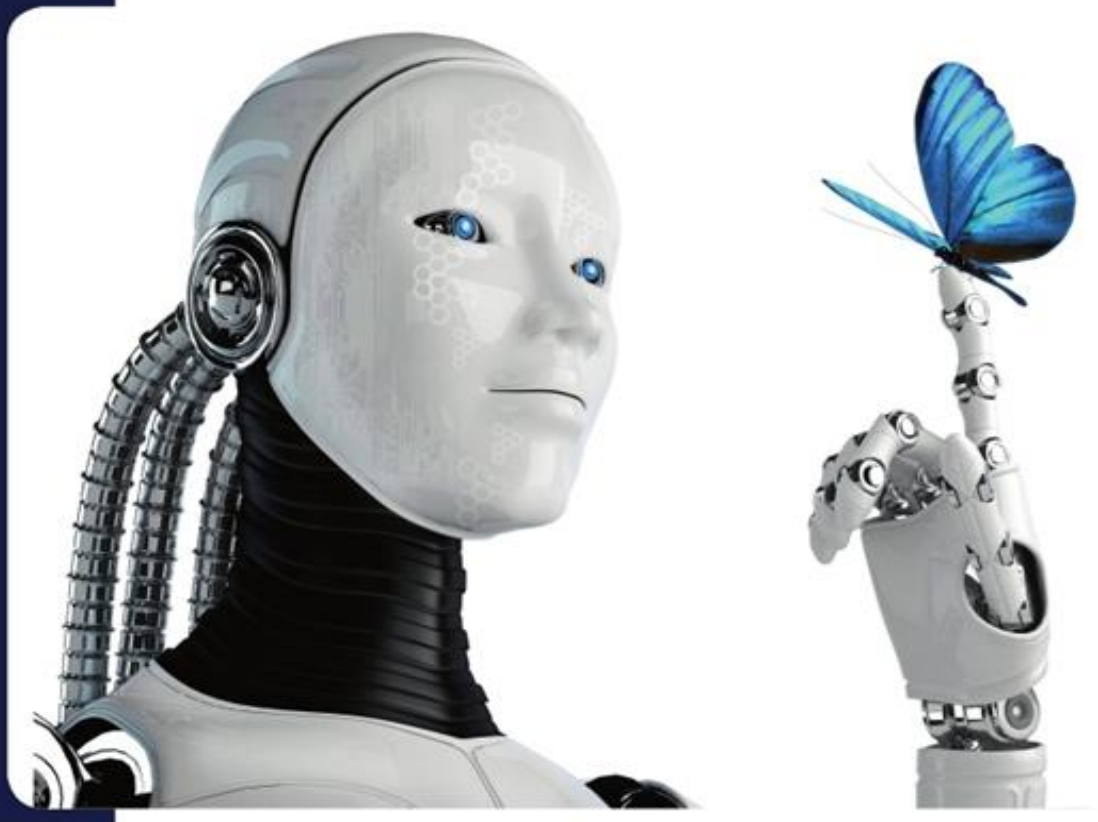
Newsletter
June, 2025

ICR



Address :3611, Hagun-ri, Yangchon-eup, Gimpo-si, Gyeonggi-do , South Korea (10048)
Company Id No : 110111-243147
Tax & VAT Id No : 105-86-35114
Tel : (+82)2-6351-9001~5 / Fax : (+82)2-6351-9007
Home page : www.icrqa.com

Hot Issue

1. Signing of the MoU between ICR and KEMA
2. The Automotive EMC chamber expansion
3. The CE/RED cybersecurity seminar was held
4. IEC 60079-14:2024 Edition 6.0 Revisions
5. Electric vehicle batteries
   Thermal propagation_GTR No. 20

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Signing of the MoU between ICR and KEMA

▣ Signing of MoU between ICR and KEMA

On April 30, 2025 ICR signed a MOU with the Korea smart e-Mobility Association (KEMA) at the main conference hall of the Yeonggwang Knowledge Industry Center in Jeollanam-do.

This agreement aims to **strengthen the strategic partnership** between the two organizations through expanded cooperation and information exchange in the field of testing and certification, as well as support for member companies. It ultimately seeks to enhance **the global competitiveness of Korea's smart e-mobility industry.**

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Signing of the MoU between ICR and KEMA

▣ KEMA(Korea smart E-Mobility Association)

The Korea smart e-Mobility Association (KEMA) is a non-profit organization established in 2017 to foster the domestic smart e-mobility industry and enhance global competitiveness through technological cooperation among small and medium-sized enterprises.

The association contributes to industrial development by promoting collaboration between the public and private sectors through research, studies, consulting, knowledge dissemination, and international cooperation activities related to smart e-mobility policies and technologies.

▣ Key Details of the Agreement

- ❖ Exchange of testing and certification information related to e-mobility.
- ❖ Support for small and medium-sized enterprises through certification cost benefits.
- ❖ Joint seminars and policy cooperation between the two organizations.

Signing of the MoU between ICR and KEMA

▣ **ICR** will continue to fulfill its role as a trusted **global partner in the field of testing and certification for the smart e-mobility industry.**

☎ **Inquiries**
Sales / Lim, Jae-Young
T. 070-5083-7909 / jylim@icrqa.com

The Automotive EMC chamber expansion

▣ The Automotive EMC chamber has been expanded.

ICR has expanded the Automotive EMC chamber to meet the increasing demand for EMC testing of Automotive components.

▣ Details

1) Testing items: RE, CE, BCI, PT, MFI

2) Specifications

- Chamber size: 6.40 m X 5.95 m X 3.52 m (W X D X H)
- Absorber: TDK (IP030C)
- Ferrite tile: TODA materials

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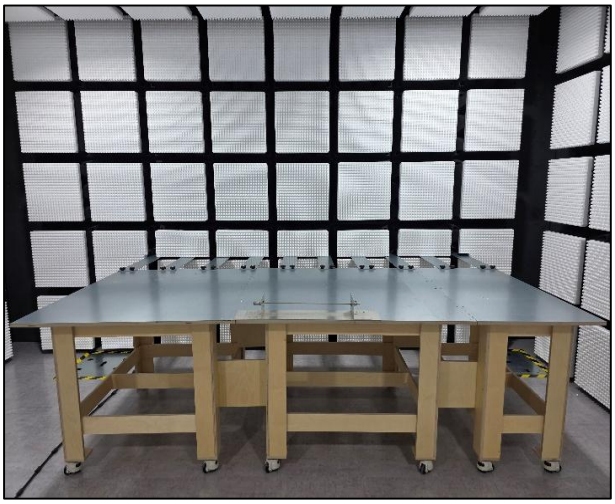
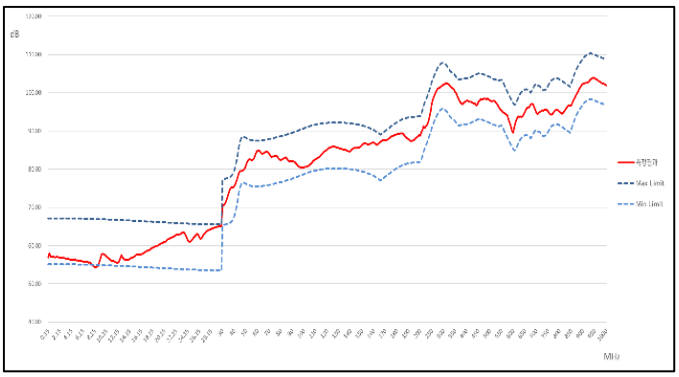
Automotive EMC chamber expansion

▣ Automotive EMC Chamber

[The exterior]



[The interior]



[Chamber validation data]

☎ Inquiries

Mobility Center/ Im, Dae-Hyun

T. 070-5083-7908 / terry.im@icrqa.com

The CE/RED cybersecurity seminar was held

▣ ICR held a CE/RED Cybersecurity seminar

Starting August 1, 2025, most of radio devices placed on the European market must comply with **the European Union Radio Equipment Directive cybersecurity requirements.**

On May 21, 2025, **ICR held a seminar inviting certification and testing experts** to prepare a cybersecurity response strategy as required by the European Radio Equipment Directive.

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The CE/RED cybersecurity seminar was held

Attended by practitioners from testing laboratories and manufacturers interested in CE/RED, RED experts from ICR Polska (Notified Body No. 2703) and KOTCA Cybersecurity Testing expert gave lectures on **cybersecurity conformity assessment procedures and cybersecurity testing according to European EN standards.** It was a meaningful event to share practical information and enhance professionalism.

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The CE/RED cybersecurity seminar was held

▣ ICR Polska(Notified Body No.2703)

As a KOLAS-accredited national testing laboratory, **ICR performs Radio Equipment testing and provide one-stop certification services with ICR Polska, the EU Notified Body.**

☎ Inquiries
Sales / Lim, Jae-Young
T. 070-5083-7909 / jylim@icrqa.com

☎ Inquiries
EMC&RF Test Center / Won, Yong-Min
T. 070-5083-2642 / ymwon@icrqa.com

IEC 60079-14:2024 Edition 6.0 Revisions

▣ IEC 60079-14:2024 revisions of edition 6.0

This standard is a core standard that specifies detailed requirements for the design, selection, installation, and initial inspection of electrical installations in explosive atmospheres. There have been significant changes compared to the previous edition(IEC 60079-14:2013 Ed 5.0).

▣ Detailed technical changes

1) Minor change

Clause	Detail Information
6.14.3.3	- Intrinsically safe circuit with only one source of power with linear characteristic Regarding the application of the 1% rule for lumped inductance and capacitance, it is clarified to make users aware that the application of permissible pairs should be considered first. If that is not possible, then the 1% rule should be applied.
7.4	- Selection of cables Clause 9.3.2 regarding cable requirements in the previous edition (IEC 60079-14:2013) has been revised to cover only the minimum necessary aspects.
8.3	- Entry devices and other fittings Modifications have been made to the application of adapters and reducers to ensure compliance with product standard requirements.

IEC 60079-14:2024
Edition 6.0 Revisions

2) Extension

Clause	Detail Information
4.3.6	- Regarding the use of RFID tags Requirements for the use of RFID tags have been strengthened. The manufacturer of the RFID tag has to demonstrate and document that there is no explosion hazard.
6.7.3.4 b)	- Electrical machines with converter supply Additionally to the use of a certified combination of an electrical machine in Type of Protection “eb" together with the converter, an electrical machine in the Type of Protection "eb" (type tested for converter supply) can be operated with an unspecified type of converter.

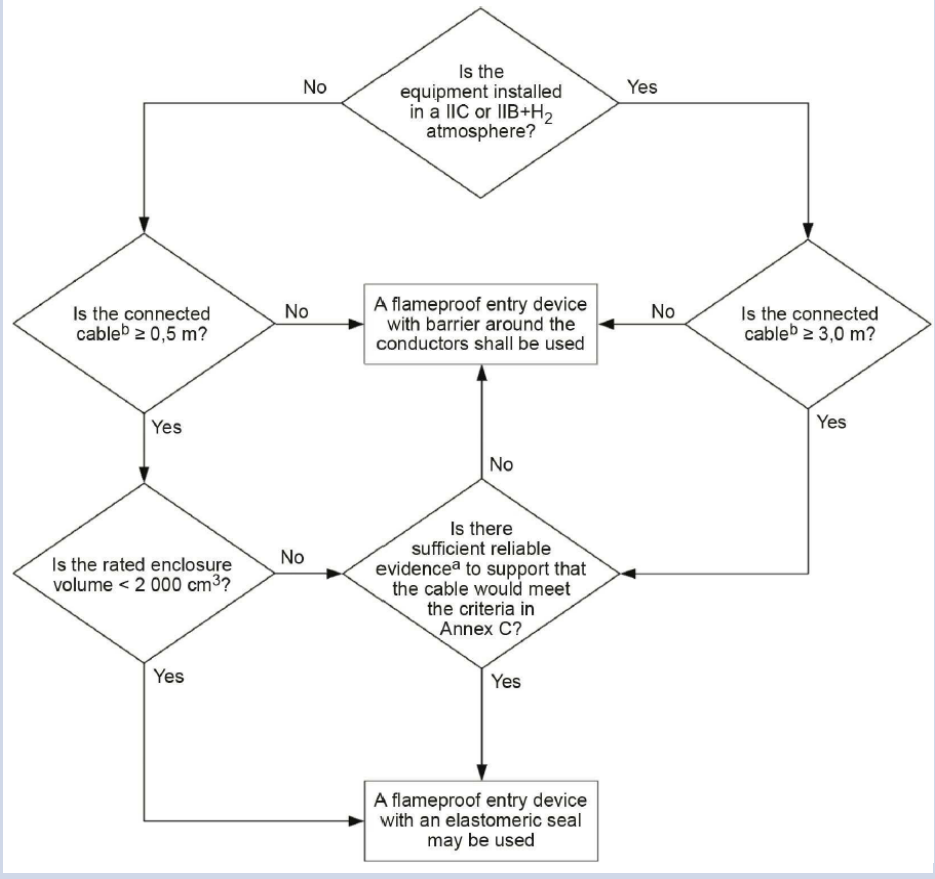
IEC 60079-14:2024
Edition 6.0 Revisions

3) Major change

Clause	Detail Information
Scope	- Change in the standard's title Emphasis on the importance of initial inspection / Sections such as Design, Selection, Installation of equipment, and Initial inspection are now distinct to provide clearer guidelines.
6.14.11 Annex Q	- Simple apparatus Requirements for Simple apparatus have been aligned with IEC 60079-11 / Annex Q regarding simple apparatus has been added.
Annex C	Addition of a cable pressure test procedure for cables used in flameproof enclosures.
Annex O	- Addition of an initial inspection checklist, partially excerpted from IEC 60079-17. Strengthened post-installation safety verification. Development and utilization of a site-customized initial inspection checklist.

IEC 60079-14:2024
Edition 6.0 Revisions

3) Major change

Clause	Detail Information
7.5.7	- Addition of a new Flow Chart (Figure 2) for cable entry devices used in flameproof enclosures. Revision of the flowchart to consider the equipment group, cable length, and enclosures with a volume of 2 000 ㎤ or less. 

IEC 60079-14:2024
Edition 6.0 Revisions

▣ Provide explosion-proof certification solution proposals and consultations.

ICR Explosion-Proof engineers holding IECEx CoPC qualifications, offers tailored solutions and consulting services through the **Hazardous area classification** (Unit Ex 002), the **Ex equipment Design/Installation** (Unit Ex 009), the **Basic knowledge of the safety of hydrogen systems** (Unit Ex 011) and the installation of **IEC 60079-14:2024 Ed 6.0**.

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☎ Inquiries

Industrial Safety Center / Seo, Ho-Yeong

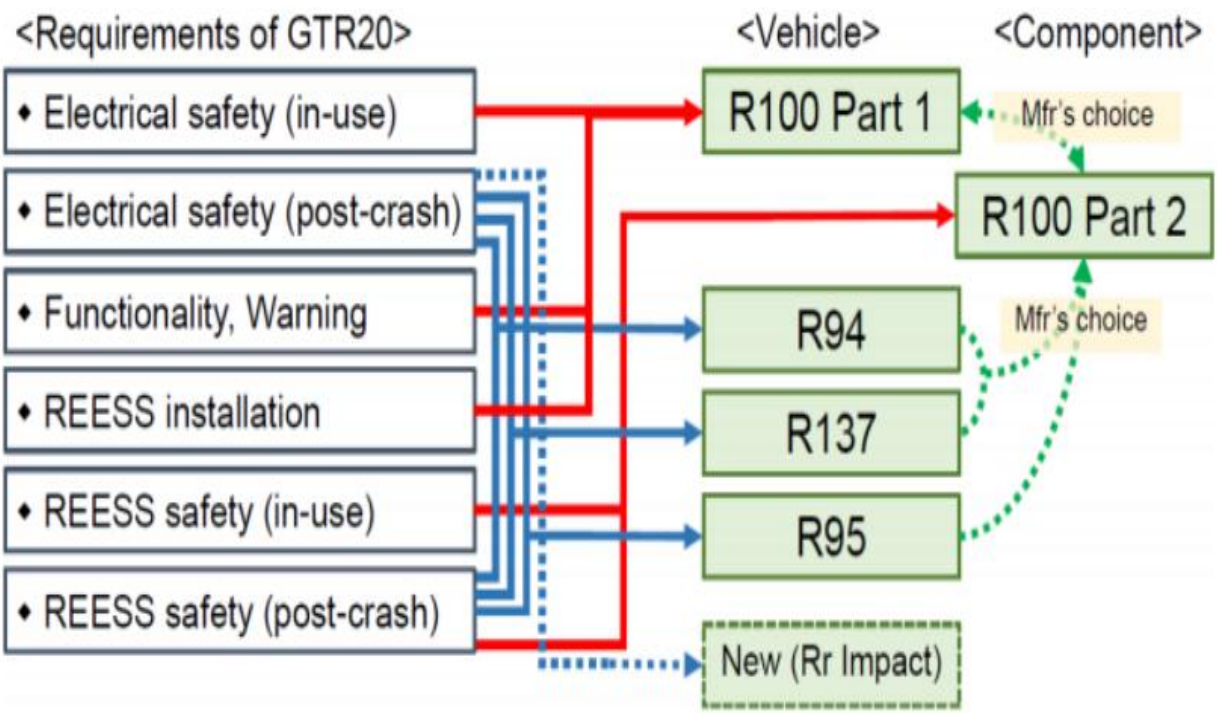
T.070-5083-2639 / hys@icrqa.com

Electric vehicle batteries
Thermal propagation_GTR No. 20

▣ GTR No. 20

GTR(Global Technical Regulation) is an international regulation that sets safety standards for electric vehicle batteries as part of the UN' global technology regulation.

Among them, **GTR No. 20** covers **Electric Vehicle Safety** and reflects the settings of **UN ECE R 100**.



[GTR No. 20]

Electric vehicle batteries
Thermal propagation_GTR No. 20

▣ Thermal runaway method

1) Nail penetration

2) Heating

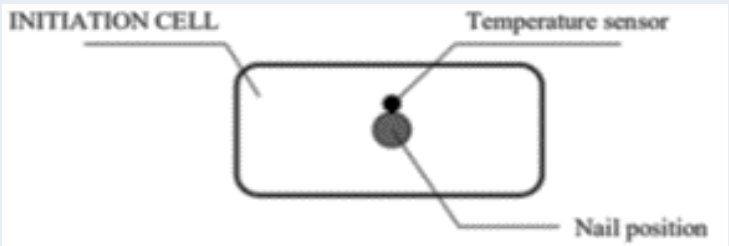
3) Overcharge

4) - If one of the three procedures is conducted and thermal runaway does not occur: proceed with the remaining two procedures.

- If one of the three procedures is conducted and thermal runaway does occur: no external fire or explosion shall occur within 5 minutes.

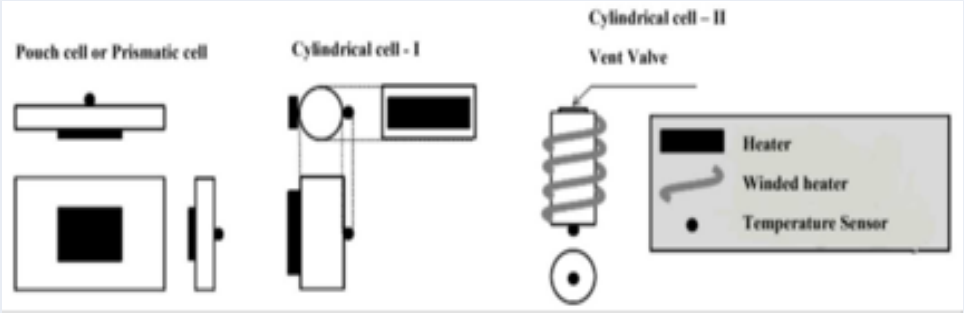
▣ Detailed test method

1) Nail penetration

Initial SOC	Maximum SOC by manufacturer-specified
Material	Steel
Diameter	3 mm or more
Shape of tip	Circular cone, Angle 20 ~ 60 °
Speed	0.1 ~ 10 mm/s
Position and direction	Select the position and direction where causing a thermal runaway in a cell is possible (e.g. in vertical direction to electrode layer) 

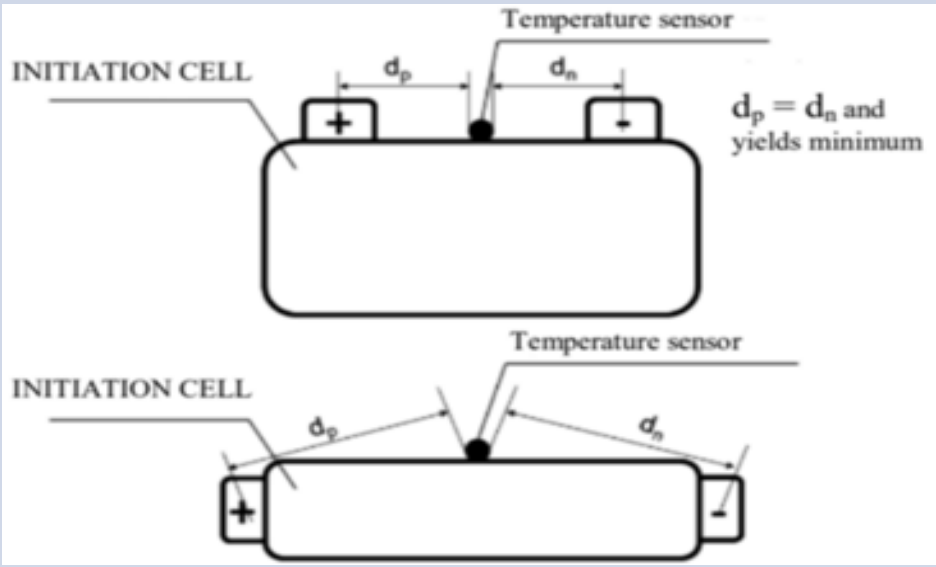
Electric vehicle batteries
Thermal propagation_GTR No. 20

2) Heating

Initial SOC	Maximum SOC by manufacturer-specified
Shape	Planate or rod heater covered with ceramics, metal or insulator shall be used. Heating area of heater contacting the cell shall not be larger than area of cell surface wherever possible.
Heating procedure	After installation the heater should be heated up to its maximum power. Stop the initiation when the thermal runaway occurs or the measured temperature following 23B.3.2 is over [300]. The stop of initiation by heating should be reached within [30min].
Set position	

Electric vehicle batteries
Thermal propagation_GTR No. 20

3) Overcharge

Initial SOC	Maximum SOC by manufacturer-specified
Procedure	The initiation cell is overcharged at a constant current (1/3C~1C-rate, provided by manufacturer). Contiune charging until thermal runaway occurs or the SOC of the initiation cell reaches 200 per cent SOC. Any other cells in the battery system shall not be overcharged.
Sensor position	

Electric vehicle batteries
Thermal propagation_GTR No. 20

▣ Method for Confirming Thermal Runaway Occurrence

1) The measured voltage of the initiation cell drops.

2) The measured temperature exceeds [the maximum operating temperature defined by the manufacturer.

3) dT/dt ≥ [1 °C/s] of the measured temperature.
(where T is temperature, t is time)

❖ **1) and 2)** are all detected, or **2) and 3)** are all deticted.

▣ ICR KOLAS-accredited national testing laboratory

As a KOLAS accredited national laboratory, in addition to thermal propagation testing, **ICR Battery Testing Center** offers high-risk tests that may involve fire or explosion during testing, such as external short-circuit, compression, penetration, drop, and immersion tests in the safe environment of a large explosion-proof room.

If you have any questions about battery test, please feel free to contact us.

☎ Inquiries

Battery Testing Center / Park, Young-Ho
T. 02-6351-9003 / youngho.park@icrqa.com