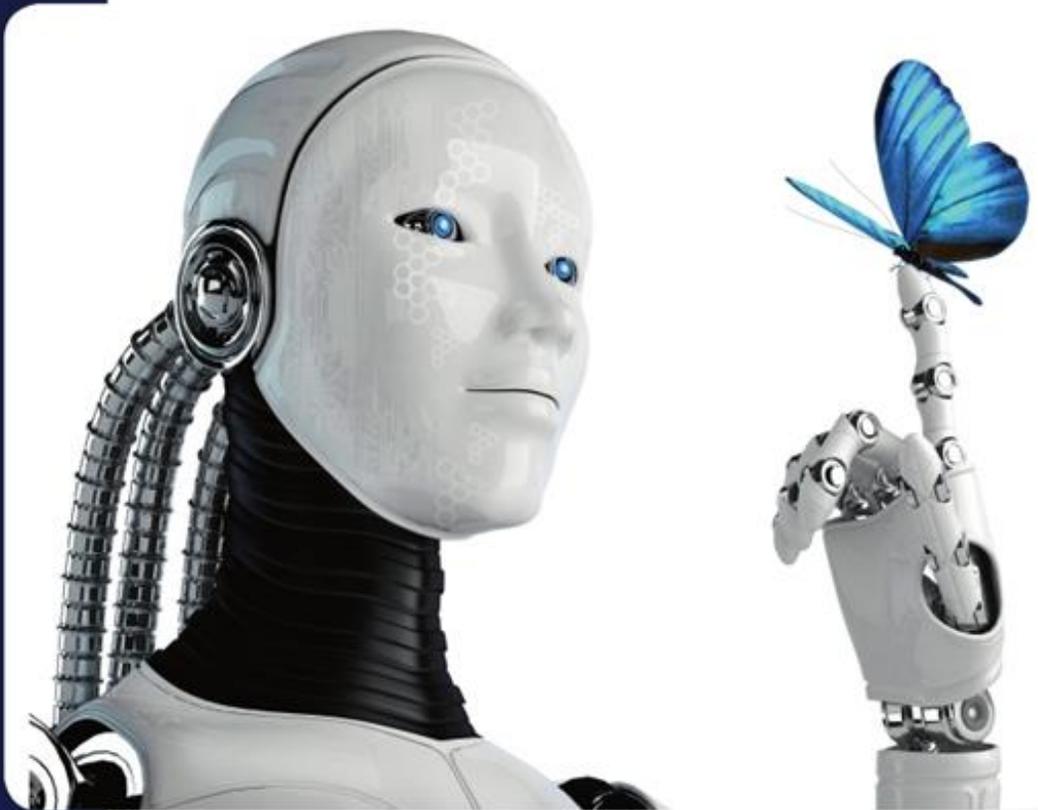


Newsletter February, 2018



ICR



Hot Issue

1. Recognition of EMC Compliance by Hyundai Motor Group
2. Expansion of KOLAS scope of accreditation
3. Status of autonomous driving IT companies
4. Status of self-driven car makers
5. Q/A about the conformity assessment system
6. System certification division customer satisfaction review and evaluation
7. Next generation communication technology 'Li-Fi'



Recognition of EMC Compliance



HYUNDAI
MOTOR GROUP

Recognition of EMC Compliance

Hyundai Motor Group recognize EMC test results for the Electric & Electronics parts from ICR Co., Ltd. restrict to the test items of the specification which are specified as below.

Information of EMC Test Laboratory _____

Name of company ICR Co., Ltd.
Representative Deok-yong Kim
Address 112, Hwanggeum 3-ro 7beon-gil, Yangchon-eup, Gimpo-si, Gyeonggi-do, Korea

EMC specification _____

Title of spec Electromagnetic Compatibility Specification
Spec No ES96200-00

EMC test items _____

Radiated Immunity Bulk Current Injection Test (BCI)
Absorber-Lined Shielded Enclosure Test (ALSE)
GSM / OBT Test

Radiated Emission Radiated Emission Test
Conducted Emission on Power / Signal Line Test

Magnetic Field Magnetic Field Immunity Test
Magnetic Field Emission Test

Transient Transient Immunity on Power / Signal Line Test
Voltage Transient Emission Test

ESD Electrostatic Discharge Test

January 24, 2018

Dong-il Park

Senior Vice President
Electronics Technology Center

Electronics Technology Center, Hyundai Motor Group

Recognition of EMC Compliance



At 24th January 2018, The ICR obtained the Recognition of EMC Compliance for the Electric & Electrics parts form **HYUNDAI Motor Group**.

Base on this, the ICR provides the standard applies to any **electronic/electrical component intended for use in vehicles**, and recognition service for HKMC Engineering Standard, So please pay a lot of attention.

CISPR25

- Radiated Emission
- Conducted Emission Voltage Method
- Conducted Emission Current Method

- ISO 11452-2, ALSE Radiated Immunity
- ISO 11452-4, BCI Conducted Immunity
- ISO 11452-8, MFI Radiated Immunity
- ISO 7637-2, Transient Immunity/Emission Power line
- ISO 7637-3, Transient Immunity signal line
- ISO 10605, ESD
- ES96200-00, GSM/무전기 주파수 내성 시험
- MIL-STD-461F RE101, MFE Radiated Emission

Expansion of KOLAS scope of accreditation



Korea Laboratory Accreditation Scheme

CERTIFICATE OF ACCREDITATION

ICR Co., Ltd.

Accreditation No. : KT652

Corporation Registration No. : 110111-2431479

Address of Laboratory : 112, Hwanggeum 3-ro 7beon-gil Yangchon-eup, Gimpo-si,
Gyeonggi-do

date of Initial Accreditation : January 16, 2015

Duration : January 16, 2015 ~ January 15, 2019

Scope of Accreditation : Attached Annex

Date of issue : January 19, 2018

This testing laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025 : 2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated 8 January 2009).



Hee Nam Yong

Administrator

Korea Laboratory Accreditation Scheme

Korea Laboratory Accreditation Scheme(KOLAS) is a signatory of the ILAC mutual recognition arrangement



Expansion of KOLAS scope of accreditation

Our ICR informs you that we have extended the **KOLAS** scope of accreditation on 19th January 2018. So, the ICR provide The standard applies to any electronic, electrical, and electromechanical equipment and subsystems, and recognition service for **MIL-STD-461 Series**.

03.011 Electromagnetic compatibility

Standard

- MIL-STD-461E:1999
- MIL-STD-461F:2007
- MIL-STD-461G:2015

Name of Test

: CE101, CE102, CS101, CS106, CS109, CS114,
CS115, CS116, RE101, RE102, RS101, RS103

Status of autonomous driving IT companies



1. Intel

Mobili Acquires \$ 15.3 Billion (Founded in 1999, Mobileye is headquartered in Israel and has world-class know-how and expertise in self-propelled collision detection systems and guidance software.

In particular, 'Road Experience Management (REM) platform' based on camera and position sensor technology necessary for autonomous driving is known as having a unique share in ADAS (Automated Driver Assistance Systems) field.

2. Endibia, Qualcomm, Weimo (Google)

3. Uber's autonomous drive vehicle

Uber acquired the autonomous drive taxi business development team and otto autonomous drive truck business team to establish Uber ATG, and is preparing the technology development and service of full-scale autonomous vehicle. In recent years, Volvo has been developing technology for the operation of uber services based on autonomous SUVs.

4. Nutonomy's autonomous car

Nutonomy, a research firm supported by the Singapore government, is a venture company consisting of MIT researchers, who is working to develop a taxi service provision technology in Singapore's Business Park.

The vehicles used by Nutonomy are Zero of Renault, or i-MiEV of Mitsubishi, and we are pursuing R & D aiming to expand to 2018 in Singapore.

5. Google (Autonomous Navigation Car)

Google recently launched Autonomous Driving Vehicle business in Waymo, "He said. Test coverage is in the Phoenix metropolitan area, including Chandler, Tempe, Mesa, and Gilbert areas. Google's technology is aimed at fully autonomous driving, and it uses the Radasensor to provide precise guidance along with pedestrians,

It is currently developing software for road users such as bicycles and other vehicles - currently in four test locations in the United States, and has traveled 3 million miles as of May 2017.

[Source] IT company development autonomous drive vehicle

Status of self-driven car makers



1. VOLVO

Unmanned vehicle prototype launched in Sweden in 2017 -> Plan to operate 100 unmanned vehicles on public roads by 2020

2. Mercedes-benz

Declared that it will be the first automobile company to put the autonomous driving function into the mass production vehicle by 2020

3. GM

The company plans to release a semi-autonomous car that can be freely changed by 2020 and run smoothly on rainy or snowy days.

4. TOYOTA

During the test on the highway (you can run on your own without manipulating the steering wheel or accelerator pedal.

At the intersection, the front sensor detects the car, pedestrians, obstacles and stops or runs by itself.

5. Audi

First unmanned vehicle license issued by the Nevada Automobile Authority in 2013. -> Continuous technology development. (Stop and go system, adaptive cruise control)

6. Ford

We are going to test autonomous driving at present

7. BMW

In 2009, the German Nürburgring Circuit tested 'highly automated running'.

The highly automated running, as BMW says, is the whole step of fully automatic driving.

Not only can you keep your lane, you can overtake, slow down, or respond to a signal yourself.

[Source] IT company development autonomous drive vehicle

Q/A about the conformity assessment system



- Q1** : If our company imports devices that have been evaluated by another laboratory, shall that product be evaluated for conformity assessment?
- A1** : If domestic and overseas manufacturers have received a domestic conformity assessment and have made a conformity assessment mark on the devices, they can import and sell the product without a conformity assessment. However, if domestic and foreign manufacturers conduct their own conformity assessment, the importer must assess conformity based on the product identity.
- Q2** : Do I need to have a conformity assessment if I make a large signboard assembled with a monitor that meets suitability?
- A2** : A large display board assembled with a monitor that has been evaluated for conformity is subject to conformity assessment.
(The large electric signboard is considered to have been suitably evaluated regardless of the number of modules if three or more modules are configured and tested.)
- Q3** : If a product that has verified conformity assessment changed the type of model, do I need to file the change?
- A3** : If a part of the product is changed and affects the type symbol, a conformity assessment shall be made. However, if the type symbol changes due to the change of the test items of the conformity assessment standard by implementing or adding new functions using the software without changing the hardware, and if the frequency or technique used changes without changing the hardware according to the frequency allocation, Available
- Q4** : Is it possible to apply a derivative model for a product with a derivative model?
- A4** : If you have a derivative model, you can apply at the same time as applying for conformity certification or compliance registration. Derivative models and electrical circuits / structures and additional document lists shall be attached.

[Source] <http://www.rra.go.kr> (National Radio Research Agency)

System certification division customer satisfaction review and evaluation



Customer Satisfaction review and evaluation is conducted for 2017 management system certified clients.

Organizations

: Randomly sampled certified organizations(200 organizations), which were audited for initial, surveillance, and recertification audit within from 1st January 2017 to 1st November 2017.

Purpose

- Trend analysis of industry for the improvement of ICR
- Evaluation for Auditor competency
- Domestic market analysis
- ICR service evaluation

System certification division customer satisfaction review and evaluation



[Customer Satisfaction Review]

No.	Questionnaire	Result
1	Are you guided for the audit procedures and criteria enough?	99.25
2	Do you think that the audit man-days are calculated appropriately for you?	80.5
3	Do you think that the audit plan and schedule were provided to you at an appropriate time so that you prepare the audit?	99
4	Did the audit team conduct the audit according to the audit plan that was provided you in advance?	99.75
5	Did the audit team keep the planned audit times?	100
6	When there are your requirements regarding audits, is it processed promptly?	98.75
7	Dose ICR answers kindly when you make a call?	100
8	Is the auditor's attitude courtesy to you?	99.5
9	Do you think the audit team is assigned to your departments appropriately?	98.25
10	Are your opinions and situations reflected appropriately during audit?	98.25
11	Do you think that auditor's findings are helpful for improving and development your system?	97
12	Do you think that the audit is conducted efficiently?	99
13	Do you think that the audit is conducted with meeting your expected effect and improving the values.	97.5



Evaluation Result

- Achieved high level(80 or higher) of satisfaction on every questionnaire
- However, the satisfaction rate for the audit day was relatively low(80.5), while the satisfaction rate of all questionnaires were over 90

Action of ICR

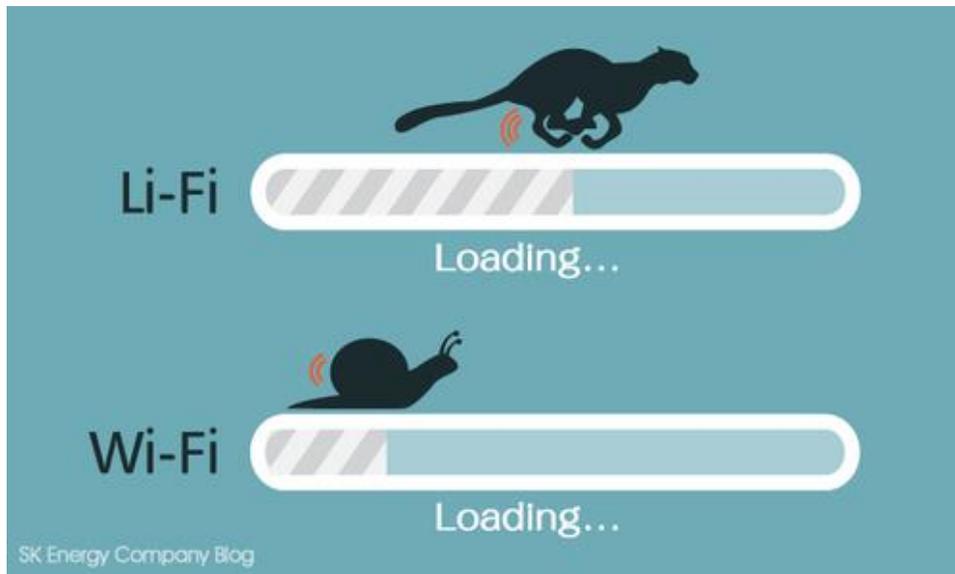
- Reviewed instruction for calculating the audit day, corrected mathematical errors, and improved the calculation method to systemize audit day calculation.

This is the speed of light!

Next-generation communication technology 'Li-Fi', 100 times faster than 'Wi-Fi'



When people go to a lot of cafes, even if they have Wi-Fi, they suffer from a bump. There are many routers installed in each store, but this is limited. However, if the technology to be introduced is commercialized, there will be no need for such a war. It is the story of the **next-generation communication device 'Li-Fi'**.



Li-Fi is an abbreviation of light-fidelity and was first proposed by Professor Harald Haas of Edinburgh, UK in 2011. The biggest difference from the Wi-Fi (Wireless Fidelity) that we are using now is the data transmission method using visible light instead of radio wave or infrared.

Li-Fi has several important advantages in that it uses light. Since it can communicate with **LED illumination** which can not be confirmed with naked eye, data transmission can be smoothly performed **even at a very low brightness**.

Next, the great advantage of Li-Fi is that data transmission is **fast** at the speed of light. It is 100 times faster than Wi-Fi and 66 times faster than LTE. The reason is that the current wireless communication uses frequencies between 300 MHz and 30 GHz, but the frequency of Li-fi is **80 THz ~ 750 THz**, which is **10,000 times wider** than the existing radio frequency.

This is the speed of light!

Next-generation communication technology 'Li-Fi', 100 times faster than 'Wi-Fi'



This wide frequency range can **solve the frequency shortage in areas and places** where data use is high. And most of all, it is **harmless to the human body** because **electromagnetic wave is not generated**. Despite these advantages, however, commercialization has been delayed until now.

The reason for this is that it is difficult to miniaturize the **transceiver** that receives the LED light, and it is possible to communicate only in the place where the light reaches.

Moreover, when exposed to direct sunlight, transmission and reception of data is unstable, so that it can be used only in a large space of a room. In addition Li-Fi signals cannot pass through walls, so in order to enjoy full connectivity, capable LED bulbs will need to be placed throughout the room.

Not to mention, Li-Fi requires the light bulb is on at all times to provide connectivity, meaning that the lights will need to be on during the day.

But if you look at the current situation, commercialization does not seem to take so long. At **Mobile World Congress** this year, it showed the possibility of miniaturizing the transceiver by introducing a transceiver which is reduced to 1/5 size.

This is the speed of light!

Next-generation communication technology 'Li-Fi', 100 times faster than 'Wi-Fi'



LED light bulbs, which are important in the commercialization of Li-Fi technology, have already been widely used in everyday life and are being developed as steps for precisely controlling light.

If you use LED bulb light for communication, there is no reason to shut down communication unless you intentionally enter into the shadow. In addition, there is no need to install large and expensive base stations to make micro waves.

At present, Li-Fi is continuously developing necessary technologies for commercialization and It was reported that Li-Fi was being tested **in Dubai by telecommunications provider, du and Zero1**. Du claimed to have successfully provided internet, audio and video streaming over a Li-Fi connection.

On the other hand, communication technology using radio waves is taking the lead in 5G development behind LTE, which is called 4G. Human beings are looking at the seesaw game of these two communication technologies. It is hoped that the technology will be commercialized successfully and will make our daily life convenient.



www.icrqa.com

ICRO-31/R20161125 본 문서는 법률 제 14088호 저작권법의 보호대상이며, ICR의 지적 자산으로 불법 편집 및 복사를 금합니다.

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