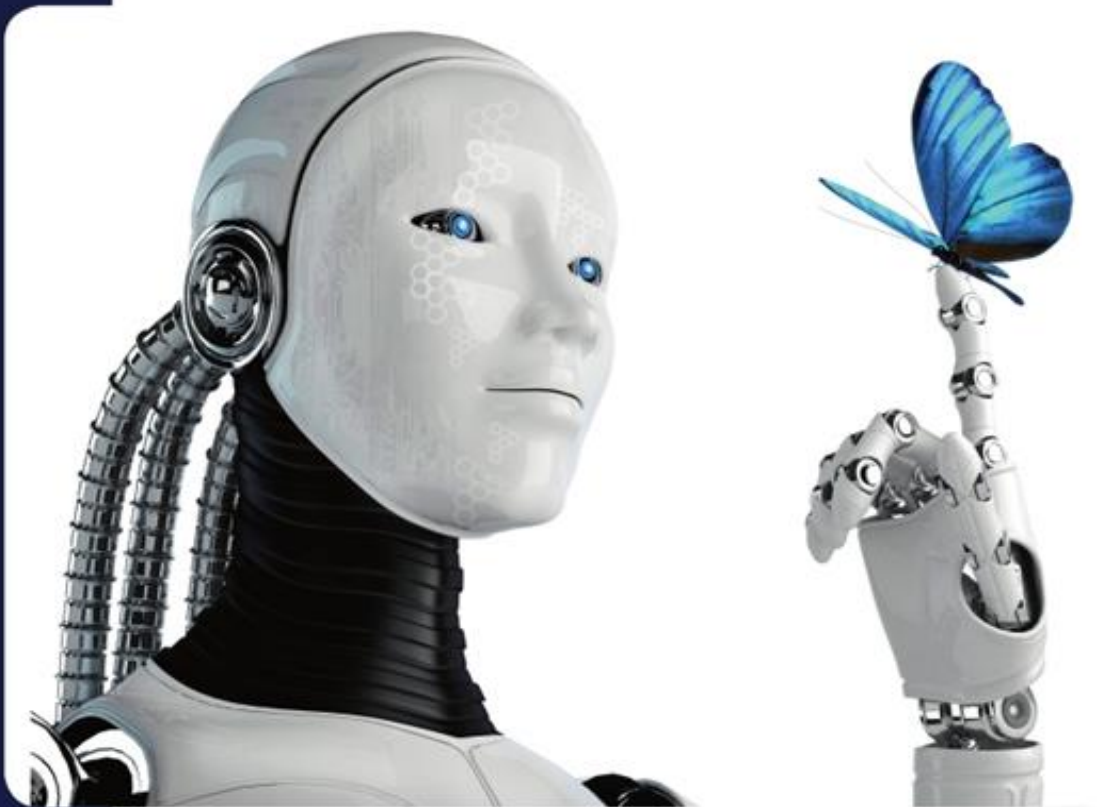


Newsletter

September, 2021



ICR



목 차

1. SEMI 안전표준교육 2021
2. ISO 37001 부패방지경영시스템
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5. 시중 유통 의료기기의 안전관리 강화
6. 지정 표준: EMC – 2021년 1월 1일 발행 고시



SEMI 안전표준교육 2021



■ ICR은 SEMI Evaluation에 대한 전문적인 지식과 기술을 바탕으로 반도체 제조사들에게 표준의 내용 및 평가 적용 사례를 소개하기 위해 'SEMI 안전표준교육 2021'에 참가했습니다.

SEMI 안전표준교육 2021

2021.07.15(목) - 16(금) | 온라인 라이브

심화과정 - 7월 16일(금)

9:00 am - 9:40 am		반도체 제조장비 배기평가 가이드라인 Part 1
9:40 am - 9:50 am	I C R	Break
9:50 am - 10:40 am		반도체 제조장비 배기평가 가이드라인 Part 2
10:40 am - 10:50 am		Break
10:50 am - 11:30 am		배기성능 평가 절차 및 사례 Part 1
11:30 am - 11:40 am	I C R	Break
11:40 am - 12:30 am		배기성능 평가 절차 및 사례 Part 2

SEMI 안전표준교육 2021



■ ICR은 'SEMI S6 - 반도체 제조 장비의 배기에 대한 안전 가이드라인 및 배기 성능 평가 절차 및 사례'에 대한 교육을 진행하였으며, 표준 및 시험 절차를 쉽게 이해하는데 중점을 두었습니다.

[SEMI S6]
반도체 제조장비 배기평가 가이드라인
16/07/2021

semi CONNECT · COLLABORATE · INNOVATE · GROW · PROSPER

SEMI S6 성능 기준

- 작업자 노출 관리(Toxic Chemical)
 - 합리적으로 예측 가능한 호흡영역이 인클로저 내부 공간이 포함되는 경우 배기를 통하여 인클로저 내부공간의 포개팅(유해물질이 축적되는 현상)을 방지해야 한다.

유지보수를 위해 열었을 때 유해물질의 잔류 가능

배기

SEMI S6 시험 절차

```

    graph TD
      A[사용 물질에 대한 MSDS 및 사용 유량에 대한 정보 수령] --> B[독성 / 인화성 물질 인지 확인 후 SEMI S6 평가 대상인지 결정]
      B --> C[장비의 기구도면 수령]
      C --> D[배기가 적용되는 Enclosure의 구조 확인]
      D --> E[방출 및 측정 시험 Point의 결정]
      E --> F[Tracer gas Test 실행]
    
```

SEMI S6 Tracer gas Test

- Tracer gas(SF₆)를 사용하는 이유
 - 인체에 무해함
 - 화재 위험성이 없음
 - 자연상태에서 분포하지 않거나 매우 미량 존재
 - 반응성이 낮아 화학적 반응이 일어나지 않음

➢ 물리적인 회색 요인 외에는 농도변화가 존재하지 않음

SEMI S6 현장 평가

의제 중보 Pool을 형성하는 경우

방출 Point

측정 Point

시험물질	LFL (ppm)
C3H8	17,000
C2H2	23,000
C2H4	24,000
H2	40,000

SEMI S6 현장 평가

작업자 호흡 영역

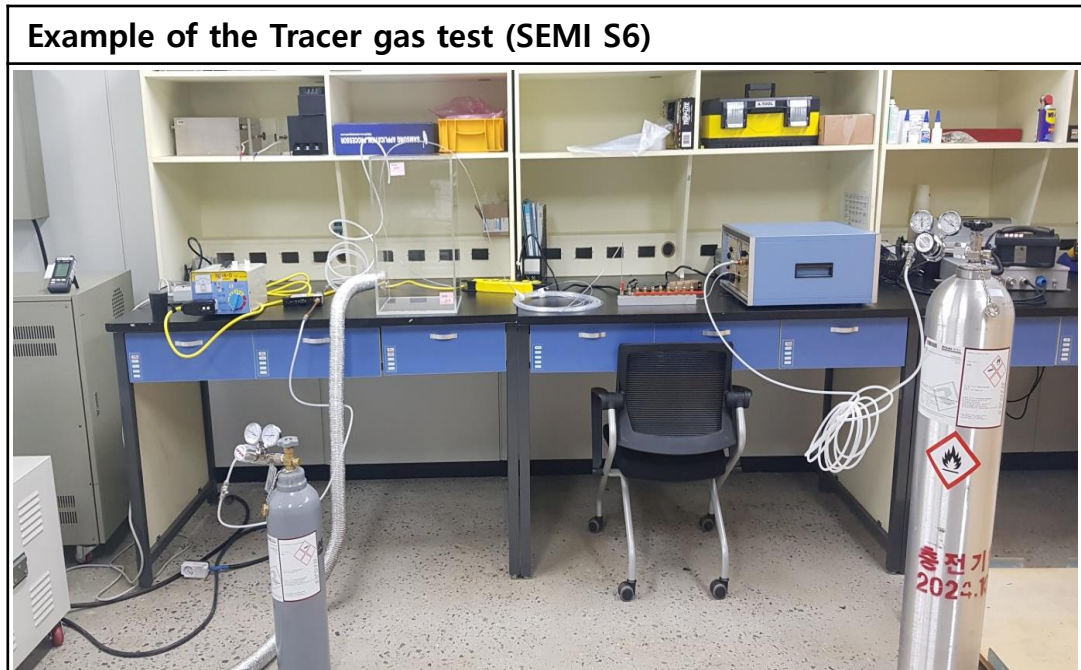
SEMI 안전표준교육 2021



■ ICR의 숙련된 엔지니어들은 반도체 제조 설비들에 대한 SEMI 평가 및 시험들 <Tracer gas test (SEMI S6), Material use efficiency (SEMI S23), Voltage sag test (SEMI F47), Electrostatic (SEMI E78), 등>을 진행함으로써 보다 빠른 서비스를 제공해 드리고 있습니다.

■ ICR Engineers (SEMI evaluation and testing)

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- 임근영 주임 (lgy@icrqa.com)



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ISO 37001

부패방지경영시스템

■ 부패방지경영시스템?

ISO 37001:2016은 부패방지경영시스템에 대한 국제표준으로 기업을 포함한 공공, 민간 및 비영리 부문에서의 부패를 다루기 위하여 2016년 제정 되었습니다.

■ ISO 37001 도입의 효과

부패방지경영시스템에 적합 하더라도, 부패에 대한 리스크를 완전히 제거할 수는 없습니다. 다만, 이 표준을 도입함으로써 부패를 예방, 사전 탐지 및 대응할 수 있는 합리적인 조치를 실행하는데 도움이 됩니다.

■ 도입 대상

ESG에 대한 요구가 커짐에 따라, 기업의 사회적 책임과 지배 구조에 대한 대응 방법 중 하나로 ISO 37001 부패방지 경영시스템을 고려할 수 있습니다. 현재 공공 기관, 제약사, 금융기관 및 공공 사업을 위탁 받아 운영하는 기관에서 도입하고 있습니다.

■ ICR 현황

현재 ICR은 부패방지경영시스템 인증심사 서비스를 제공하기 위하여 한국인정지원센터(KAB)로 부터 스킴 확대를 위한 문서 평가를 완료하였으며, 금년 내 서비스를 제공하기 위하여 최선의 노력을 다하고 있습니다.

☎ 문의처

시스템인증본부 / 김 채 린 주임연구원
T.02-6351-9001 / kcl@icrqa.com

배터리 히터 내구 시험기 도입



■ 최신 동향

- 현재 **전기차** 대부분은 리튬이온 배터리를 사용합니다.
하지만 **리튬이온 배터리의 문제점**은 한겨울에 기온이 내려가면 전해질이 굳어진다는 것입니다. 이로 인해 전기차 주행 가능 거리가 대폭 짧아지고 충전에도 시간이 오래 걸립니다.
- 이러한 문제점을 해결하기 위해 배터리를 최적의 온도로 만들어주는 배터리 히터 시스템이 개발되고 있습니다.

■ 배터리 히터 내구 시험기

이와 같은 고객의 요구에 맞춰 **ICR**에서는 **배터리 히터 내구 시험기**를 6월에 도입하여 7월부터 서비스 운영 중입니다.



Specification

1) 냉각수 온도	(-30 ~ 90) °C (1.0°C/min)
2) 유 량	5 ~ 120 LPM
3) 압력 측정	(0 ~ 10) Bar(Inlet, Outlet 측정)
4) 환경 챔버	(-40 ~ 150) °C

ES관련 규격 시험 가능
(멀티밸브, COD히터, 20kw이하 배터리 히터 시험 등)

☎ 문의처

모빌리티센터 / 이 한 국 선임연구원
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FCC 인증 접수 시 필요한 서류



■ FCC 인증 접수 시, 필요한 정보 및 서류 목록

1. 블록도
2. 회로도
3. 부품 목록
4. 사용자설명서
 - 경고 문구와 서비스센터의 정보가 반드시 포함되어야 함
5. 라벨 샘플 및 위치
 - 실 제품에 사용할 라벨과 라벨의 부착 위치 표현
 - 라벨에는 FCC ID가 반드시 포함되어야 함
6. 작동 기술서
 - 회로 및 기계적 작동 상황에 대한 설명
7. 외관 사진
 - 크기와 모양이 식별 가능하도록 다각도에서의 외관 사진과 크기를 알 수 있는 보조 도구 필요
8. 내부 사진
 - 크기를 알 수 있는 방법으로 내부 PCB 및 구성 사진 필요
9. 시험 사진
 - 실제 시험한 시험장의 상태와 셋업(Setup) 상태를 표현

FCC 인증 접수 시 필요한 서류



■ FCC 인증 접수 시, 필요한 정보 및 서류 목록

10. 대리인지정서

- 시험과 인증 신청을 신청자에게 권한을 넘겨받아 대신 진행한다는 위임장

11. 비밀 유지 신청서

- FCC에서는 모든 자료가 공개되기 때문에 최초 인증 신청 시 비밀 유지 기간을 최대 120일까지 설정 가능,
이에 따른 신청서 작성

12. 신청서

- FCC 신청서 731 폼에 따른 신청서 작성

13. FCC ID 및 FRN number

- FCC 사이트에서 신청 가능

14. FCC에 등록된 신청 회사의 업무 담당자의 정보

- FCC 인증 신청 시 반드시 FCC에 등록되어 있는 담당자의 정보 작성 필요

☎ 문의처

전파시험센터 / 손민기 전임연구원
T.010-5522-2943 / thsalsrl@icrqa.com


시중 유통 의료기기의 안전관리 강화



■ **식품의약품안전처**는 회수·폐기 대상 의료기기의 범위를 확대하는 등 의료기기에 대한 안전관리를 강화하는 내용을 담은 「의료기기법」 개정 법률을 2021년 8월 17일 공포 하였습니다.

■ 주요 개정내용

- 회수·폐기 대상 의료기기 확대
- 의료기기 시판 후 조사(기존 재심사) 제도 강화
- 갱신을 받지 않은 의료기기 제조·수입 업체에 대한 처분 기준 마련 등

 문의처
전기안전평가센터 / 김 영 빈 전임연구원
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시중 유통 의료기기의 안전관리 강화



개정 내용	현행	개정
시판 후 조사 제도 개선	<ul style="list-style-type: none"> 신개발 의료기기, 희소의료기기 	<ul style="list-style-type: none"> 시판 후 조사* 대상 <ul style="list-style-type: none"> 신개발 의료기기, 희소의료기기, <u>신개발 의료기기와 동등한 의료기기</u> * '재심사'를 '시판 후 조사'로 변경
	<ul style="list-style-type: none"> 시판 후 조사기간 <ul style="list-style-type: none"> 허가일에서 4년 이상 7년 이하 	<ul style="list-style-type: none"> 시판 후 조사 기간 <ul style="list-style-type: none"> 시판일에서 4년 이상 7년 이하 시판 후 조사 계획서 승인, 조사결과 보고 및 검토 절차 규정 조치명령, 행정처분. 벌칙 근거 마련 * 시행일: '22. 2.18.
회수·폐기 명령 대상 확대 및 판매 중지 명령 명확화	<ul style="list-style-type: none"> 국민건강에 중대한 피해를 주거나 치명적 영향을 줄 가능성이 있는 의료기기의 경우, 회수·폐기 또는 그 밖의 처치 명령 	<ul style="list-style-type: none"> 국민건강에 위해가 발생하였거나, <u>발생할 우려가 현저한 의료기기의 경우</u> 판매중지, 회수폐기 또는 그 밖에 처치 명령 * 시행일: '22. 2.18.
갱신제도 정비	<ul style="list-style-type: none"> 갱신제 시행 이전 제조허가 등의 유효기간은 법 시행일부터 5년 이내의 범위에서 정하여 고시(부칙) 	<ul style="list-style-type: none"> 갱신제 시행 이전 제조허가 등의 유효기간은 '25.1.1.~ '30.12.31. 범위에서 정하여 고시(부칙 변경)
	<ul style="list-style-type: none"> 갱신하지 않은 경우 <u>과태료 부과</u> 	<ul style="list-style-type: none"> <u>과태료 조항 삭제</u> 유효기간이 경과한 의료기기 제조·수입 시 행정처분 및 벌칙 조항 신설 안전성·유효성 유지를 위해 <u>필요한 경우 허가 등의 변경을 조건으로 갱신</u> * 시행일: 공포 즉시

지정 표준 : EMC

2021년 1월 1일 발행 고시



상업, 에너지 및 산업 전략 부서발행 통지

0007/21 2021년 1월 1일

■ 전자파 적합성 규정 2016(S.I. 2016/1091)을 지원하는
전자파 적합성 표준에 대한 참조

■ 이 통지는 다음을 확인합니다.

- a) 본 고시의 부속서 I에 열거된 표준에 대한 언급은 S.I. 2016/1091의 규정 2A의 목적을 위해 공표되며, 이에 따라 잉글랜드, 웨일스 및 스코틀랜드와 관련하여 해당 규정에 따라 지정된다.
- b) 본 고시의 부속서 II에 열거된 기준서에 대한 언급은 S.I. 2016/1091의 규정 2A의 목적을 위해 공표되지만, 이 부속서에 명시된 날짜로부터 공표되지 않는다. 따라서 이 기준서 각각은 이와 관련하여 정한 날짜 이후나 지정되거나 적합하다고 가정하지 않는다.

출처 : GOV.UK
(영국 정부 사이트 번역본)

지정 표준 : EMC

2021년 1월 1일 발행 고시



▣ 부속서 I

v1: 01/01/2021

The summary below consolidates the published references of standards. It produces information already in notices of publication. It contains all references which, when the summary was generated, still provided a presumption of conformity together with references already removed. The summary does not as such generate legal effects.

Legislation reference (A)	Reference number of the designated standard (B)	Title of the designated standard (C)
S.I. 2016 No. 1091	EN 617:2001+A1:2010	Continuous handling equipment and systems - Safety and EMC requirements for the equipment for the storage of bulk materials in silos, bunkers, bins and hoppers
S.I. 2016 No. 1091	EN 618:2002+A1:2010	Continuous handling equipment and systems - Safety and EMC requirements for equipment for mechanical handling of bulk materials except fixed belt conveyors
S.I. 2016 No. 1091	EN 619:2002+A1:2010	Continuous handling equipment and systems - Safety and EMC requirements for equipment for mechanical handling of unit loads
S.I. 2016 No. 1091	EN 620:2002+A1:2010	Continuous handling equipment and systems - Safety and EMC requirements for fixed belt conveyors for bulk materials
S.I. 2016 No. 1091	EN 1155:1997, EN 1155:1997/A1:2002	Building hardware - Electrically powered hold-open devices for swing doors - Requirements and test methods
S.I. 2016 No. 1091	EN 12015:2014	Electromagnetic compatibility - Product family standard for lifts, escalators and moving walks - Emission
S.I. 2016 No. 1091	EN 12016:2013	Electromagnetic compatibility - Product family standard for lifts, escalators and moving walks - Immunity
S.I. 2016 No. 1091	EN 12895:2015	Industrial trucks - Electromagnetic compatibility
S.I. 2016 No. 1091	EN 12895:2015+A1:2019	Industrial trucks - Electromagnetic compatibility
S.I. 2016 No. 1091	EN 13241-1:2003+A1:2011	Industrial, commercial and garage doors and gates - Product standard - Part 1: Products without fire resistance or smoke control characteristics
S.I. 2016 No. 1091	EN 13309:2010	Construction machinery - Electromagnetic compatibility of machines with internal power supply
S.I. 2016 No. 1091	EN ISO 13766-1:2018	Earth-moving and building construction machinery - Electromagnetic compatibility (EMC) of machines with internal electrical power supply - Part 1: General EMC requirements under typical electromagnetic environmental conditions (ISO 13766-1:2018)

지정 표준 : EMC

2021년 1월 1일 발행 고시



Legislation reference (A)	Reference number of the designated standard (B)	Title of the designated standard (C)
S.I. 2016 No. 1091	EN 14010:2003+A1:2009	Safety of machinery - Equipment for power driven parking of motor vehicles - Safety and EMC requirements for design, manufacturing, erection and commissioning stages
S.I. 2016 No. 1091	EN ISO 14982:2009	Agricultural and forestry machinery - Electromagnetic compatibility - Test methods and acceptance criteria (ISO 14982:1998)
S.I. 2016 No. 1091	EN 16361:2013+A1:2016	Power operated pedestrian doors - Product standard, performance characteristics - Pedestrian doors, other than swing type, initially designed for installation with power operation
S.I. 2016 No. 1091	EN 50065-1:2011	Signalling on low-voltage electrical installations in the frequency range 3 kHz to 148,5 kHz - Part 1: General requirements, frequency bands and electromagnetic disturbances
S.I. 2016 No. 1091	EN 50065-2-1:2003, EN 50065-2-1:2003/A1:2005, EN 50065-2-1:2003/AC:2003	Signalling on low-voltage electrical installations in the frequency range 3 kHz to 148,5 kHz - Part 2-1: Immunity requirements for mains communication systems equipment and systems operating in the range of frequencies 95 kHz to 148,5 kHz and intended for use in residential, commercial and light industrial environments
S.I. 2016 No. 1091	EN 50065-2-2:2003, EN 50065-2-2:2003/A1:2005, EN 50065-2-2:2003/A1:2005/ AC:2006, EN 50065-2-2:2003/AC:2003	Signalling on low-voltage electrical installations in the frequency range 3 kHz to 148,5 kHz - Part 2-2: Immunity requirements for mains communication systems equipment and systems operating in the range of frequencies 95 kHz to 148,5 kHz and intended for use in industrial environments
S.I. 2016 No. 1091	EN 50065-2-3:2003, EN 50065-2-3:2003/A1:2005, EN 50065-2-3:2003/AC:2003	Signalling on low-voltage electrical installations in the frequency range 3 kHz to 148,5 kHz - Part 2-3: Immunity requirements for mains communication systems equipment and systems operating in the range of frequencies 3 kHz to 95 kHz and intended for use by electricity suppliers and distributors
S.I. 2016 No. 1091	EN 50083-2:2012, EN 50083-2:2012/A1:2015	Cable networks for television signals, sound signals and interactive services - Part 2: Electromagnetic compatibility for equipment
S.I. 2016 No. 1091	EN 50121-1:2006, EN 50121-1:2006/AC:2008	Railway applications - Electromagnetic compatibility - Part 1: General
S.I. 2016 No. 1091	EN 50121-2:2006, EN 50121-2:2006/AC:2008	Railway applications - Electromagnetic compatibility - Part 2: Emission of the whole railway system to the outside world

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Legislation reference (A)	Reference number of the designated standard (B)	Title of the designated standard (C)
S.I. 2016 No. 1091	EN 50121-3-1:2017	Railway applications - Electromagnetic compatibility - Part 3-1: Rolling stock - Train and complete vehicle
S.I. 2016 No. 1091	EN 50121-3-2:2016	Railway applications - Electromagnetic compatibility - Part 3-2: Rolling stock - Apparatus
S.I. 2016 No. 1091	EN 50121-4:2016	Railway applications - Electromagnetic compatibility - Part 4: Emission and immunity of the signalling and telecommunications apparatus
S.I. 2016 No. 1091	EN 50121-5:2017	Railway applications - Electromagnetic compatibility - Part 5: Emission and immunity of fixed power supply installations and apparatus
S.I. 2016 No. 1091	EN 50130-4:2011	Alarm systems - Part 4: Electromagnetic compatibility - Product family standard: Immunity requirements for components of fire, intruder, hold up, CCTV, access control and social alarm systems
S.I. 2016 No. 1091	EN 50148:1995	Electronic taximeters
S.I. 2016 No. 1091	EN 50270:2015, EN 50270:2015/AC:2016-08	Electromagnetic compatibility - Electrical apparatus for the detection and measurement of combustible gases, toxic gases or oxygen
S.I. 2016 No. 1091	EN 50293:2012	Road traffic signal systems - Electromagnetic compatibility
S.I. 2016 No. 1091	EN 50370-1:2005	Electromagnetic compatibility (EMC) - Product family standard for machine tools - Part 1: Emission
S.I. 2016 No. 1091	EN 50370-2:2003	Electromagnetic compatibility (EMC) - Product family standard for machine tools - Part 2: Immunity
S.I. 2016 No. 1091	EN 50412-2-1:2005, EN 50412-2-1:2005/AC:2009	Power line communication apparatus and systems used in low-voltage installations in the frequency range 1,6 MHz to 30 MHz - Part 2-1: Residential, commercial and industrial environment - Immunity requirements
S.I. 2016 No. 1091	EN 50428:2005, EN 50428:2005/A1:2007, EN 50428:2005/A2:2009	Switches for household and similar fixed electrical installations - Collateral standard - Switches and related accessories for use in home and building electronic systems (HBES)
S.I. 2016 No. 1091	EN 50470-1:2006	Electricity metering equipment (a.c.) - Part 1: General requirements, tests and test conditions - Metering equipment (class indexes A, B and C)
S.I. 2016 No. 1091	EN 50490:2008	Electrical installations for lighting and beaconing of aerodromes - Technical requirements for aeronautical ground lighting control and monitoring systems - Units for selective switching and monitoring of individual lamps

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Legislation reference (A)	Reference number of the designated standard (B)	Title of the designated standard (C)
S.I. 2016 No. 1091	EN 50491-5-1:2010	General requirements for Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS) - Part 5-1: EMC requirements, conditions and test set-up
S.I. 2016 No. 1091	EN 50491-5-2:2010	General requirements for Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS) - Part 5-2: EMC requirements for HBES/BACS used in residential, commercial and light industry environment
S.I. 2016 No. 1091	EN 50491-5-3:2010	General requirements for Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS) - Part 5-3: EMC requirements for HBES/BACS used in industry environment
S.I. 2016 No. 1091	EN 50498:2010	Electromagnetic compatibility (EMC) - Product family standard for aftermarket electronic equipment in vehicles
S.I. 2016 No. 1091	EN 50512:2009	Electrical installations for lighting and beaconing of aerodromes - Advanced Visual Docking Guidance Systems (A-VDGS)
S.I. 2016 No. 1091	EN 50529-1:2010	EMC Network Standard - Part 1: Wire-line telecommunications networks using telephone wires
S.I. 2016 No. 1091	EN 50529-2:2010	EMC Network Standard - Part 2: Wire-line telecommunications networks using coaxial cables
S.I. 2016 No. 1091	EN 50550:2011, EN 50550:2011/AC:2012, EN 50550:2011/A1:2014	Power frequency overvoltage protective device for household and similar applications (POP)
S.I. 2016 No. 1091	EN 50557:2011	Requirements for automatic reclosing devices (ARDs) for circuit breakers-RCBOs-RCCBs for household and similar uses
S.I. 2016 No. 1091	EN 50561-1:2013, EN 50561-1:2013/AC:2015	Power line communication apparatus used in low-voltage installations - Radio disturbance characteristics - Limits and methods of measurement - Part 1: Apparatus for in-home use
S.I. 2016 No. 1091	EN 55011:2009, EN 55011:2009/A1:2010	Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement
S.I. 2016 No. 1091	EN 55011:2016, EN 55011:2016/A1:2017, EN 55011:2016/A11:2020	Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement
S.I. 2016 No. 1091	EN 55012:2007, EN 55012:2007/A1:2009	Vehicles, boats and internal combustion engines - Radio disturbance characteristics - Limits and methods of measurement for the protection of off-board receivers

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Legislation reference (A)	Reference number of the designated standard (B)	Title of the designated standard (C)
S.I. 2016 No. 1091	EN 55014-1:2006, EN 55014-1:2006/A1:2009, EN 55014-1:2006/A2:2011	Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1: Emission
S.I. 2016 No. 1091	EN 55014-1:2017, EN 55014-1:2017/A11:2020	Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1: Emission
S.I. 2016 No. 1091	EN 55014-2:1997, EN 55014-2:1997/A1:2001, EN 55014-2:1997/A2:2008, EN 55014-2:1997/AC:1997	Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 2: Immunity - Product family standard
S.I. 2016 No. 1091	EN 55015:2013	Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment
S.I. 2016 No. 1091	EN IEC 55015:2019, EN IEC 55015:2019/A11:2020	Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment
S.I. 2016 No. 1091	EN 55024:2010	Information technology equipment - Immunity characteristics - Limits and methods of measurement
S.I. 2016 No. 1091	EN 55032:2012, EN 55032:2012/AC:2013	Electromagnetic compatibility of multimedia equipment - Emission requirements
S.I. 2016 No. 1091	EN 55032:2015, EN 55032:2015/A11:2020	Electromagnetic compatibility of multimedia equipment - Emission Requirements
S.I. 2016 No. 1091	EN 55035:2017	Electromagnetic compatibility of multimedia equipment - Immunity requirements
S.I. 2016 No. 1091	EN 55103-1:2009, EN 55103-1:2009/A1:2012	Electromagnetic compatibility - Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use - Part 1: Emissions
S.I. 2016 No. 1091	EN 55103-2:2009	Electromagnetic compatibility - Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use - Part 2: Immunity
S.I. 2016 No. 1091	EN 60034-1:2010, EN 60034-1:2010/AC:2010	Rotating electrical machines - Part 1: Rating and performance
S.I. 2016 No. 1091	EN 60204-31:2013	Safety of machinery - Electrical equipment of machines - Part 31: Particular safety and EMC requirements for sewing machines, units and systems
S.I. 2016 No. 1091	EN 60255-26:2013, EN 60255-26:2013/AC:2013	Measuring relays and protection equipment - Part 26: Electromagnetic compatibility requirements
S.I. 2016 No. 1091	EN 60669-2-1:2004, EN 60669-2-1:2004/A1:2009, EN 60669-2-1:2004/A12:2010, EN 60669-2-1:2004/AC:2007	Switches for household and similar fixed electrical installations - Part 2-1: Particular requirements - Electronic switches

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Legislation reference (A)	Reference number of the designated standard (B)	Title of the designated standard (C)
S.I. 2016 No. 1091	EN 60730-1:2011	Automatic electrical controls for household and similar use - Part 1: General requirements
S.I. 2016 No. 1091	EN 60730-2-5:2002, EN 60730-2-5:2002/A11:2005, EN 60730-2-5:2002/A1:2004, EN 60730-2-5:2002/A2:2010	Automatic electrical controls for household and similar use - Part 2-5: Particular requirements for automatic electrical burner control systems
S.I. 2016 No. 1091	EN 60730-2-6:2008	Automatic electrical controls for household and similar use - Part 2-6: Particular requirements for automatic electrical pressure sensing controls including mechanical requirements
S.I. 2016 No. 1091	EN 60730-2-7:2010, EN 60730-2-7:2010/AC:2011	Automatic electrical controls for household and similar use - Part 2-7: Particular requirements for timers and time switches
S.I. 2016 No. 1091	EN 60730-2-8:2002, EN 60730-2-8:2002/A1:2003	Automatic electrical controls for household and similar use - Part 2-8: Particular requirements for electrically operated water valves, including mechanical requirements
S.I. 2016 No. 1091	EN 60730-2-9:2010	Automatic electrical controls for household and similar use - Part 2-9: Particular requirements for temperature sensing controls
S.I. 2016 No. 1091	EN 60730-2-14:1997, EN 60730-2-14:1997/A1:2001	Automatic electrical controls for household and similar use - Part 2-14: Particular requirements for electric actuators
S.I. 2016 No. 1091	EN 60730-2-15:2010	Automatic electrical controls for household and similar use - Part 2-15: Particular requirements for automatic electrical air flow, water flow and water level sensing controls
S.I. 2016 No. 1091	EN 60870-2-1:1996	Telecontrol equipment and systems - Part 2: Operating conditions - Section 1: Power supply and electromagnetic compatibility
S.I. 2016 No. 1091	EN 60945:2002	Maritime navigation and radiocommunication equipment and systems - General requirements - Methods of testing and required test results
S.I. 2016 No. 1091	EN 60947-1:2007, EN 60947-1:2007/A1:2011, EN 60947-1:2007/A2:2014	Low-voltage switchgear and controlgear - Part 1: General rules
S.I. 2016 No. 1091	EN 60947-2:2006, EN 60947-2:2006/A1:2009, EN 60947-2:2006/A2:2013	Low-voltage switchgear and controlgear - Part 2: Circuit-breakers
S.I. 2016 No. 1091	EN 60947-3:2009, EN 60947-3:2009/A1:2012	Low-voltage switchgear and controlgear - Part 3: Switches, disconnectors, switch-disconnectors and fuse-combination units

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Legislation reference (A)	Reference number of the designated standard (B)	Title of the designated standard (C)
S.I. 2016 No. 1091	EN 60947-4-1:2010, EN 60947-4-1:2010/A1:2012	Low-voltage switchgear and controlgear - Part 4-1 : Contactors and motor-starters - Electromechanical contactors and motor-starters
S.I. 2016 No. 1091	EN IEC 60947-4-1:2019	Low-voltage switchgear and controlgear - Part 4-1 : Contactors and motor-starters - Electromechanical contactors and motor-starters
S.I. 2016 No. 1091	EN 60947-4-2:2012	Low-voltage switchgear and controlgear - Part 4-2 : Contactors and motor-starters - AC semiconductor motor controllers and starters
S.I. 2016 No. 1091	EN 60947-4-3:2014	Low-voltage switchgear and controlgear - Part 4-3 : Contactors and motor-starters - AC semiconductor controllers and contactors for non-motor loads
S.I. 2016 No. 1091	EN 60947-5-1:2004, EN 60947-5-1:2004/A1:2009, EN 60947-5-1:2004/AC:2004, EN 60947-5-1:2004/AC:2005	Low-voltage switchgear and controlgear - Part 5-1 : Control circuit devices and switching elements - Electromechanical control circuit devices
S.I. 2016 No. 1091	EN 60947-5-2:2007, EN 60947-5-2:2007/A1:2012	Low-voltage switchgear and controlgear - Part 5-2 : Control circuit devices and switching elements - Proximity switches
S.I. 2016 No. 1091	EN 60947-5-3:1999, EN 60947-5-3:1999/A1:2005	Low-voltage switchgear and controlgear - Part 5-3 : Control circuit devices and switching elements - Requirements for proximity devices with defined behaviour under fault conditions (PDF)
S.I. 2016 No. 1091	EN 60947-5-6:2000	Low-voltage switchgear and controlgear - Part 5-6 : Control circuit devices and switching elements - DC interface for proximity sensors and switching amplifiers (NAMUR)
S.I. 2016 No. 1091	EN 60947-5-7:2003	Low-voltage switchgear and controlgear - Part 5-7 : Control circuit devices and switching elements - Requirements for proximity devices with analogue output
S.I. 2016 No. 1091	EN 60947-5-9:2007	Low-voltage switchgear and controlgear - Part 5-9 : Control circuit devices and switching elements - Flow rate switches
S.I. 2016 No. 1091	EN 60947-6-1:2005, EN 60947-6-1:2005/A1:2014	Low-voltage switchgear and controlgear - Part 6-1 : Multiple function equipment - Transfer switching equipment
S.I. 2016 No. 1091	EN 60947-6-2:2003, EN 60947-6-2:2003/A1:2007	Low-voltage switchgear and controlgear - Part 6-2 : Multiple function equipment - Control and protective switching devices (or equipment) (CPS)
S.I. 2016 No. 1091	EN 60947-8:2003, EN 60947-8:2003/A1:2006, EN 60947-8:2003/A2:2012	Low-voltage switchgear and controlgear - Part 8: Control units for built-in thermal protection (PTC) for rotating electrical machines

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Legislation reference (A)	Reference number of the designated standard (B)	Title of the designated standard (C)
S.I. 2016 No. 1091	EN IEC 60947-9-1:2019	Low-voltage switchgear and controlgear - Part 9-1 : Active arc-fault mitigation systems - Arc quenching devices
S.I. 2016 No. 1091	EN 60974-10:2014	Arc welding equipment - Part 10: Electromagnetic compatibility (EMC) requirements
S.I. 2016 No. 1091	EN 61000-3-2:2014	Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)
S.I. 2016 No. 1091	EN 61000-3-3:2013	Electromagnetic compatibility (EMC) - Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase and not subject to conditional connection
S.I. 2016 No. 1091	EN 61000-3-11:2000	Electromagnetic compatibility (EMC) - Part 3-11: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems - Equipment with rated current ≤ 75 A and subject to conditional connection
S.I. 2016 No. 1091	EN 61000-3-12:2011	Electromagnetic compatibility (EMC) - Part 3-12: Limits - Limits for harmonic currents produced by equipment connected to public low-voltage systems with input current > 16 A and ≤ 75 A per phase
S.I. 2016 No. 1091	EN 61000-6-1:2007	Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments
S.I. 2016 No. 1091	EN 61000-6-2:2005, EN 61000-6-2:2005/AC:2005	Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments
S.I. 2016 No. 1091	EN 61000-6-3:2007, EN 61000-6-3:2007/A1:2011/AC:2012, EN 61000-6-3:2007/A1:2011	Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments
S.I. 2016 No. 1091	EN 61000-6-4:2007, EN 61000-6-4:2007/A1:2011	Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments
S.I. 2016 No. 1091	EN 61000-6-5:2015, EN 61000-6-5:2015/AC:2018-01	Electromagnetic compatibility (EMC) - Part 6-5: Generic standards - Immunity for equipment used in power station and substation environment
S.I. 2016 No. 1091	EN 61008-1:2012, EN 61008-1:2012/A1:2014	Residual current operated circuit-breakers without integral overcurrent protection for household and similar uses (RCCBs) - Part 1: General rules

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Legislation reference (A)	Reference number of the designated standard (B)	Title of the designated standard (C)
S.I. 2016 No. 1091	EN 61009-1:2012	Residual current operated circuit-breakers with integral overcurrent protection for household and similar uses (RCBOs) - Part 1: General rules
S.I. 2016 No. 1091	EN IEC 61058-1:2018	Switches for appliances - Part 1: General requirements
S.I. 2016 No. 1091	EN 61131-2:2007	Programmable controllers - Part 2: Equipment requirements and tests
S.I. 2016 No. 1091	EN 61204-3:2000	Low voltage power supplies, d.c. output - Part 3: Electromagnetic compatibility (EMC)
S.I. 2016 No. 1091	EN 61326-1:2013	Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements
S.I. 2016 No. 1091	EN 61326-2-1:2013	Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 2-1: Particular requirements - Test configurations, operational conditions and performance criteria for sensitive test and measurement equipment for EMC unprotected applications
S.I. 2016 No. 1091	EN 61326-2-2:2013	Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 2-2: Particular requirements - Test configurations, operational conditions and performance criteria for portable test, measuring and monitoring equipment used in low-voltage distribution systems
S.I. 2016 No. 1091	EN 61326-2-3:2013	Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 2-3: Particular requirements - Test configuration, operational conditions and performance criteria for transducers with integrated or remote signal conditioning
S.I. 2016 No. 1091	EN 61326-2-4:2013	Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 2-4: Particular requirements - Test configurations, operational conditions and performance criteria for insulation monitoring devices according to IEC 61557-8 and for equipment for insulation fault location according to IEC 61557-9
S.I. 2016 No. 1091	EN 61326-2-5:2013	Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 2-5: Particular requirements - Test configurations, operational conditions and performance criteria for devices with field bus interfaces according to IEC 61784-1

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Legislation reference (A)	Reference number of the designated standard (B)	Title of the designated standard (C)
S.I. 2016 No. 1091	EN 61439-1:2011	Low-voltage switchgear and controlgear assemblies - Part 1: General rules
S.I. 2016 No. 1091	EN 61439-2:2011	Low-voltage switchgear and controlgear assemblies - Part 2: Power switchgear and controlgear assemblies
S.I. 2016 No. 1091	EN 61439-3:2012, EN 61439-3:2012/AC:2019-04	Low-voltage switchgear and controlgear assemblies - Part 3: Distribution boards intended to be operated by ordinary persons (DBO)
S.I. 2016 No. 1091	EN 61439-4:2013	Low-voltage switchgear and controlgear assemblies - Part 4: Particular requirements for assemblies for construction sites (ACS)
S.I. 2016 No. 1091	EN 61439-5:2011	Low-voltage switchgear and controlgear assemblies - Part 5: Assemblies for power distribution in public networks
S.I. 2016 No. 1091	EN 61439-6:2012	Low-voltage switchgear and controlgear assemblies - Part 6: Busbar trunking systems (busways)
S.I. 2016 No. 1091	EN 61543:1995, EN 61543:1995/A11:2003, EN 61543:1995/A12:2005, EN 61543:1995/A2:2006, EN 61543:1995/A11:2003/AC:2004, EN 61543:1995/AC:1997	Residual current-operated protective devices (RC Ds) for household and similar use - Electromagnetic compatibility
S.I. 2016 No. 1091	EN 61547:2009	Equipment for general lighting purposes - EMC immunity requirements
S.I. 2016 No. 1091	EN 61557-12:2008	Electrical safety in low voltage distribution systems up to 1 000 V a.c. and 1 500 V d.c. - Equipment for testing, measuring or monitoring of protective measures - Part 12: Performance measuring and monitoring devices (PMD)
S.I. 2016 No. 1091	EN 61800-3:2004, EN 61800-3:2004/A1:2012	Adjustable speed electrical power drive systems - Part 3: EMC requirements and specific test methods
S.I. 2016 No. 1091	EN 61812-1:2011	Time relays for industrial and residential use - Part 1: Requirements and tests
S.I. 2016 No. 1091	EN 62020:1998, EN 62020:1998/A1:2005	Electrical accessories - Residual current monitors for household and similar uses (RCMs)
S.I. 2016 No. 1091	EN 62026-1:2007	Low-voltage switchgear and controlgear - Controller-device interfaces (CDIs) - Part 1: General rules
S.I. 2016 No. 1091	EN 62026-2:2013	Low-voltage switchgear and controlgear - Controller-device interfaces (CDIs) - Part 2: Actuator sensor interface (AS-i)

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Legislation reference (A)	Reference number of the designated standard (B)	Title of the designated standard (C)
S.I. 2016 No. 1091	EN 62026-2:2013, EN 62026-2:2013/A1:2019	Low-voltage switchgear and controlgear - Controller-device interfaces (CDIs) - Part 2: Actuator sensor interface (AS-i)
S.I. 2016 No. 1091	EN 62026-3:2009	Low-voltage switchgear and controlgear - Controller-device interfaces (CDIs) - Part 3: DeviceNet
S.I. 2016 No. 1091	EN 62026-7:2013	Low-voltage switchgear and controlgear - Controller-device interfaces (CDIs) - Part 7: Compo Net
S.I. 2016 No. 1091	EN 62040-2:2006, EN 62040-2:2006/AC:2006	Uninterruptible power systems (UPS) - Part 2: Electromagnetic compatibility (EMC) requirements
S.I. 2016 No. 1091	EN 62052-11:2003	Electricity metering equipment (AC) - General requirements, tests and test conditions - Part 11: Metering equipment
S.I. 2016 No. 1091	EN 62052-21:2004	Electricity metering equipment (a.c.) - General requirements, tests and test conditions - Part 21: Tariff and load control equipment
S.I. 2016 No. 1091	EN 62053-11:2003	Electricity metering equipment (a.c.) - Particular requirements - Part 11: Electromechanical meters for active energy (classes 0,5, 1 and 2)
S.I. 2016 No. 1091	EN 62053-21:2003	Electricity metering equipment (a.c.) - Particular requirements - Part 21: Static meters for active energy (classes 1 and 2)
S.I. 2016 No. 1091	EN 62053-22:2003	Electricity metering equipment (a.c.) - Particular requirements - Part 22: Static meters for active energy (classes 0,2 S and 0,5 S)
S.I. 2016 No. 1091	EN 62053-23:2003	Electricity metering equipment (a.c.) - Particular requirements - Part 23: Static meters for reactive energy (classes 2 and 3)
S.I. 2016 No. 1091	EN 62054-11:2004	Electricity metering (a.c.) - Tariff and load control - Part 11: Particular requirements for electronic ripple control receivers
S.I. 2016 No. 1091	EN 62054-21:2004	Electricity metering (a.c.) - Tariff and load control - Part 21: Particular requirements for time switches
S.I. 2016 No. 1091	EN 62135-2:2008	Resistance welding equipment - Part 2: Electromagnetic compatibility (EMC) requirements
S.I. 2016 No. 1091	EN 62310-2:2007	Static transfer systems (STS) - Part 2: Electromagnetic compatibility (EMC) requirements
S.I. 2016 No. 1091	EN 62423:2012	Type F and type B residual current operated circuit-breakers with and without integral overcurrent protection for household and similar uses
S.I. 2016 No. 1091	EN 62586-1:2014	Power quality measurement in power supply systems - Part 1: Power quality instruments (PQI)

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Legislation reference (A)	Reference number of the designated standard (B)	Title of the designated standard (C)
S.I. 2016 No. 1091	EN 62586-2:2014	Power quality measurement in power supply systems - Part 2: Functional tests and uncertainty requirements
S.I. 2016 No. 1091	EN 62606:2013	General requirements for arc fault detection devices
S.I. 2016 No. 1091	EN 63024:2018	Requirements for automatic reclosing devices (ARDs) for circuit-breakers, RCBOs and RCCBs for household and similar uses
S.I. 2016 No. 1091	EN 300 386 V1.6.1	Electromagnetic compatibility and Radio spectrum Matters (ERM); Telecommunication network equipment; ElectroMagnetic Compatibility (EMC) requirements
S.I. 2016 No. 1091	EN 301 489-1 V1.9.2	Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements
S.I. 2016 No. 1091	EN 301 489-34 V1.4.1	Electromagnetic compatibility and Radio spectrum Matters (ERM); Electro Magnetic Compatibility (EMC) standard for radio equipment and services; Part 34: Specific conditions for External Power Supply (EPS) for mobile phones

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▣ 부속서 II

No	Reference of standard	Date of removal from publication
1	EN 12895:2015 Industrial trucks – Electromagnetic compatibility	18 November 2021
2	EN 13309:2010 Construction machinery – Electromagnetic compatibility of machines with internal power supply	30 June 2021
3	EN 50557:2011 Requirements for automatic reclosing devices (ARDs) for circuit breakers-RCBOs for household and similar uses	17 January 2021
4	EN 55011:2009 Industrial, scientific and medical equipment – Radio-frequency disturbance characteristics – Limits and methods of measurement EN 55011:2009/A1:2010	4 May 2022
5	EN 55014-1:2006 Electromagnetic compatibility – Requirements for household appliances, electric tools and similar apparatus – Part 1:Emission EN 55014-1:2006/A1:2009 EN 55014-1:2006/A2:2011	4 May 2022
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7	EN 55032:2012 Electromagnetic compatibility of multimedia equipment – Emission requirements EN 55032:2012/AC:2013	4 May 2022
8	EN 55103-2:2009 Electromagnetic compatibility – Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use – Part 2: Immunity	18 November 2021
9	EN 62026-2:2013 Low-voltage switchgear and controlgear – Controller-device interfaces(CDIs) – Part 2:Actuator sensor interface(AS-i)	4 May 2022



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