Conformity (DoC) and Technical Documentation Files (TDF). As a Notified Body with laboratories and CE marking experts in many European countries, we can test your products to a variety of directives, including:

- Low Voltage Directive 2006/95/EC (LVD) – for appliances under scope of EN60335
- Gas Appliance Regulation 2016/426/EU (GAR)
- Energy Labelling – Regulation (EU) 2017/1369
- Radio Equipment Directive 2014/53/EU (RED)
- Eco-design Requirements – Directive 2009/125/EC
- EMC Directive 2004/108/EC
- Radio Equipment Directive 2014/53/EU (RED)

- Restriction of Hazardous Substances (RoHS) – Directive 2011/65/EU
- Product Safety Directive 2014/68/EU
- Machinery Directive 2006/42/EC
- Pressure Equipment Directive 2014/35/EU
- ATEX Directive 1999/92/EC

### UL Mark



The UL Mark is the single most accepted certification mark in the United States, appearing on 22 billion products annually. The UL Mark demonstrates that we have tested representative samples of your product and determined that the product meets specific, defined requirements.

Throughout the world, we are the only certification organization authorized to issue the UL Mark. We offer certification to the following UL Solutions and Canadian Standards Association (CSA) standards:

- UL 60335-2-89, the Standard for Household and Similar Electrical Appliances - Safety - Part 2-89: Particular Requirements for Commercial Refrigerating Appliances with an Incorporated or Remote Refrigerant Unit or Compressor and UL 471, the Standard for Commercial Refrigerators and Freezers
- UL 621, the Standard for Ice Cream Makers
- UL 563, the Standard for Ice Makers
- UL 751, the Standard for Edition 9, Revision Date Oct. 2, 2018 Vending Machines
- CSA C22.2 No. 128, Edition 4, Issue Date 01/2016

### IECEE CB Scheme



When you want to export an electrical or electronic product globally, the CB test report is one of the key elements to consider when you look at the safety of your products. 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. The International Electrotechnical Committee (IECEE) oversees the CB Scheme. As a leading member of the IECEE CB Scheme and leading issuer of IECEE certifications, we operate four National Certification Bodies (NCBs) in Denmark, the U.S., Japan and Canada, as well as over 50 CB Testing Laboratories (CBTLs) around the world, offering our customers the proven benefit of a full-service provider.

Providing your product with a CB test report means being able to export that product globally. We offer certification to the following main IEC and EN standards:

- IEC/EN 60335-2-89
- IEC/EN 60335-2-89
- IEC 60335-2-118
- IEC/EN 60335-2-75
- EN 60335-2-24 and EN 60335-2-75

### Global market access

If you want to access global markets, we can offer integrated solutions that, together with testing and certification, also include energy efficiency, electromagnetic compatibility (EMC) and wireless approvals.

## Evaluation and certification for pressure equipment and assemblies

The Pressure Equipment Directive (PED) (Directive 2014/68/EC) is a mandatory European Union (EU) regulation covering the design, manufacture and conformity assessment of pressure equipment and assemblies.

Mildly flammable (A2L) and flammable (A3) refrigerants are considered harmful gases under the PED. This is why products that have been using nonflammable A1 refrigerants and will now move to A2L or A3 refrigerants might change to a higher PED category, requiring new PED certification by a Notified Body. UL Solutions, as an accredited Notified Body under Directive 2014/68/EU, can provide certification around the world for pressure equipment and assemblies.

### Services related to the introduction of GWP refrigerants

By 2021, emissions of fluorinated gases (F-gases) must be halved compared with 2015 and reduced by approximately 80% by 2030. A step-by-step reduction will apply, although this will affect individual types of equipment differently. As early as 2020, hermetically sealed commercial refrigeration systems may only be sold if the gas used has a global warming potential (GWP) of less than 150. Almost all known gases below this value are flammable. As a result, manufacturers are facing new and complex development challenges as GWP refrigerants present much higher fire risks.

We are the principal leader in flammable refrigerant gases and can offer a full portfolio of advisory, benchmarking and certification services. We help customers navigate the changing landscape of low-GWP compliance and trade to gain access to new markets and offer safer products around the globe: protecting people, products and reputations.

Recently, several tests with flammable refrigerants have been conducted for recognized organizations like ASHRAE and IEC.

### Advisory and training services

- Flammable refrigerant basics and mitigation techniques
- Standards requirements
- Training for laboratory technicians on proper use and hazards of flammable refrigerants

### Benchmarking services

- Physical teardown/risk assessment
- Preliminary refrigerant leak testing
- Computational fluid dynamics (CFD) modeling
- Testing and verification of mitigation techniques

### Compliance and certifications

- Product certification to IEC 60335-2-89
- UL Marketing Claim Verification
- ATEX directive
- Complete CE documentation





# Energy efficiency testing and certification services



## Products shall also be energy efficient

As the global demand for energy consumption continues to accelerate, the race to build more energy-efficient products is intensifying. Commercial refrigeration manufacturers in particular face the pressure to meet increasingly demanding efficiency regulations in North America and Europe.

Our team can help you understand the changing regulations and manage the growing need for product testing according to specific conditions such as horizontal airflow.

Our Performance and Energy Efficiency Laboratory in Italy is a leading European testing operation. With our large, state-of-the-art climatic test chamber – specifically developed for professional and commercial refrigeration products – we can test the performance and efficiency of products under high-stress conditions.

## North America energy efficiency requirements and standards

Commercial refrigeration products to be sold in the U.S. are confronted with a changing regulatory landscape, from new U.S. Department of Energy (DOE) standards and greener refrigerant

alternatives required by the Environmental Protection Agency (EPA) to the introduction of alternative methods to calculate system efficiency and simulate refrigeration system performance for test purposes.

### North America regulatory and industry requirements

Mandatory DOE requirements: 10 CFR Part 431 Subpart C-Uniform test method for the measurement of energy consumption of commercial refrigerators, freezers and refrigerator-freezers. Tests must be conducted in an ISO/IEC 17025:2017 compliant laboratory.

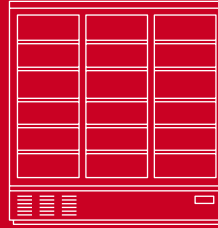
Voluntary Energy Star® Program Requirements for Commercial Refrigerators and Freezers – Eligibility Criteria Version 4.0

CAN/CSA-C657-04 – Energy Performance Standard for Refrigerated Display Cabinets

## European energy efficiency testing services

In order to keep pace with existing energy efficiency regulations, professional and commercial refrigeration products are subject to eco-design and energy labeling regulations published by the European community.

### Product in scope



## Commercial refrigerators

The regulations establish requirements for electric mains-operated refrigerating appliances with a direct sales function intended for displaying and selling of foodstuffs used in supermarkets, bars, shops and ice cream shops that imply an interaction with final consumers directly or with assisted serving.

Our team can help you understand the changing regulations and manage the growing need for product testing according to demanding test conditions such as horizontal airflow.

Refrigerated display cabinets  
Vending machines  
Ice cream freezers  
Ice cream scooping cabinets  
Commercial beverage coolers



## Professional refrigerators

Products under scope are professional refrigerated storage cabinets and counters intended for the storage of foodstuffs or animal feed in nonhousehold environments, such as commercial kitchens, hospitals, canteens and preparation areas in bars, bakeries, ice cream shops, institutional catering establishments and similar that imply an interaction with professional operators such as chefs, barmen and ice cream makers.

Vertical cabinets  
Horizontal counters

Energy efficiency regulation

(EU) 2019/2018

(EU) 2015/1094

Eco-design regulation

(EU) 2019/2024

(EU) 2015/1095

Entry force date

March 1, 2021

July 1, 2016

Standard

EN ISO 23953-1/2:2015  
EN 50597:2018  
EN 16901  
EN 16902

EN ISO 22041:  
2019/A1:2019



# A smart ecosystem



## What is a smart ecosystem?

Known as the Internet of Things (IoT), a new generation of network-connected products has raised consumer expectations in terms of a product's capability and functionality. To remain competitive, manufacturers may need to integrate complex new technologies into their product designs. At the same time, they must meet both performance expectations and compliance standards while minimizing potential cybersecurity risks.

Through third-party testing for connectivity, interoperability and cybersecurity, you can bring your products safely into smart ecosystems while your customers and consumers can be confident that your product has undergone rigorous evaluation for security flaws and performs as expected in today's connected ecosystem.

## Connectivity and interoperability services

We can conduct individual IoT testing or create a test plan for all use cases in real-world situations, allowing you to manage the risks and complex requirements of connected technologies. Our testing confirms if your product meets the applicable requirements, including interoperability. We will work side-by-side with your engineering team to develop internal protocols and test plans that meet your specific needs. Our facilities offer comprehensive testing, certification and advisory services for:

- Software performance
- Connectivity of wireless products
- Interoperability
- Usability to help ensure products connect to other devices and function in the way consumers expect

We can support the main and most used technologies, such as:

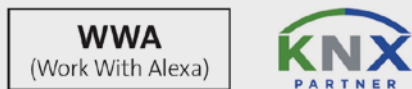
- Bluetooth
- Wi-Fi
- Thread
- Zigbee
- 5G
- Open Connectivity Foundation (OCF)
- Radio Frequency (RF)
- Works with Alexa (WWA)
- KNX (building automation)

## EMC and RED testing services

Our European network of dedicated test facilities for EMC provides comprehensive and cost-effective assessments of electronically controlled appliances and other electronic devices that must comply with EMC regulations. Our state-of-the-art facilities empower us to offer an efficient EMC testing service to meet your time-to-market requirements. We can customize the EMC testing process and documentation to your specific requirements by using automated software that improves process efficiency, analyzes results, and reduces test cycles and costs.

Our EMC laboratories are recognized:

- Notified Body for EMC (2014/30/EU) and RED (2014/53/EU) Directives for Europe
- Telecommunication Certification Bodies (TCBs) for the U.S. Federal Communications Commission (FCC)
- Foreign Certification Bodies (FCBs) for Canada







## Cybersecurity services

According to Strategy Analytics, 38.6 billion devices will be connected by 2025, and 50 billion by 2030. However, while manufacturers are eager to go to market with IoT products, building security measures into these devices often remains an afterthought. IoT cybersecurity for connected products is a major risk that impacts manufacturers, suppliers and end-application users.

Our IoT Security Rating is the world's first security verification and labeling solution for consumer IoT products. The goal is to make security transparent and accessible, while supporting consumers in making purchasing decisions. The IoT Security Rating offers manufacturers and distributors a means to demonstrate IoT security for compliance and differentiation in the marketplace via a Verified security label. In the security sector, we also provide multiple services and can customize them according to the specific needs of each manufacturer, including:

### Advisory and training services

- Training on security by design
- Secure Development Lifecycle (SDL) gap analysis
- Security framework assessment
- Supplier Cyber Trust Level

### Certifications

- IoT Security Rating
- UL 2900: the Standard for Software Cybersecurity for Network-Connectable Products, Part 1: General Requirements
- IEC 62443
- UL Cybersecurity Assurance Program (UL CAP)
- Interoperability with Amazon Alexa Voice Service (AVS)

### Testing

- Penetration
- Vulnerability evaluation
- White-box
- Black-box
- Device-to-device
- End-to-end
- Out-of-box experience



**Claim module**  
Customizable claim language  
that highlights performance.



**Basic Verification Mark**  
Indicates that the claim  
has been tested and  
Verified by UL Solutions.

**Unique identifier**  
Enables users to look up  
more information about  
your specific claim on the  
UL Verify site, [Verify.UL.com](https://www.verify.UL.com).

**It's time to add credibility to  
your claims with the UL Verified Mark.**  
To learn more, visit [VerifyUL.com](https://www.verify.UL.com).

## Customized test protocols

When you need to test a product to specific, identified internal protocols or identify and verify the performance of new products, our team of highly specialized engineers can assist you with their exceptional experience in the appliances industry. You can also benefit from a range of training and advisory services developed for certification and testing engineers, product developers and compliance professionals.

## Marketing Claim Verification

In today's highly connected, transparent marketplace, verification of marketing claims plays a crucial role in the decision-making process of buyers and consumers. Performance verification testing opens up a world of new opportunities that can help manufacturers get an advantage over the competition by bringing credibility to a specific promotional statement. The UL Marketing Claim Verification Mark is a marketing tool that confirms the accuracy of marketing claims — thanks to our science-based, customized assessment — and delivers the confidence that your marketing claim is accurate, truthful and credible.

A UL Verification program can be created for a product, process, system or facility. We can test to any published standard or even develop new test methods with you.

## UL Energy Verification Mark

It's important not only to say your products are energy-efficient but also to help consumers believe your energy efficiency claims. Our UL Energy Verification Mark shows buyers that your claims have been verified by a trusted source and can help improve your brand image and enhance your credibility.

The UL Energy Verification Mark (Mark with Leaf) addresses compliance with testing regulation/procedures of any energy efficiency scheme, e.g., DOE, European Energy Efficiency (EE) Label, other mandatory or voluntary EE schemes, etc. The Mark adds trust and confidence in your energy efficiency testing and claims, due to the use of a trusted, independent third party: UL Solutions.



# Additional services and digital tools

## Sanitation testing services and the EPH Mark

In addition to providing the well-known UL EPH Mark, we offer sanitation testing for commercial appliances, food service and catering equipment intended for the North American market.

We are an American National Standards Institute (ANSI)-accredited certification body for many NSF standards and can support you with laboratories in Europe and the U.S. to test products such as:

- Commercial refrigerators and freezers – NSF 7
- Dispensing freezers (ice cream and gelato machines) – NSF 6
- Food and beverage dispensers – NSF 18
- Automatic ice-making equipment – NSF 12
- Vending machines for food and beverages – NSF 25
- Special purpose food equipment and devices – NSF 169

## Advisory services

Our advisory services deliver end-to-end solutions that empower customers to identify new opportunities, fully leverage their core competencies and achieve their business objectives. When you need guidance on industry standards, you can leverage our expertise to gain the knowledge and resources to reduce development time and increase speed to market.

## Digital Tools

**myUL® Client Portal:** A secure source for access to your UL Solutions projects, documents and services. With myUL, you can:

- Gain full visibility into quotes, orders and projects
- See when we received product samples and when they have been returned, picked up, destroyed or archived
- View UL Solutions reports, procedures and global certifications
- Identify the companies responsible for your products
- View the date, factory representative, type of product inspected, type of business, inspection center and any variation notices linked to your reports

**ProductIQ.UL.com:** Product iQ certifications platform (formerly the UL Online Certifications Directory) contains UL Listed, Classified or Recognized products and components. This advanced search engine creates premium value for users by helping them to identify safer, more compliant products and promote their UL Certified products to potential buyers. Product iQ is a valuable resource for thousands of regulatory authorities, building owners and insurance companies.

# AutoQuotes (AQ)

## Product platform for the food service equipment and supplies industry.

For over 30 years, AQ has been the most trusted and most used platform for manufacturers to list products and increase sales. With tens of thousands of users who use AQ software to configure, price and quote products, as well as integrate them into designs, listing your products on AQ is the No. 1 way to break into the North American or U.K. markets.

Together, UL Solutions and AQ have partnered to bring access to the Commercial Food Service Equipment (FSE) Market in North America and Europe.

Now, you can certify your products with UL Solutions to help ensure they meet proper standards and automatically list them in AQ to get immediate sales results in North America and Europe.

For more information, visit [aq-fes.com](http://aq-fes.com).



For more information contact our:

EU sales team: [EUSalesSupport.HALC@UL.com](mailto:EUSalesSupport.HALC@UL.com)

EU customer service: [AppliancesLighting.EU@UL.com](mailto:AppliancesLighting.EU@UL.com)

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