Appliance makers trust UL Solutions for cybersecurity services

IEC 60335-1 ed. 6 new cybersecurity requirements for connected household appliances

Technological advancements in the design of household appliances in the smart space have made product safety more important than ever. Modern home and commercial appliances incorporate a variety of electronic circuits and software components used for safety control functions, as well as new consumer experiences empowered by connectivity- and interoperability-enhanced product features.

IEC 60335-1 edition 6, published in September 2020, covers expanded safety risks of emerging home appliance technology. Among other measures, IEC 60335-1 ed. 6 deals with new safety risks that arise at the moment these products connect to public networks.

Specifically, the new cybersecurity requirements introduced in the new normative Annex U extend the software safety requirements (already included in IEC 60335-1 edition 5 Annex R) by demanding the adoption of cryptographic techniques to mitigate safety risks related to unauthorized access and transmission failures via remote communication through public networks.

Safety risks related to unauthorized access may appear very abstract to manufacturers and consumers.

But imagine what could happen if a hacker were to remotely gain access to an operating smart connected oven and unlock the door during its self-cleaning function. This could result in a severe human injury risk, one among many that manufacturers must properly and proactively address.

Several parts of the IEC 60335 series have already been updated to edition 6. Therefore, Annex U requirements have already become mandatory for some connected appliances, such as those in scope of IEC 60335-2-42, IEC 60335-2-36, IEC 60335-2-99, IEC 60335-2-64 and others.

To which products is Annex U of IEC 60335-1 edition 6 applicable?

Annex U applies to appliances equipped with connectivity capabilities, such as Wi-Fi, Bluetooth and LAN, that connect to public networks for software download or for transmission of safety-related data. Applicability extends to products where safety control software is not connected to public networks but still not properly isolated by other software in scope of Annex U.

In addition to the IEC 60730 standard series, automated household electronic controls embedded into appliances are required to be evaluated with respect to relevant requirements of IEC 60335-1 edition 6 and relevant 2-parts, and as such to parts of Annex U, when connected.

UL Solutions

How does UL Solutions assist manufacturers during their design, development and certification processes?

UL Solutions engineering experts hold leadership roles in IEC technical committees TC 72 and TC 61, which have responsibility for developing requirements in the IEC 60730 and IEC 60335 series of standards, respectively.

This places UL Solutions in an optimal position to support appliance and HVAC manufacturers by clarifying the new cryptography requirements mandated by the IEC 60335-1 edition 6 Annex U, helping to evaluate Annex U applicability and gaps on specific product concepts or prototypes, assessing Annex U products, and providing certification of compliance to IEC 60335 series for the second parts updated to IEC 60335-1 edition 6.

Our services include:

- Training on Annex U of IEC 60335-1 edition 6.
- Advisory and/or gap analysis on concepts/prototypes with respect to IEC 60335-1 edition 6, including, but not limited to, Annex U.
- Assessment of product readiness to satisfy IEC 60335-1 edition 6 Annex U requirements.
- Product certification to IEC 60335 series of standards update to IEC 60335-1 edition 6.

Why UL Solutions?

A global leader in applied safety science, UL Solutions transforms safety, security, and sustainability challenges into opportunities for customers in more than 100 countries. UL Solutions delivers testing, inspection and certification services, together with software products and advisory offerings, that support our customers' product innovation and business growth.

UL Solutions offers:

- Professional product safety certification services for global market access.
- Early engagement with standard training, advisory and/or gap analysis, which reduces product-development timelines.
- IECEE CB Scheme's Customer Testing Facility (CTF) program and UL Solutions Data Acceptance Program (DAP), allowing manufacturers to test products at their in-house laboratories.

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AHL22CS531457