

국제공인시험기관 인정서

재단법인 한국화학융합시험연구원

인 정 번 호 : KT011
법 인 등 록 번 호 : 134122-0007297
(또는 고유번호)
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최 초 인 정 일 자 : 1994년 12월 10일
인 정 유효 기 간 : 2014년 4월 28일 ~ 2018년 4월 27일
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발 행 일 : 2017년 8월 7일

상기 기관을 국가표준기본법 제 23 조 및 KS Q ISO/IEC 17025:2006 에 의거하여 국제공인시험기관으로 인정합니다. 또한 ISO-ILAC-IAF 공동성명 (2009.18)에 언급된 바와 같이 인정된 분야 및 범위에 대한 기술적 능력과 시험기관의 품질경영시스템이 적절함을 인정합니다.



한국인정기구장
(Korea Laboratory Accreditation Scheme)



Korea Laboratory Accreditation Scheme

제 KT011호

사업장 : 경기도 용인시 처인구 양지면 중부대로 2517번길 42-27

03. 전기시험

03.001 전선, 케이블, 전로용품

규격번호	규격명	시험범위
KC 60799 : 2015	전기용 부속품 - 코드셋 상호연결 코드셋	16 A 이하
KC 60502-1 : 2015	정격전압1kV(Um=1.2kV)이상30kV(Um=36kV)이하의전력케이블및부속품-제1부 :정격전압1kV(Um=1.2kV)및3kV(Um=3.6kV)의케이블	(1 ~ 3) kV
KC 60227-1 : 2015	정격전압 450/750 V이하의 염화비닐 절연케이블 제1부 : 일반요구사항	450 V/750 V 이하
KC 60227-2 : 2015	정격전압 450/750 V이하의 염화비닐 절연케이블 제2부 : 시험방법	450 V/750 V 이하
KC 60227-3 : 2015	정격전압 450/750 V이하의 염화비닐 절연케이블 제3부 : 배선용 절연전선	450 V/750 V 이하
KC 60227-4 : 2015	정격전압 450/750 V이하의 염화비닐 절연케이블 제4부 : 배선용 시스케이블	450 V/750 V 이하
KC 60227-5 : 2015	정격전압 450/750 V이하의 염화비닐 절연케이블 제5부 : 가요케이블(코드)	450 V/750 V 이하
KC 60227-6 : 2015	정격전압 450/750 V이하의 염화비닐 절연케이블 제6부 : 리프트케이블과 연결용 유연성 케이블	450 V/750 V 이하
KC 60227-7 : 2015	정격전압450/750 V이하의염화비닐절연케이블 제7부 : 2심 또는 다심의 차폐 및 차폐유연성케이블	450 V/750 V 이하
KC 60245-1 : 2015	정격전압 450/750 V 이하 고무절연케이블 제1부 : 일반요구사항	450 V/750 V 이하
KC 60245-2 : 2015	정격전압 450/750 V 이하 고무절연케이블 제2부 : 시험방법	450 V/750 V 이하

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KC 60245-3 : 2015	정격전압 450/750 V 이하 고무절연케이블 제3부 : 내열 실리콘 절연 케이블	450 V/750 V 이하
KC 60245-4 : 2015	정격전압 450/750 V 이하 고무절연케이블 제4부 : 코드 및 가요 케이블	450 V/750 V 이하
KC 60245-5 : 2015	정격전압 450/750 V 이하 고무절연케이블 제5부 : 리프트 케이블	450 V/750 V 이하
KC 60245-6 : 2015	정격전압 450/750 V 이하 고무절연케이블 제6부 : 아크 용접용 케이블	450 V/750 V 이하
KC 60245-7 : 2015	정격전압 450/750 V 이하 고무절연케이블 제7부 : 내열성 에틸렌비닐아세테이트 고무절연 케이블	450 V/750 V 이하
KC 60245-8 : 2015	정격전압 450/750 V 이하 고무절연케이블 제8부 : 고 유연성 전기기기용 코드	450 V/750 V 이하
KS C IEC 60502-1 : 2013	정격전압 1 kV ~ 30 kV 압출성형 절연 전력케이블 및 그 부속품- 제1부 : 정격전압 1kV 및 3kV 케이블	(1 ~3)kV
KS C IEC 60799 : 2002	전기용 부속품 - 코드셋 및 상호연결 코드셋	16 A 이하
KS C IEC 60227-1 : 2014	정격전압 450/750 V이하의 염화비닐 절연케이블 제1부 : 일반요구사항	450 V/750 V 이하
KS C IEC 60227-2 : 2016	정격전압 450/750 V이하의 염화비닐 절연케이블 제2부 : 시험방법	450 V/750 V 이하
KS C IEC 60227-3 : 2005	정격전압 450/750 V이하의 염화비닐 절연케이블 제3부 : 배선용 절연전선	450 V/750 V 이하
KS C IEC 60227-4 : 2005	정격전압 450/750 V이하의 염화비닐 절연케이블 제4부 : 배선용 시스케이블	450 V/750 V 이하
KS C IEC 60227-5 : 2016	정격전압 450/750 V이하의 염화비닐 절연케이블 제5부 : 가요 케이블(코드)	450 V/750 V 이하

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KS C IEC 60227-6 : 2005	정격전압 450/750 V이하의 염화비닐 절연케이블 제6부 : 리프트케이블과 연결용 유연성 케이블	450 V/750 V 이하
KS C IEC 60227-7 : 2015	정격전압 450/750 V이하의 염화비닐 절연케이블 제7부 : 2심 또는 다심의 차폐 및 차폐 유연성케이블	450 V/750 V 이하
KS C IEC 60245-1 : 2014	정격전압 450/750 V이하 고무 절연 케이블 제1부 : 일반요구사항	450 V/750 V 이하
KS C IEC 60245-2 : 2006	정격전압 450/750 V 이하 고무절연케이블 제2부 : 시험방법	450 V/750 V 이하
KS C IEC 60245-3 : 2013	정격전압 450/750 V 이하 고무절연케이블 제3부 : 내열 실리콘 절연 케이블	450 V/750 V 이하
KS C IEC 60245-4 : 2014	정격전압 450/750 V 이하 고무 절연 케이블 제4부 : 코드 및 가요 케이블	450 V/750 V 이하
KS C IEC 60245-5 : 2013	정격전압 450/750 V 이하 고무절연케이블 제5부 : 리프트 케이블	450 V/750 V 이하
KS C IEC 60245-6 : 2016	정격전압 450/750 V 이하 고무 절연 케이블 제6부 : 아크 용접용 케이블	450 V/750 V 이하
KS C IEC 60245-7 : 2016	정격전압 450/750 V 이하 고무절연케이블 제7부 : 내열성 에틸렌비닐아세테이트 고무절연케이블	450 V/750 V 이하
KS C IEC 60245-8 : 2014	정격전압 450/750 V 이하 고무 절연 케이블 제8부 : 고 유연성 전기기기용 코드	450 V/750 V 이하
KS C IEC 60502-2 : 2016	정격전압 1 ~ 30 kV 압출 절연 전력케이블 및 그 부속품 - 제2부 : 정격전압 6 ~ 30 kV 전력케이블	(6 ~ 30)kV
KS C 3001 : 1983	전기용 동재의 전기저항	도전율 : 100.0 % 이하
KS C 3002 : 1996	전기용 동선 및 알루미늄선 시험방법	도전율 : 100.0 % 이하

Korea Laboratory Accreditation Scheme

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KS C 3003 : 1998	황권동선 및 황권 알루미늄선 시험방법	(5.7 ~ 15.3) mm
KS C 3005 : 2003	전기절연용 콤파운드 시험방법	(0 ~ 75) kV
KS C 3006 : 1986	에나멜 동선 및 에나멜 알루미늄선 시험방법	도체지름 : 3.2 mm 이하
KS C 3101 : 2003	전기용연동선	도체지름 : 12.0 mm 이하
KS C 3102 : 1998	전기용경동선	도체지름 : 12.0 mm 이하
KS C 3103 : 2003	전기용연동연선	공칭단면적 : 2 000 mm ² 이하
KS C 3104 : 1996	전기용 경동 연선	공칭단면적 : 500 mm ² 이하
KS C 3105 : 2014	평각동선	나비 : 9.5 mm, 두께 : 10.0 mm 이하
KS C 3106 : 1978	전기기기권선용연동선	도체지름 : 3.2 mm 이하
KS C 3107 : 2003	에나멜선	도체지름 : 3.2 mm 이하
KS C 3111 : 2003	전기용경알루미늄선	완성바깥지름 : 5.0 mm 이하
KS C 3112 : 2003	경 알루미늄 연선	공칭단면적 : 1500 mm ² 이하
KS C 3113 : 1986	강심알루미늄연선	공칭단면적 : 610 mm ² 이하
KS C 3115 : 1980	전기바인드용주석도금피아노선	선지름 : 2.60 mm 이하
KS C 3120 : 2014	주석 도금 연동선	도체지름 : 12.0 mm 이하
KS C 3123 : 1974	글래스권동선	도체지름 : 32.0 mm 이하

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KS C 3125 : 1974	이중유리섬유절연평각동선	도체지름 : 4.5 mm 이하
KS C 3133 : 1979	전기용황인동선	도체지름 : 25.0 mm 이하
KS C 3134 : 2008	절연 트롤리 장치	직류 750 V 이하, 교류 600 V 이하, 정격전류 2 000 A 이하
KS C 3138 : 1989	고압강심알루미늄절연전선	공칭단면적 : 95 mm ² 이하
KS C 3139 : 1988	고압경알루미늄절연전선	공칭단면적 : 150 mm ² 이하
KS C 3306 : 2002	8자형 옥외전화선	도체지름 : 1.0 mm, 1.2 mm
KS C 3307 : 1993	평형 옥외 전화선	도체지름 : 1.20 mm
KS C 3308 : 1988	네온관용 전선	15 kV이하
KS C 3311 : 2012	자동차용 저압 전선	공칭단면적 : 100 mm ² 이하
KS C 3312 : 1992	황권선	도체지름 : 6.0 mm
KS C 3313 : 2015	옥외용비닐절연전선(OW)	600 V 이하
KS C 3315 : 2015	인입용비닐절연전선(DV)	600 V 이하
KS C 3338 : 2005	폴리에스테르나일론동선	도체지름 : 3.2 mm
KS C 3339 : 2002	CATV용(급전겸용)알루미늄파이프형동축케이블	교류 65 V, 전류 14 A
KS C 3340 : 2002	PVC 옥내 전화선	도체지름 : 0.8 mm
KS C 3341 : 2015	저독성 난연 폴리올레핀 절연 전선	6 kV/10kV
KS C 3342 : 2016	근거리 통신 케이블	100 Ω
KS C 3401 : 1990	1000 V형광방전등용전선	1 000 V
KS C 3403 : 1990	자동차잡음방지용고압저항전선	저항 : 36kΩ이하
KS C 3603 : 2016	폴리에틸렌절연비닐시스시내쌍케이블	심선지름: 0.9 mm 이하
KS C 3604 : 2002	비닐절연비닐시스전화용국내케이블	선심수 : 112개 이하
KS C 3606 : 2003	종이절연연피시내스타케이블	공칭쌍수 : 2400개 이하

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KS C 3608 : 1981	종이절연연피시내쌍케이블	2121 쌍이하
KS C 3610 : 2016	고주파동축케이블(폴리에틸렌절연편조형)	50 Ω 및 75 Ω
KS C 3612 : 2008	X선용고전압케이블	전압 : 150 kV 이하
KS C 3617 : 2016	텔레비전수신용동축케이블	주파수 : 1800 MHz 이하
KS C 3618 : 1983	폴리에틸렌결연강외피시내케이블	심선지름 : 0.9 mm 이하
KS C 3829 : 1990	고압기기내배선용전선	공칭전압 : 6.6 kV
KC 60228 : 2015	절연 케이블용 도체	(0.5 ~ 1 200) mm ²
KS C IEC 60228 : 2015	절연 케이블용 도체	(0.5 ~ 1 200) mm ²
KS C IEC 60331-1 : 2013	화재 조건에서 전기 케이블 시험-회로 보존성-제1부: 정격 전압 0.6/1.0 kV이고 완성 바깥지름 20 mm를 초과하는 케이블에 대한 최소 830 °C에서 충격 화재 시험방법	(750 ~ 950) °C
KS C IEC 60331-2 : 2013	화재 조건에서 전기 케이블 시험-회로 보존성-제2부: 정격 전압 0.6/1.0 kV이고 완성 바깥지름 20 mm를 초과하지 않는 케이블에 대한 최소 830 °C에서 충격 화재 시험방법	(750 ~ 950) °C
KS C IEC 60331-3 : 2014	화재 조건에서 전기 케이블 시험-회로 완전성-제3부: 최소 830 °C 온도에서 금속 외함에서 시험한 정격 전압 0.6/1.0 kV 이하 케이블에 대한 화재 시험방법	(750 ~ 950) °C
KS C IEC 60331-11 : 2003	화재 조건에서의 전기 케이블 시험-회로 보존성-제11부: 시험 설비-최소 750 °C 화염 온도의 불꽃	(750 ~ 950) °C
KS C IEC 60332-3-21 : 2003	화재 조건에서의 전기 케이블 난연성시험-제3-21부: 수직 배치된 케이블 또는 전선의 불꽃 시험-카테고리 A F/R	높이 (4 000 ± 100) mm 폭 (1 000 ± 100) mm 깊이 (2 000 ± 100) mm

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규격번호	규격명	시험범위
KS C IEC 60332-3-22 : 2003	화재 조건에서의 전기 케이블 난연성 시험-제3-22부: 수직 배치된 케이블 또는 전선의 불꽃 시험-카테고리 A	높아 (4 000 ± 100) mm 폭 (1 000 ± 100) mm 깊어 (2 000 ± 100) mm
KS C IEC 60332-3-23 : 2003	화재 조건에서의 전기 케이블 난연성 시험-제3-23부: 수직 배치된 케이블 또는 전선의 불꽃시험-카테고리B	높아 (4 000 ± 100) mm 폭 (1 000 ± 100) mm 깊어 (2 000 ± 100) mm
KS C IEC 60332-3-24 : 2003	화재 조건에서의 전기 케이블 난연성 시험-제3-24부: 수직 배치된 케이블 또는 전선의 불꽃 시험-카테고리 C	높아 (4 000 ± 100) mm 폭 (1 000 ± 100) mm 깊어 (2 000 ± 100) mm
KS C IEC 60332-3-25 : 2003	화재 조건에서의 전기 케이블 난연성 시험-제3-24부: 수직 배치된 케이블 또는 전선의 불꽃 시험-카테고리 D	높아 (4 000 ± 100) mm 폭 (1 000 ± 100) mm 깊어 (2 000 ± 100) mm
GS-6145-0000 : 2016	22.9 kV 친환경 충실 알루미늄 전력 케이블	(95 ~ 400) mm ²
GS-6145-0086 : 2015	22.9 kV 수트리억제 충실 광복합 전력케이블	(60 ~ 600) mm ²
GS-6145-0087 : 2015	22.9 kV 수트리억제 충실 알루미늄 광복합 전력케이블	(95 ~ 400) mm ²
IEC 60228 : 2004	Conductors of insulated cables	(0.5 ~ 1 200) mm ²
IEC 60331-1 : 2009	Tests for electric cables under fire conditions-Circuit integrity-Part 1: Test method for fire with shock at a temperature of at least 830 °C for cables of rated voltage up to and including 0,6/1,0 kV and with an overall diameter exceeding 20 mm	(750 ~ 950) °C
IEC 60331-2 : 2009	Tests for electric cables under fire conditions-Circuit integrity-Part 2: Test method for fire with shock at a temperature of at least 830 °C for cables of rated voltage up to and including 0,6/1,0 kV and with an overall diameter not exceeding 20 mm	(750 ~ 950) °C

Korea Laboratory Accreditation Scheme

제 KT011호

03.001 전선, 케이블, 전로용품

규격번호	규격명	시험범위
IEC 60331-3 : 2009	Tests for electric cables under fire conditions-Circuit integrity-Part 1: Test method for fire with shock at a temperature of at least 830 °C for cables of rated voltage up to and including 0,6/1,0 kV and with an overall diameter exceeding 20 mm	(750 ~ 950) °C
IEC 60331-11 : 1999	Tests for electric cables under fire conditions-Circuit integrity-Part 11: Apparatus-Fire alone at a flame temperature of at least 750 °C	(750 ~ 950) °C
IEC 60332-3-21 : 2000	Tests on electric cables under fire conditions-Part 3-21: Test for vertical flame spread of vertically-mounted bunched wires or cables-Category AF/R	높이 (4 000 ± 100) mm 폭 (1 000 ± 100) mm 깊이 (2 000 ± 100) mm
IEC 60332-3-22 : 2000	Tests on electric cables under fire conditions-Part 3-22: Test for vertical flame spread of vertically-mounted bunched wires or cables-Category A	높이 (4 000 ± 100) mm 폭 (1 000 ± 100) mm 깊이 (2 000 ± 100) mm
IEC 60332-3-23 : 2000	Tests on electric cables under fire conditions-Part 3-23: Test for vertical flame spread of vertically-mounted bunched wires or cables-Category B	높이 (4 000 ± 100) mm 폭 (1 000 ± 100) mm 깊이 (2 000 ± 100) mm
IEC 60332-3-24 : 2000	Tests on electric cables under fire conditions-Part 3-24: Test for vertical flame spread of vertically-mounted bunched wires or cables-Category C	높이 (4 000 ± 100) mm 폭 (1 000 ± 100) mm 깊이 (2 000 ± 100) mm
IEC 60332-3-25 : 2000	Tests on electric cables under fire conditions-Part 3-24: Test for vertical flame spread of vertically-mounted bunched wires or cables-Category D	높이 (4 000 ± 100) mm 폭 (1 000 ± 100) mm 깊이 (2 000 ± 100) mm
KRS PW 0005 : 2006	흠불이 경동 전차선	(110 ~ 170) mm ²

Korea Laboratory Accreditation Scheme

제 KT011호

03.001 전선, 케이블, 전로용품

규격번호	규격명	시험범위
KRS PW 0006 : 2006	가요 연동연선	(38 ~ 100) mm ²
KRS PW 0007 : 2006	카드뮴 동연선	(10 ~ 95) mm ²
KRS PW 0008 : 2016	청동연선	(12 ~ 65) mm ²
KRS PW 0009 : 2016	절연 경동연선	200 mm ²
NEN-HD 620 S2 : 2012	Distribution cables with extruded insulation for rated voltages from 3,6/6 (7,2) kV up to and including 20,8/36 (42) kV	(16 ~ 1 200) mm ²
UL 94 : 2010	Tests for flammability of plastic materials for parts in devices and appliances	500 W 이하
IEEE 1202 : 2012	IEEE Standard for Flame-Propagation Testing of Wire and Cable	높이 (3 353 ± 25) mm 가로 (2 438 ± 25) mm 세로 (2 438 ± 25) mm
AS/NZS 1429.1 : 2006	Electric cables-Polymeric insulated Part 1: For working voltages 1.9/3.3(3.6) kV up to and including 19/33(36) kV	(16 ~ 1 600) mm ²
AS/NZS 1429.2 : 2009	Electric cables-Polymeric insulated Part 2: For working voltages above 19/33 (36) kV up to and including 87/150(170) kV	(95 ~ 2 000) mm ²
AS/NZS 5000.1 : 2005	Electric cables-Polymeric insulated Part 1: For working voltages up to and including 0.6/1(1.2) kV	(1 ~ 1 200) mm ²
AS/NZS 5000.2 : 2006	Electric cables-Polymeric insulated Part 2: For working voltages up to and including 450/750 V	(1 ~ 16) mm ²
RS-6145-0026 : 2005	특고압난연수밀 형가공케이블(22.9kV용)	(50 ~ 240) mm ²

Korea Laboratory Accreditation Scheme

제 KT011호

03.001 전선, 케이블, 전로용품

규격번호	규격명	시험범위
ES-5340-0015 : 2014	동바인드선	Φ(2.0 ~ 5.0) mm
ES-5340-0016 : 2011	알루미늄 바인드선	Φ(4.0 ~ 5.0) mm
ES-5340-0017 : 2009	비닐 바인드선	Φ(1.6 ~ 2.0) mm
ES-5935-0008 : 2014	지중저압케이블접속재 (제외항목) 5.3.3 침수시험, 5.3.7 전류사이클 및 침수시험, 5.3.8 누설전류시험, 5.3.12 가압침수시험, 5.3.13 내후성시험, 5.3.14 접속재 열성능시험, 5.3.15 열조건 굴곡시험	(22 ~ 325) mm ²
ES-5935-0009 : 2010	23kV케이블중단접속재및직선접속재 (제외항목) 5.1.1.1 Tracking Resistance 시험, 5.1.1.2 인공오손시험, 5.1.1.3 내후성시험, 5.1.1.4 수밀시험	(60 ~ 600) mm ²
ES-5935-0010 : 2014	케이블엘보접속재 (제외항목) 단시간전료시험, 개폐시험, 고장투입시험, 전류주기시험, 가속기밀성시험, 케이블 접속력시험, 조작력시험, 조작고리시험, 시험점 캡시험, 차폐시험, X-Ray시험, 절연플러그 토크시험	(60 ~ 600) mm ²
ES-6145-0001 : 2009	아연도강연선	(7/2.0 ~ 7/3.5) mm
ES-6145-0002 : 2014	나경동선	(7/2.0 ~ 61/3.2) mm
ES-6145-0003 : 2010	동피복 강연선	(7/2.6 ~ 19/4.0) mm

Korea Laboratory Accreditation Scheme

제 KT011호

03.001 전선, 케이블, 전로용품

규격번호	규격명	시험범위
ES-6145-0005 : 2011	강심알루미늄연선(ACSR)	(6/2.6 ~ 54/3.5) mm
ES-6145-0006 : 2012	알루미늄피강심알루미늄절연전선(ACSR/AW-OC)	(6/SB ~ 18/SB) mm
ES-6145-0007 : 2009	고압강심알루미늄절연전선	6/SB mm
ES-6145-0012 : 2014	알루미늄피복강연선(AWS)	(7/3.2 ~ 19/3.7) mm
ES-6145-0013 : 2014	옥외용비닐절연전선(OW전선)	(2.0 ~ 19/3.2) mm
ES-6145-0014 : 2014	인입용비닐절연전선(DV전선)	(1/2.0 ~ 7/2.0) mm
ES-6145-0015 : 2014	450/750V일반용단심비닐절연전선	(1.5 ~ 120) mm ²
ES-6145-0017 : 2012	고압및특고압인하용절연전선	(7/1.0 ~ 1/5.0) mm
ES-6145-0018 : 2013	제어용비닐절연비닐시스케이블	(95 ~ 150) mm ²
ES-6145-0019 : 2016	22.9kV 동심 중성선 전력 케이블	(60 ~ 600) mm ²
ES-6145-0020 : 2014	알루미늄피복강심 알루미늄연선(ACSR/AW)	(32 ~ 160) mm ²
ES-6145-0021 : 2016	트래킹억제형수밀알루미늄피복강심알루미늄절연전선(ACSR/AW-TR/OC)	(58 ~ 240) mm ²
ES-6145-0022 : 2014	특고압수밀형가료폴리에틸렌절연동전선(OC-W)	(38 ~ 150) mm ²
ES-6145-0024 : 2014	내열강심알루미늄합금연선	(240 ~ 480) mm ²
ES-6145-0027 : 2009	22.9kV트리억제형전력케이블(TRCNC V-W)	(60 ~ 600) mm ²
ES-6145-0029 : 2014	고강도 초내열 알루미늄피복인바심 알루미늄합금연선	(240 ~ 480) mm ²
ES-6145-0025 : 2016	22.9kV수트리억제충실전력케이블	(60 ~ 600) mm ²

Korea Laboratory Accreditation Scheme

제 KT011호

03.001 전선, 케이블, 전로용품

규격번호	규격명	시험범위
ES-6145-0026 : 2016	22.9kV수트리억제충실알루미늄전력케이블	(60 ~ 600) mm ²
GS-6145-0076 : 2012	0.6 kV 수밀형XLPE절연비닐시스알루미늄전선	(35 ~ 300) mm ²
GS-6145-0077 : 2011	22.9 kV 해저 전력케이블 및 접속함	(60 ~ 600) mm ²
GS-6145-0078 : 2010	특고압 가공 스페이서 케이블 (22.9 kV)	(35 ~ 240) mm ²
KS C 3404 : 2000	22.9kV 동심 중성선 전력 케이블	(38 ~ 1 000) mm ²
KS C IEC 60092-350 : 2001	선박용 전기설비 - 제 350부 : 선박용 케이블의 구조 및 시험에 대한 일반요구사항	0.6 kV, 1 kV, 8.7 kV, 15 kV
KS C IEC 60092-353 : 2003	선박용 전기설비 - 제 353부 : 압출성형된 절연체를 가진 정격전압 1kV 및 3kV 용 단심 및 다심 비상사계 전력케이블	1 kV, 3 kV
KS C IEC 60092-354 : 2003	선박용 전기설비 - 제 354부 : 정격전압 6kV, 10kV 및 15kV용 압출성형된 절연 단심,3심 전력케이블	6 kV, 10 kV, 15 kV
KS C IEC 60092-375 : 2003	선박용 전기설비 - 제 359부 : 선박용 통신 케이블 및 무선주파수 케이블-일반 기계류,제어 및 통신 케이블	250 V 이하
KS C IEC 60092-376 : 2003	선박용 전기설비 - 제 376부 : 선박 제어 회로용 다심 케이블	250 V
KDC 6145-R4002 : 2006	국방규격 - 케이블	(1.6 ~ 2.6) Ω/km
KDC 6145-D4001 : 2003	국방규격 - 1000볼트급 케이블 (도면형)	(0 ~ 1) kV
6145-0053 : 1977	전력용케이블잠정규격서	(0 ~ 1) kV
6145-1298 : 1997	국방규격 - 케이블, 특수목적용, 전기식	(0 ~ 1) kV

Korea Laboratory Accreditation Scheme

제 KT011호

03.001 전선, 케이블, 전로용품

규격번호	규격명	시험범위
GS-6145-0080 : 2016	옥외용 알루미늄피복강심 알루미늄 도체 비닐 절연전선 (ACSR/AW-OW전선)	6/SB mm
GS-6145-0068 : 2016	22.9 kV 수트리억제 난연 알루미늄 전력케이블	(95 ~ 400) mm ²
GS-6145-0072 : 2013	고장력 내열 알루미늄피복강심 알루미늄합금연선	(0 ~ 22.9) kV
IEC 60799 : 1998	Electrical accessories - Cord sets and interconnection cord sets	16 A 이하
IEC 60502-1 Ed. 2. 1 : 2009	Power cables with extruded insulation and their accessories for rated voltages from 1 kV (Um = 1,2 kV) up to 30 kV (Um = 36 kV) -Part 1 : Cables for rated voltages of 1 kV (Um = 1,2 kV) and 3 kV (Um = 3,6 kV)	(1 ~ 3) kV
IEC 60227-1 : 2007	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V - Part 1 : General requirements	450 V/750 V 이하
IEC 60227-2 : 2003	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V - Part 2 : Test methods	450 V/750 V 이하
IEC 60227-3 : 1997	Polyvinyl chloride insulated cables of rated voltages up to and including 450 / 750 V part 3 : Non-sheathed cable for fixed wiring	450 V/750 V 이하
IEC 60227-5 : 2011	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V - Part 5 : Flexible cables (cords)	450 V/750 V 이하
IEC 60227-7 : 2012	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V - Part 7 : Flexible cables	450 V/750 V 이하

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Korea Laboratory Accreditation Scheme

제 KT011호

03.001 전선, 케이블, 전로용품

규격번호	규격명	시험범위
	screened and unshielded with two or more conductors	
IEC 60245-1 : 2008	Rubber insulated cables - Rated voltages up to and including 450/750 V - Part 1 : General requirements	450 V/750 V 이하
IEC 60245-4 : 2011	Rubber insulated cables - Rated voltages up to and including 450/750 V - Part 4 : Cords and flexible cables	450 V/750 V 이하
IEC 60245-6 : 2003	Rubber insulated cables - Rated voltages up to and including 450/750 V - Part 6 : Arc welding electrode cables	450 V/750 V 이하
IEC 60245-8 : 2012	Rubber insulated cables - Rated voltages up to and including 450/750 V - Part 8 : Cords for applications requiring high flexibility	450 V/750 V 이하
IEC 60227-4 : 1997	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V - Part 4 : Sheathed cables for fixed wiring	450 V/750 V 이하
IEC 60227-6 : 2001	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V - Part 6 : Lift cables and cables for flexible connections	450 V/750 V 이하
IEC 60245-2 : 1998	Rubber insulated cables - Rated voltages up to and including 450/750 V - Part 2 : Test methods	450 V/750 V 이하
IEC 60245-3 : 2011	Rubber insulated cables - Rated voltages up to and including 450/750 V - Part 3 : Heat resistant silicone rubber cables	450 V/750 V 이하
IEC 60245-5 : 2003	Rubber insulated cables - Rated	450 V/750 V 이하

Korea Laboratory Accreditation Scheme

제 KT011호

03.001 전선, 케이블, 전로용품

규격번호	규격명	시험범위
	voltages up to and including 450/750 V - Part 5 : Lift cables	
IEC 60245-7 : 1997	Rubber insulated cables - Rated voltages up to and including 450/750 V - Part 7 : Heat resistant ethylene-vinyl acetate rubber insulated cables	450 V/750 V 이하
IEC 60502-2 ed. 3.0 : 2014	Power cables with extruded insulation and their accessories for rated voltages from 1 kV (Um = 1,2 kV) up to 30 kV (Um = 36 kV) - Part 2 : Cables for rated voltages from 6 kV (Um = 7,2 kV) up to 30 kV (Um = 36 kV)	(6 ~ 30) kV
IEC 60092-352 : 2005	Electrical installations in ships - Part 352 : Choice and installation of electrical cables	(0 ~ 15) kV
IEC 60230 Ed. 1.0 b : 1966	Impulse tests on cables and their accessories	(0 ~ 1400) kV/1400 kJ
AEIC CS 5 : 1995	SPECIFICATIONS FOR CROSS-LINKED POLYETHYLENE INSULATED SHIELDED POWER CABLES RATED 5 THROUGH 46 KV	(5 ~ 46) kV
ICEA S-94-649 : 2004	CONCENTRIC NEUTRAL CABLES RATED 5 THROUGH 46 KV	(5 ~ 46) kV
EN 50117-2-1 : 2005	Coaxial cables -- Part 2-1 : Sectional specification for cables used in cabled distribution networks - Indoor drop cables for systems operating at 5 MHz - 1 000 MHz	(5 ~ 1 000) MHz
EN 50117-2-2 : 2004	Coaxial cables -- Part 2-2 : Sectional specification for cables used in cabled distribution networks - Outdoor drop cables for systems	(5 ~ 1 000) MHz

Korea Laboratory Accreditation Scheme

제 KT011호

03.001 전선, 케이블, 전로용품

규격번호	규격명	시험범위
	operating at 5 MHz - 1 000 MHz	
EN 50117-2-3 : 2004	Coaxial cables -- Part 2-32 : Sectional specification for cables used in cabled distribution networks - Distribution and trunk cables for systems operating at 5 MHz - 1 000 MHz	(5 ~ 1 000) MHz
EN 50117-2-4 : 2004	Coaxial cables -- Part 2-4 : Sectional specification for cables used in cabled distribution networks - Indoor drop cables for systems operating at 5 MHz - 3 000 MHz	(5 ~ 3 000) MHz
EN 50117-2-5 : 2004	Coaxial cables -- Part 2-5 : Sectional specification for cables used in cabled distribution networks - Outdoor drop cables for systems operating at 5 MHz - 3 000 MHz	(5 ~ 3 000) MHz
EN 50117-3-1 : 2002	Coaxial cables -- Part 3-1 : Sectional specifications for cables used in Telecom applications - Miniaturized cables used in digital communication systems	150 V 이하
EN 50117-4-1 : 2008	Coaxial cables -- Part 4-1 : Sectional specification for cables for BCT cabling in accordance with EN 50173 - Indoor drop cables for systems operating at 5 MHz - 3 000 MHz	(5 ~ 3 000) MHz
EN 50214 : 2006	Flat polyvinyl chloride sheathed flexible cables	450 V/750 V 이하

Korea Laboratory Accreditation Scheme

제 KT011호

03.001 전선, 케이블, 전로용품

규격번호	규격명	시험범위
EN 50288-2-1 : 2003	Multi-element metallic cables used in analogue and digital communication and control -- Part 2-1 : Sectional specification for screened cables characterised up to 100 MHz - Horizontal and building backbone cables	100 MHz 이하
EN 50288-2-2 : 2003	Multi-element metallic cables used in analogue and digital communication and control -- Part 2-2 : Sectional specification for screened cables characterised up to 100 MHz - Work area and patch cord cables	100 MHz 이하
EN 50288-3-1 : 2003	Multi-element metallic cables used in analogue and digital communication and control -- Part 3-1 : Sectional specification for unscreened cables characterised up to 100 MHz - Horizontal and building backbone cables	100 MHz 이하
EN 50288-3-2 : 2003	Multi-element metallic cables used in analogue and digital communication and control -- Part 3-2 : Sectional specification for unscreened cables characterised up to 100 MHz - Work area and patch cord cables	100 MHz 이하
EN 50288-4-1 : 2003	Multi-element metallic cables used in analogue and digital communication and control -- Part	600 MHz 이하

Korea Laboratory Accreditation Scheme

제 KT011호

03.001 전선, 케이블, 전로용품

규격번호	규격명	시험범위
	4-1 : Sectional specification for screened cables characterised up to 600 MHz - Horizontal and building backbone cables	
EN 50288-4-2 : 2003	Multi-element metallic cables used in analogue and digital communication and control -- Part 4-2 : Sectional specification for screened cables characterised up to 600 MHz - Work area and patch cord cables	600 MHz 이하
EN 50288-5-1 : 2003	Multi-element metallic cables used in analogue and digital communication and control -- Part 5-1 : Sectional specification for screened cables characterized up to 250 MHz - Horizontal and building backbone cables	250 MHz 이하
EN 50288-5-2 : 2003	Multi-element metallic cables used in analogue and digital communication and control -- Part 5-2 : Sectional specification for screened cables characterized up to 250 MHz - Work area and patch cord cables	250 MHz 이하
EN 50288-6-1 : 2003	Multi-element metallic cables used in analogue and digital communication and control -- Part 6-1 : Sectional specification for unscreened cables characterised up to 250 MHz - Horizontal and building backbone cables	250 MHz 이하

Korea Laboratory Accreditation Scheme

제 KT011호

03.001 전선, 케이블, 전로용품

규격번호	규격명	시험범위
EN 50288-6-2 : 2003	Multi-element metallic cables used in analogue and digital communication and control -- Part 6-2 : Sectional specification for unscreened cables characterised up to 250 MHz - Work area and patch cord cables	250 MHz 이하
EN 50288-7 : 2005	Multi-element metallic cables used in analogue and digital communication and control -- Part 7 : Sectional specification for instrumentation and control cables	500 V 이하
EN 50363-2-1 : 2005	Insulating, sheathing and covering materials for low voltage energy cables -- Part 2-1 : Cross-linked elastomeric sheathing compounds	온도 : 60 °C, 90 °C, 110 °C, 180 °C
EN 50363-2-2 : 2005	Insulating, sheathing and covering materials for low voltage energy cables -- Part 2-2 : Cross-linked elastomeric covering compounds	온도 : 85 °C
EN 50363-3 : 2005	Insulating, sheathing and covering materials for low voltage energy cables -- Part 3 : PVC insulating compounds	온도 : 70 °C, 90 °C
EN 50363-4-1 : 2005	Insulating, sheathing and covering materials for low voltage energy cables -- Part 4-1 : PVC sheathing compounds	온도 : 70 °C, 90 °C
EN 50363-4-2 : 2005	Insulating, sheathing and covering materials for low voltage energy cables -- Part 4-2 : PVC covering compounds	온도 : 70 °C
EN 50363-5 : 2005	Insulating, sheathing and covering materials for low voltage energy	온도 : 70 °C, 90 °C

Korea Laboratory Accreditation Scheme

제 KT011호

03.001 전선, 케이블, 전로용품

규격번호	규격명	시험범위
	cables -- Part 5 : Halogen-free, cross-linked insulating compounds	
EN 50363-6 : 2005	Insulating, sheathing and covering materials for low voltage energy cables -- Part 6 : Halogen-free, cross-linked sheathing compounds	온도 : 70 °C
EN 50363-7 : 2005	Insulating, sheathing and covering materials for low voltage energy cables -- Part 7 : Halogen-free, thermoplastic insulating compounds	온도 : 70 °C
EN 50363-8 : 2005	Insulating, sheathing and covering materials for low voltage energy cables -- Part 8 : Halogen-free, thermoplastic sheathing compounds	온도 : 70 °C
EN 50363-9-1 : 2005	Insulating, sheathing and covering materials for low voltage energy cables -- Part 9-1 : Miscellaneous insulating compounds - Cross-linked polyvinyl chloride (XLPVC)	온도 : 70 °C
EN50363-10-1 : 2005	Insulating, sheathing and covering materials for low voltage energy cables -- Part 10-1 : Miscellaneous sheathing compounds - Cross-linked polyvinyl chloride (XLPVC)	온도 : 70 °C
EN 50363-10-2 : 2005	Insulating, sheathing and covering materials for low voltage energy cables -- Part 10-2 : Miscellaneous sheathing compounds - Thermoplastic polyurethane	온도 : 90 °C
EN 50369 : 2005	Liquid tight sheathing systems for cable management	(0 ~ 1) kV

Korea Laboratory Accreditation Scheme

제 KT011호

03.001 전선, 케이블, 전로용품

규격번호	규격명	시험범위
EN 50525-2-11 : 2011	Electric cables - Low voltage energy cables of rated voltages up to and including 450/750 V (U ₀ /U) -- Part 2-11 : Cables for general applications - Flexible cables with thermoplastic PVC insulation	450 V/750 V 이하
EN 50525-2-12 : 2011	Electric cables - Low voltage energy cables of rated voltages up to and including 450/750 V (U ₀ /U) -- Part 2-12 : Cables for general applications - Cables with thermoplastic PVC insulation for extensible leads	450 V/750 V 이하
EN 50525-2-21 : 2011	Electric cables - Low voltage energy cables of rated voltages up to and including 450/750 V (U ₀ /U) -- Part 2-21 : Cables for general applications - Flexible cables with crosslinked elastomeric insulation	450 V/750 V 이하
EN 50525-2-22 : 2011	Electric cables - Low voltage energy cables of rated voltages up to and including 450/750 V (U ₀ /U) -- Part 2-22 : Cables for general applications - High flexibility braided cables with crosslinked elastomeric insulation	450 V/750 V 이하
EN 50525-2-31 : 2011	Electric cables - Low voltage energy cables of rated voltages up to and including 450/750 V (U ₀ /U) -- Part 2-31 : Cables for general applications - Single core	450 V/750 V 이하

Korea Laboratory Accreditation Scheme

제 KT011호

03.001 전선, 케이블, 전로용품

규격번호	규격명	시험범위
	non-sheathed cables with thermoplastic PVC insulation	
EN 50525-2-41 : 2011	Electric cables - Low voltage energy cables of rated voltages up to and including 450/750 V (U0/U) -- Part 2-41 : Cables for general applications - Single core cables with crosslinked silicone rubber insulation	450 V/750 V 이하
EN 50525-2-42 : 2011	Electric cables - Low voltage energy cables of rated voltages up to and including 450/750 V (U0/U) -- Part 2-42 : Cables for general applications - Single core non-sheathed cables with crosslinked EVA insulation	450 V/750 V 이하
EN 50525-2-51 : 2011	Electric cables - Low voltage energy cables of rated voltages up to and including 450/750 V (U0/U) -- Part 2-51 : Cables for general applications - Oil resistant control cables with thermoplastic PVC insulation	450 V/750 V 이하
EN 50525-2-71 : 2011	Electric cables - Low voltage energy cables of rated voltages up to and including 450/750 V (U0/U) -- Part 2-71 : Cables for general applications - Flat tinsel cables (cords) with thermoplastic PVC insulation	(450 V/750 V 이하)

Korea Laboratory Accreditation Scheme

제 KT011호

03.001 전선, 케이블, 전로용품

규격번호	규격명	시험범위
EN 50525-2-72 : 2011	Electric cables - Low voltage energy cables of rated voltages up to and including 450/750 V (U0/U) -- Part 2-72 : Cables for general applications - Flat divisible cables (cords) with thermoplastic PVC insulation	450 V/750 V 이하
EN 50525-2-81 : 2011	Electric cables - Low voltage energy cables of rated voltages up to and including 450/750 V (U0/U) -- Part 2-81 : Cables for general applications - Cables with crosslinked elastomeric covering for arc welding	450 V/750 V 이하
EN 50525-2-82 : 2011	Electric cables - Low voltage energy cables of rated voltages up to and including 450/750 V (U0/U) -- Part 2-82 : Cables for general applications - Cables with crosslinked elastomeric insulation for decorative chains	450 V/750 V 이하
EN 50525-2-83 : 2011	Electric cables - Low voltage energy cables of rated voltages up to and including 450/750 V (U0/U) -- Part 2-83 : Cables for general applications - Multicore cables with crosslinked silicone rubber insulation	450 V/750 V 이하
EN 50525-3-11 : 2011	Electric cables - Low voltage energy cables of rated voltages up to and including 450/750 V (U0/U)	450 V/750 V 이하

Korea Laboratory Accreditation Scheme

제 KT011호

03.001 전선, 케이블, 전로용품

규격번호	규격명	시험범위
	-- Part 3-11 : Cables with special fire performance - Flexible cables with halogen-free thermoplastic insulation, and low emission of smoke	
EN 50525-3-21 : 2011	Electric cables - Low voltage energy cables of rated voltages up to and including 450/750 V (U0/U) -- Part 3-21 : Cables with special fire performance - Flexible cables with halogen-free crosslinked insulation, and low emission of smoke	450 V/750 V 이하
EN 50525-3-31 : 2011	Electric cables - Low voltage energy cables of rated voltages up to and including 450/750 V (U0/U) -- Part 3-31 : Cables with special fire performance - Single core non-sheathed cables with halogen-free thermoplastic insulation, and low emission of smoke	450 V/750 V 이하
EN 50525-3-41 : 2011	Electric cables - Low voltage energy cables of rated voltages up to and including 450/750 V (U0/U) -- Part 3-41 : Cables with special fire performance - Single core non-sheathed cables with halogen-free crosslinked insulation, and low emission of smoke	450 V/750 V 이하
HD 21.3 S3 : 1995	Polyvinyl chloride insulated cables	450 V/750 V 이하

Korea Laboratory Accreditation Scheme

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03.001 전선, 케이블, 전로용품

규격번호	규격명	시험범위
	of rated voltages up to and including 450/750 V -- Part 3 : Non-sheathed cables for fixed wiring	
HD 21.4 S2 : 1990	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V -- Part 4 : Sheathed cables for fixed wiring	450 V/750 V 이하
HD 21.5 S3 : 1994	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V -- Part 5 : Flexible cables (cords)	450 V/750 V 이하
HD 21.7 S2 : 1996	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V -- Part 7 : Single core non-sheathed cables for internal wiring for a conductor temperature of 90° C	450 V/750 V 이하
HD 21.8 S2 : 1999	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V -- Part 8 : Single core non-sheathed cables for decorative chains	450 V/750 V 이하
HD 21.9 S2 : 1999	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V -- Part 9 : Single core non-sheathed cable for installation at low temperatures	450 V/750 V 이하
HD 21.10 S2 : 2001	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V -- Part 10 : Extensible leads	450 V/750 V 이하

Korea Laboratory Accreditation Scheme

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03.001 전선, 케이블, 전로용품

규격번호	규격명	시험범위
HD 21.11 S1 : 1995	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V -- Part 11 : Cables for luminaires	450 V/750 V 이하
HD 21.12 S1 : 1994	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V -- Part 12 : Heat-resistant flexible cables (cords)	450 V/750 V 이하
HD 21.13 S1 : 1995	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V -- Part 13 : Oil resistant PVC sheathed cables with two or more conductors	450 V/750 V 이하
HD 21.14 S1 : 2003	Cables of rated voltage up to and including 450/750 V and having thermoplastic insulation -- Part 14 : Flexible cables (cords), insulated and sheathed with halogen-free thermoplastic compounds	450 V/750 V 이하
HD 21.15 S1 : 2006	Cables of rated voltages up to and including 450/750 V and having thermoplastic insulation -- Part 15 : Single core cables, insulated with halogen-free thermoplastic compound, for fixed wiring	450 V/750 V 이하
HD 308 S2 : 2001	Identification of cores in cables and flexible cords	(0 ~ 1) kV
HD 603 S1/A3 : 2007	Distribution cables of rated 0.6/1kV	0.6 kV/1 kV
HD 604 S1 : 1994	0.6/1 kV and 1.9/3.3 kV Power cables with special fire performance in power stations	0.6 kV/1 kV, 1.9 kV/3.3 kV

Korea Laboratory Accreditation Scheme

제 KT011호

03.001 전선, 케이블, 전로용품

규격번호	규격명	시험범위
HD 622 S1/A2 : 2005	Power cables having rated voltage from 3.6/6(7.2) kV up to and including 20.8/36(42) kV with special fire performance for use in power stations	3.6 kV / 6 kV, 20.8 kV / 36 kV
HD 626 S1/A2 : 2002	Overhead distribution cables of rated voltage 0.6/1 kV	0.6/1 kV
HD 627 S1 : 1996	Multicore and multipair cables for installation above and below ground	(0 ~ 1) kV
UL 758 : 2006	Appliance wiring material	공칭단면적 : 50 AWG ~ 2 000 kcmil
UL 4 : 2004	Armored Cable	(14 ~ 1) AWG
UL 1425 : 2005	Cables for Non-Power-Limited Fire-Alarm Circuits	도체지름 : (1.16 ~ 2.32) mm
UL 1424 : 2005	Cables for Power-Limited Fire-Alarm Circuits	도체지름 : (0.457 ~ 2.95) mm
UL 444 : 2008	Communications Cables	(30 ~ 6) AWG
UL 1655 : 2009	Community-Antenna Television Cables	도체지름 : (0.579 ~ 20.65) mm
UL 1690 : 2006	Data-Processing Cable	공칭단면적 : (30 ~ 15) AWG
UL 1426 : 2010	Electrical Cables for Boats	공칭단면적 : (30 ~ 18) AWG
UL 1277 : 2010	Electrical Power and Control Tray Cables with Optional Optical-Fiber Members	공칭단면적 : 18 AWG ~ 1 000 kcmil
UL 62 : 2010	Flexible Cord and Fixture Wire	(0 ~ 1) kV
UL 814 : 2011	Gas-Tube-Sign and Ignition Cable	(18 ~ 10) AWG
UL 2250 : 2006	Instrumentation Tray Cable	(22 ~ 12) AWG
UL 1063 : 2006	Machine-Tool Wires and Cables	공칭단면적 : 22 AWG ~ 1 000 kcmil
UL 1309 : 2011	Marine Shipboard Cable	공칭단면적 : 22 AWG ~ 2 000 kcmil
UL 1072 : 2006	Medium-Voltage Power Cables	공칭단면적 : 9 AWG ~ 2 000 kcmil

Korea Laboratory Accreditation Scheme

제 KT011호

03.001 전선, 케이블, 전로용품

규격번호	규격명	시험범위
UL 1569 : 1999	Metal-Clad Cables	공칭단면적 : 12 AWG ~ 2 000 kcmil
UL 2225 : 2011	Metal-Clad Cables and Cable-Sealing Fittings for Use in Hazardous (Classified) Locations	(0 ~ 1) kV
UL 719 : 2006	Nonmetallic-Sheathed Cables	(14 ~ 2) AWG
UL 1651 : 2008	Optical Fiber Cable	(0 ~ 1) kV
UL 13 : 2011	Power-Limited Circuit Cables	(0.552 ~ 4.67) mm
UL 1581 : 2013	Reference Standard for Electrical Wires, Cables, and Flexible Cords	(0.071 ~ 460.0) mm
UL 854 : 2004	Service-Entrance Cables	(1.14 ~ 3.18) mm
UL 1666 : 2007	Test for Flame Propagation Height of Electrical and Optical-Fiber Cables Installed Vertically in Shafts	0.002 5 mm
UL 493 : 2007	Thermoplastic-Insulated Underground Feeder and Branch-Circuit Cables	(19.0 ~ 57.3) mm
UL 83 : 2008	Thermoplastic-Insulated Wires and Cables	(5.5 ~ 20.0) mm
UL 44 : 2010	Thermoset-Insulated Wires and Cables	(12.7 ~ 26.42) mm
UL 1685 : 2010	Vertical-Tray Fire-Propagation and Smoke-Release Test for Electrical and Optical-Fiber Cables	(13 ~ 120) mm
MIL-DTL-24643B : 2002	Cables and cords, electric, low smoke, for shipboard use general specification for	(3 ~ 1 000) V

Korea Laboratory Accreditation Scheme

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03.011 전자기적합성

규격번호	규격명	시험범위
KS C CISPR 11 : 2011	산업, 과학, 의료(ISM)기기 - 무선 주파수 방해 특성 - 측정 한계값 및 방법	CE : 150 kHz ~ 30 MHz RE : 30 MHz ~ 18 GHz
KS C CISPR 13 : 2011	음성, 텔레비전 방송 수신기 및 관련기기 - 무선 방해 특성 - 측정 한계값과 측정방법	CE : 150 kHz ~ 30 MHz RE : 30 MHz ~ 18 GHz DP : 30 MHz ~ 300 MHz
KS C CISPR 14-1 : 2011	가정용 전기기기, 전동공구 및 이와 유사기기의 요구 조건 - 제1부 : 방출	CE : 150 kHz ~ 30 MHz RE : 30 MHz ~ 1 GHz DP : 30 MHz ~ 300 MHz
KS C CISPR 14-2 : 2011	가정용 전기기기, 전동공구 및 이와 유사기기의 요구 조건 - 제2부 : 내성	ESD : 30 kV RS : 80 MHz ~ 3 GHz EFT : 4 kV Surge : 12 kV CS : 150 kHz ~ 300 MHz V-Dip : 정격전류 125 A 이하
KS C CISPR 15 : 2011	조명기기 및 유사 기기의 무선 방해 특성의 측정 한계값과 측정 방법	CE : 9 kHz ~ 30 MHz RE : 9 kHz ~ 1 GHz
KS C CISPR 20 : 2014	음성, TV 방송수신기 및 관련기기의 전기자기 내성 측정방법 및 한계값 (제외항목) 4.3.2 TV 수신기와 튜너를 갖고 있는 비디오 관련기기의 RF 전압(차동모드)에 대한 입력 내성의 요구사항 4.3.4 차폐 효과에 대한 내성 요구사항 4.7.1.2 TV 방송수신기 4.7.1.3 관련기기(비디오테이프 기기) 5.2.3 화질 평가의 시험 절차 5.3.2 TV 수신기와 비디오테이프 기기의 시험 5.5 차폐효과시험	ESD : 30 kV EFT : 8 kV
KS C CISPR 22 : 2011	정보 기술 기기 - 무선 방해 특성 - 측정 한계값과 측정방법	CE : 150 kHz ~ 30 MHz RE : 30 MHz ~ 1 GHz

Korea Laboratory Accreditation Scheme

제 KT011호

03.011 전자기적합성

규격번호	규격명	시험범위
KS C CISPR 24 : 2014	전기자기적합성(EMC) - 정보기기의(ITE) 전자기내성 시험방법 및 측정의 한계값 A.2.2 특별 성능 판단기준 (제외)	ESD : 30 kV RS : 80 MHz ~ 3 GHz EFT : 8 kV Surge : 15 kV CS : 150 kHz ~ 300 MHz MF : 130 A/m V-Dip : 정격전류 125 A 이하
KS C CISPR 61000-6-3 : 2004	전기자기적합성(EMC) - 제6부 : 일반기준 - 제3절 : 주거용·상업용·경공업 환경에서 사용하는 기기의 전기자기장해 기준	CE : 150 kHz ~ 30 MHz RE : 30 MHz ~ 6 GHz
KS C IEC 60601-1-2 : 2012	의료용 전기기기 - 제1-2부 : 안전에 관한 일반 요구사항 - 부가 표준 : 전자기 적합성 - 요구사항 및 시험	CE : 150 kHz ~ 30 MHz RE : 9 kHz ~ 1 GHz ESD : 30 kV RS : 80 MHz ~ 3 GHz EFT : 8 kV Surge : 15 kV CS : 150 kHz ~ 300 MHz MF : 130 A/m V-Dip : 정격전류 125 A 이하
KS C IEC 60947-1 : 2014	저전압 개폐장치 및 제어장치 - 제1부 : 일반 규정 7.3 전자기 호환성(EMC)	CE : 150 kHz ~ 30 MHz RE : 30 MHz ~ 6 GHz ESD : 30 kV RS : 80 MHz ~ 3 GHz EFT : 8 kV Surge : 15 kV CS : 150 kHz ~ 300 MHz MF : 130 A/m V-Dip : 정격 전류 125 A 이하
KS C IEC 61000-3-11 : 2014	전기자기 적합성 - 제3부 : 한계값 - 제11절 : 전압변동 및 플리커에 대한 한계값	정격전류 125 A 이하

Korea Laboratory Accreditation Scheme

제 KT011호

03.011 전자기적합성

규격번호	규격명	시험범위
	(75 A 이하의 정격 전류와 조건부 연결기기)	
KS C IEC 61000-3-12 : 2013	전기자기 적합성(EMC) — 제3-12부 : 한계값 — 공공저전압 시스템에 연결된 기기에서 발생하는 고조파 전류의 한계값 (16 A < 상당입력전류 ≤ 75 A)	정격전류 125 A 이하
KS C IEC 61000-4-2 : 2010	전기자기적합성(EMC) - 제4-2부 : 시험 및 측정기술 - 정전기 방전 내성시험	ESD : 30 kV
KS C IEC 61000-4-3 : 2013	전기자기 적합성(EMC) - 제4-3부 : 시험 및 측정기술 - 방사 무선주파수 전기자기장 내성시험	RS : 26 MHz ~ 3 GHz
KS C IEC 61000-4-4 : 2013	전기자기 적합성(EMC) - 제4-4부 : 시험 및 측정기술 - 전기적 빠른 과도현상/버스트 내성시험	EFT : 8 kV
KS C IEC 61000-4-5 : 2014	전기자기 적합성(EMC) - 제4-5부 : 시험 및 측정기술 - 서지 내성시험	Surge : 15 kV
KS C IEC 61000-4-6 : 2010	전기자기 적합성(EMC) - 제4-6부 : 시험 및 측정기술 - 전자기장 전도내성시험	CS : 150 kHz ~ 300 MHz
KS C IEC 61000-4-8 : 2010	전기자기 적합성(EMC)-제4장 : 시험 및 측정기술 -제8부 : 전원주파수 자체내성시험	MF : 130 A/m(continuous), 1 000 A/m(short)
KS C IEC 61000-4-11 : 2008	전기자기 적합성(EMC) - 제4-11부 : 시험 및 측정기술 - 전압강하, 순시정전 및 전압변동 내성시험	정격전류 125 A 이하
KS C IEC 61000-4-12 : 2008	전기자기 적합성(EMC) - 제4-12부 : 시험 및 측정기술 - 링 파형 내성시험	Ring wave : 6 kV
KS C IEC 61000-4-3 : 2013	전기자기 적합성(EMC) - 제4-3부 : 시험 및 측정기술 - 방사 무선주파수 전기자기장 내성시험	방사 무선주파수 전기자기장 내성시험 : 26 MHz ~ 6 GHz

Korea Laboratory Accreditation Scheme

제 KT011호

03.011 전자기적합성

규격번호	규격명	시험범위
KS C IEC 61000-4-14 : 2010	전자자기 적합성(EMC) - 제4부 : 시험 및 측정 방법 - 제14절 : 전압 변동 내성 시험	정격전압 270 V 이하
KS C IEC 61000-4-17 : 2010	전자자기적합성(EMC) - 제4부 : 시험 및 측정 방법 - 제17절 : DC입력 전원 포트 리플 내성 시험	직류 출력전압 : 380 V
KS C IEC 61000-4-27 : 2014	전자자기 적합성(EMC) - 제4부 : 시험 및 측정기술- 제27절 : 불평형 내성시험	정격전압 270 V 이하
KS C IEC 61000-4-28 : 2010	전자자기 적합성 (EMC) - 제4-28부 : 시험 및 측정 기술 - 전원 주파수의 변화, 내성 시험	정격전류 125 A 이하
KS C IEC 61000-6-1 : 2014	전자자기 적합성(EMC) - 제6-1부 : 일반기준 - 주거용, 상업용 및 경공업 환경에서 사용하는 기기의 전자자기내성 기준	ESD : 30 kV RS : 80 MHz ~ 3 GHz EFT : 8 kV Surge : 15 kV CS : 150 kHz ~ 300 MHz MF : 130 A/m V-Dip : 정격전류 125 A 이하
KS C IEC 61000-6-2 : 2014	전자자기적합성(EMC) - 제6-2부 : 일반기준 - 산업 환경에서 사용하는 기기의 전자자기내성 기준	ESD : 30 kV RS : 80 MHz ~ 3 GHz EFT : 8 kV Surge : 15 kV CS : 150 kHz ~ 300 MHz MF : 130 A/m V-Dip : 정격전류 125 A 이하
KS C IEC 61000-6-4 : 2014	전자기적합성(EMC) - 제6-4부 : 일반기준 - 산업용 환경에서 사용하는 기기의 전자자기장해 기준	CE : 150 kHz ~ 30 MHz RE : 30 MHz ~ 6 GHz
KS C IEC 61547 : 2014	일반 조명기기 - 전자자기적합성 내성 요구사항	ESD : 30 kV RS : 80 MHz ~ 3 GHz EFT : 8 kV Surge : 15 kV

한국인정기구(KOLAS)는 국제시험기관인정협력체(ILAC)의 상호인정협정(MRA) 서명기구입니다.

Korea Laboratory Accreditation Scheme

제 KT011호

03.011 전자기적합성

규격번호	규격명	시험범위
		CS : 150 kHz ~ 300 MHz MF : 130 A/m V-Dip : 정격전류 125 A 이하
KS C IEC 62040-2 : 2008	무정전전원장치(UPS) - 제2부 : 전자기 적합성(EMC) 요구사항	CE : 150 kHz ~ 30 MHz RE : 10 kHz ~ 6 GHz ESD : 30 kV RS : 80 MHz ~ 3 GHz EFT : 8 kV Surge : 15 kV CS : 150 kHz ~ 300 MHz MF : 130 A/m V-Dip : 정격전류 125 A 이하
KS C IEC 62053-21 : 2003	전자식 유효 전력량계 (1급 및 2급) 5.5 전자적합성시험(EMC)	CE : 150 kHz ~ 30 MHz RE : 30 MHz ~ 6 GHz ESD : 30 kV RS : 80 MHz ~ 3 GHz EFT : 8 kV
KS C 0262 : 2014	전기자기적합성(EMC) - 측정일반	
KS C 4310 : 2013	무정전전원장치	-
KS C 4613 : 2011	누전 차단기	
KS C 1214 : 2010	전자식 유효/무효 전력량계 (유효 0.2급/0.5급, 1.0급/2.0급, 무효 2.0급/3.0급) 7.17 전자기적적합성(EMC)	CE : 150 kHz ~ 30 MHz RE : 30 MHz ~ 6 GHz EFT : 8 kV Damped osc. : 100 kHz, 1 MHz(slow); 3 MHz, 10 MHz, 30 MHz(fast) RS : 80 MHz ~ 3 GHz CS : 150kHz ~ 300 MHz ESD : 30 kV Surge : 15 kV
KS X IEC 60945 :	해상 항해 및 무선통신 기기와 시스템 - 일반 요구사항 - 시험	CE : 10 kHz ~ 30 MHz RE : 150 kHz ~ 2 GHz ESD : 30 kV

Korea Laboratory Accreditation Scheme

제 KT011호

03.011 전자기적합성

규격번호	규격명	시험범위
2005	방법과 요구되는 시험결과	RS : 80 MHz ~ 3 GHz EFT : 8 kV Surge : 15 kV CS : 150 kHz ~ 300 MHz
KN 13 : 2008	방송수신기 및 관련 기기류 장애방지 시험방법	CE : 150 kHz ~ 30 MHz RE : 30 MHz ~ 18 GHz DP : 30 MHz ~ 300 MHz
KN 14-1 : 2014	가정용 전기기기 및 전동기기 장애방지 시험방법	CE : 150 kHz ~ 30 MHz RE : 30 MHz ~ 1 GHz DP : 30 MHz ~ 300 MHz
KN 14-2 : 2014	가정용 전기기기 및 전동기기류 내성 시험방법	ESD : 30 kV RS : 80 MHz ~ 3 GHz EFT : 8 kV Surge : 15 kV CS : 150 kHz ~ 300 MHz V-Dip : 정격전류 125 A 이하
KN 15 : 2015	조명기기 장애방지 시험방법	CE : 9 kHz ~ 30 MHz RE : 9 kHz ~ 1 GHz
KN 22 : 2009	정보기기류 장애방지 시험방법	CE : 150 kHz ~ 30 MHz RE : 30 MHz ~ 1 GHz
KN 24 : 2011	정보기기류 내성 시험방법 A.2.2 특별 성능 판단기준 (제외)	ESD : 30 kV RS : 80 MHz ~ 3 GHz EFT : 8 kV Surge : 15 kV CS : 150 kHz ~ 300 MHz MF : 130 A/m V-Dip : 정격전류 125 A 이하
KS C IEC 60533 : 2013	선박용 전기 설비 - 전기 자기 적합성	CE : 10 kHz ~ 30 MHz RE : 150 kHz ~ 2 GHz ESD : 30 kV RS : 80 MHz ~ 3 GHz EFT : 8 kV Surge : 15 kV CS : 150 kHz ~ 300 MHz V-Dip : 정격전류 125 A 이하

Korea Laboratory Accreditation Scheme

제 KT011호

03.011 전자기적합성

규격번호	규격명	시험범위
KS C 0304 : 2014	평면 재료의 전자파 차폐 효과 측정 방법 4. 근역장 차폐 효과 측정 방법(제외)	30 MHz ~ 1.5 GHz
KOFEIS 0101-1 : 2015	자동식소화기의 형식승인 및 검정기술기준	ESD : 30 kV RS : 80 MHz ~ 3 GHz EFT : 8 kV Surge : 15 kV CS : 150 kHz ~ 300 MHz
KOFEIS 0301 : 2015	감지기의 형식승인 및 검정기술기준	ESD : 30 kV RS : 80 MHz ~ 3 GHz EFT : 8 kV Surge : 15 kV CS : 150 kHz ~ 300 MHz
KOFEIS 0303 : 2015	중계기의 형식승인 및 검정기술기준	ESD : 30 kV RS : 80 MHz ~ 3 GHz EFT : 8 kV Surge : 15 kV CS : 150 kHz ~ 300 MHz
KOFEIS 0304 : 2016	수신기의 형식승인 및 검정기술기준	ESD : 30 kV RS : 80 MHz ~ 3 GHz EFT : 8 kV Surge : 15 kV CS : 150 kHz ~ 300 MHz
KOFEIS 0309 : 2015	가스누설경보기의 형식승인 및 검정기술기준	ESD : 30 kV RS : 80 MHz ~ 3 GHz EFT : 8 kV Surge : 15 kV CS : 150 kHz ~ 300 MHz
KOFEIS 0401 : 2015	유도등의 형식승인 및 검정기술기준	CE : 9 kHz ~ 30 MHz RE : 9 kHz ~ 1 GHz
KS C IEC 61000-4-16 : 2013	전자자기적합성(EMC) - 제4-16부 : 시험 및 측정기술 - 0 Hz ~ 150 kHz 주파수	전원 주파수 : 직류, 16 ²³ , 60 Hz

Korea Laboratory Accreditation Scheme

제 KT011호

03.011 전자기적합성

규격번호	규격명	시험범위
	대역에서의 전도성 공통 모드 방해 내성 시험	
IEC 60601-1-2 : 2014	Medical electrical equipment - Part 1-2 : General requirements for basic safety and essential performance - Collateral Standard : Electromagnetic disturbances - Requirements and tests	CE : 150 kHz ~ 30 MHz RE : 9 kHz ~ 1 GHz ESD : 30 kV RS : 80 MHz ~ 3 GHz EFT : 8 kV Surge : 15 kV CS : 150 kHz ~ 300 MHz MF : 130 A/m V-Dip : 정격전류 125 A 이하
IEC 60945 : 2002	Maritime navigation and radiocommunication equipment and systems - General requirements - Methods of testing and required test results	CE : 10 kHz ~ 30 MHz RE : 150 kHz ~ 2 GHz ESD : 30 kV RS : 80 MHz ~ 3 GHz EFT : 8 kV Surge : 15 kV CS : 150 kHz ~ 300 MHz
IEC 60947-1 : 2014	Low-voltage switchgear and controlgear - Part 1 : General rules 7.3 Electro-Magnetic Compatibility	CE : 150 kHz ~ 30 MHz RE : 30 MHz ~ 6 GHz ESD : 30 kV RS : 80 MHz ~ 3 GHz EFT : 8 kV Surge : 15 kV CS : 150 kHz ~ 300 MHz MF : 130 A/m V-Dip : 정격전류 125 A 이하
IEC 60974-10 : 2015	Arc welding equipment - Part 10 : Electromagnetic compatibility (EMC) requirements	CE : 150 kHz ~ 30 MHz RE : 30 MHz ~ 6 GHz ESD : 30 kV RS : 80 MHz ~ 3 GHz EFT : 8 kV Surge : 15 kV CS : 150 kHz ~ 300 MHz V-Dip : 정격전류 125 A 이하
IEC 61000-3-2 : 2014	Electromagnetic compatibility (EMC) - Part 3-2 : Limits - Limits for harmonic current emissions	정격전류 125 A 이하

Korea Laboratory Accreditation Scheme

제 KT011호

03.011 전자기적합성

규격번호	규격명	시험범위
	(equipment input current ≤ 16 A per phase)	
IEC 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	정격전류 125 A 이하
IEC 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	정격전류 125 A 이하
IEC 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	정격전류 125 A 이하
IEC 61000-4-2 : 2008	Electromagnetic compatibility (EMC) - Part 4-2 : Testing and measurement techniques - Electrostatic discharge immunity test	ESD : 30 kV
IEC 61000-4-3 : 2010	Electromagnetic compatibility (EMC) - Part 4-3 : Testing and	RS : 26 MHz ~ 6 GHz

Korea Laboratory Accreditation Scheme

제 KT011호

03.011 전자기적합성

규격번호	규격명	시험범위
	measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test	
IEC 61000-4-4 : 2012	Electromagnetic compatibility (EMC) - Part 4-4 : Testing and measurement techniques - Electrical fast transient/burst immunity test	EFT : 8 kV
IEC 61000-4-5 : 2014	Electromagnetic compatibility (EMC) - Part 4-5 : Testing and measurement techniques - Surge immunity test	Surge : 15 kV
IEC 61000-4-6 : 2015	Electromagnetic compatibility (EMC) - Part 4-6 : Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields	CS : 150 kHz ~ 300 MHz
IEC 61000-4-8 : 2009	Electromagnetic compatibility (EMC) - Part 4-8 : Testing and measurement techniques - Power frequency magnetic field immunity test	MF : 130 A/m(continuous), 1 000 A/m(short)
IEC 61000-4-9 : 2001	Electromagnetic compatibility (EMC) - Part 4-9 : Testing and measurement techniques - Pulse magnetic field immunity test	Pulse MF : 1 000 A/m
IEC 61000-4-11 : 2010	Electromagnetic compatibility (EMC) - Part 4-11 : Testing and measurement techniques - Voltage dips, short interruptions and voltage variations immunity tests	정격전류 125 A 이하

Korea Laboratory Accreditation Scheme

제 KT011호

03.011 전자기적합성

규격번호	규격명	시험범위
IEC 61000-4-12 : 2006	Electromagnetic compatibility (EMC) - Part 4-12 : Testing and measurement techniques - Ring wave immunity test	Ring wave : 6 kV
IEC 61000-4-13 : 2015	Electromagnetic compatibility (EMC) - Part 4-13 : Testing and measurement techniques - Harmonics and interharmonics including mains signalling at a.c. power port, low frequency immunity tests	정격전류 125 A 이하
IEC 61000-4-14 : 2009	Electromagnetic compatibility (EMC) - Part 4-14 : Testing and measurement techniques - Voltage fluctuation immunity test for equipment with input current not exceeding 16 A per phase	정격전압 270 V 이하
IEC 61000-4-17 : 2009	Electromagnetic compatibility (EMC) - Part 4-17 : Testing and measurement techniques - Ripple on d.c. input power port immunity test	직류 출력전압 : 380 V
IEC 61000-4-18 : 2011	Electromagnetic compatibility (EMC) - Part 4-18 : Testing and measurement techniques - Damped oscillatory wave immunity test	Damped osc. : 100 kHz, 1 MHz(slow); 3 MHz, 10 MHz, 30 MHz(fast)
IEC 61000-4-27 : 2014	Electromagnetic compatibility (EMC) - Part 4-27 : Testing and measurement techniques - Unbalance, immunity test for equipment with input current not exceeding 16 A per phase	정격전압 270 V 이하
IEC 61000-4-28 : 2009	Electromagnetic compatibility (EMC) - Part 4-28 : Testing and	정격전류 125 A 이하

Korea Laboratory Accreditation Scheme

제 KT011호

03.011 전자기적합성

규격번호	규격명	시험범위
	measurement techniques - Variation of power frequency, immunity test for equipment with input current not exceeding 16 A per phase	
IEC 61000-4-29 : 2000	Electromagnetic compatibility (EMC) - Part 4-29 : Testing and measurement techniques - Voltage dips, short interruptions and voltage variations on d.c. input power port immunity tests	직류 출력전압 : 380V
IEC 61000-6-1 : 2016	Electromagnetic compatibility (EMC) - Part 6-1 : Generic standards - Immunity for residential, commercial and light-industrial environments	ESD : 30 kV RS : 80 MHz ~ 3 GHz EFT : 8 kV Surge : 15 kV CS : 150 kHz ~ 300 MHz MF : 130 A/m V-Dip : 정격전류 125 A 이하
IEC 61000-6-2 : 2016	Electromagnetic compatibility (EMC) - Part 6-2 : Generic standards - Immunity for industrial environments	ESD : 30 kV RS : 80 MHz ~ 3 GHz EFT : 8 kV Surge : 15 kV CS : 150 kHz ~ 300 MHz MF : 130 A/m(continuous), 1 000 A/m(short) V-Dip : 정격전류 125 A 이하
IEC 61000-6-3 : 2011	Electromagnetic compatibility (EMC) - Part 6-3 : Generic standards - Emission standard for residential, commercial and light-industrial environments	CE : 150 kHz ~ 30 MHz RE : 30 MHz ~ 6 GHz

Korea Laboratory Accreditation Scheme

제 KT011호

03.011 전자기적합성

규격번호	규격명	시험범위
IEC 61000-6-4 : 2011	Electromagnetic compatibility (EMC) - Part 6-4 : Generic standards - Emission standard for industrial environments	CE : 150 kHz ~ 30 MHz RE : 30 MHz ~ 6 GHz
IEC 61547 : 2009	Equipment for general lighting purposes - EMC immunity requirements	ESD : 30 kV RS : 80 MHz ~ 3 GHz EFT : 8 kV Surge : 15 kV CS : 150 kHz ~ 300 MHz MF : 130 A/m V-Dip : 정격전류 125 A 이하
IEC 62040-2 : 2016	Uninterruptible power systems (UPS) - Part 2 : Electromagnetic compatibility (EMC) requirements	CE : 150 kHz ~ 30 MHz RE : 10 kHz ~ 6 GHz ESD : 30 kV RS : 80 MHz ~ 3 GHz EFT : 8 kV Surge : 15 kV CS : 150 kHz ~ 300 MHz MF : 130 A/m V-Dip : 정격전류 125 A 이하
IEC 62233 : 2005	Measurement methods for electromagnetic fields of household appliances and similar apparatus with regard to human exposure	400 kHz 이하
IEC 62311 : 2007	Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz - 300 GHz)	400 kHz 이하
CISPR 11 : 2016	Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement	CE : 9 kHz ~ 30 MHz RE : 30 MHz ~ 18 GHz
CISPR 13 : 2015	Sound and television broadcast receivers and associated equipment - Radio disturbance characteristics - Limits and methods of measurement	CE : 150 kHz ~ 30 MHz RE : 30 MHz ~ 18 GHz DP : 30 MHz ~ 300 MHz

Korea Laboratory Accreditation Scheme

제 KT011호

03.011 전자기적합성

규격번호	규격명	시험범위
CISPR 14-1 : 2011	Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1 : Emission	CE : 150 kHz ~ 30 MHz RE : 30 MHz ~ 1 GHz DP : 30 MHz ~ 300 MHz
CISPR 14-2 : 2015	Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 2 : Immunity - Product family standard	ESD : 30 kV RS : 80 MHz ~ 3 GHz EFT : 8 kV Surge : 15 kV CS : 150 kHz ~ 300 MHz V-Dip : 정격전류 125 A 이하
CISPR 15 : 2015	Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment	CE : 9 kHz ~ 30 MHz RE : 9 kHz ~ 1 GHz ESD : 30 kV RS : 80 MHz ~ 3 GHz EFT : 8 kV Surge : 15 kV CS : 150 kHz ~ 300 MHz MF : 130 A/m V-Dip : 정격전류 125 A 이하
CISPR 20 : 2013	Sound and television broadcast receivers and associated equipment - Immunity characteristics - Limits and methods of measurement (Exclusion) 4.3.2 Requirements for input immunity to RF voltages(differential ode) of television receivers and associated video equipment with tuners (including satellite television receivers) 4.3.4 Requirements for screening effectiveness 4.7.1.2 Television broadcast receivers 4.7.1.3 Associated video tape equipment 5.2.3 Measurement procedure for	ESD : 30 kV EFT : 8 kV

Korea Laboratory Accreditation Scheme

제 KT011호

03.011 전자기적합성

규격번호	규격명	시험범위
	video assessment 5.3.2 Measurement of television receivers and video tape equipment 5.5 Measurement of screening effectiveness	
CISPR 22 : 2008	Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement	CE : 150 kHz ~ 30 MHz RE : 30 MHz ~ 6 GHz
CISPR 24 : 2015	Information technology equipment - Immunity characteristics - Limits and methods of measurement A.2.2. Measurement method : sound pressure level (spl) (Exception)	ESD : 30 kV RS : 80 MHz ~ 3 GHz EFT : 8 kV Surge : 15 kV CS : 150 kHz ~ 300 MHz MF : 130 A/m V-Dip : 정격전류 125 A 이하
CISPR 25 : 2008	Vehicles, boats and intenal combustion engines – Radio disturbance characteristics -Limits and methods of measurement for the protection of on-board receivers (Exception) 5. Measurement of emissions receiced by an antenna on the same vehicle 6.5 Radiated emissions from components/modules – TEM cell method 6.6 Radiated emissions from components/modules – Stripline method	CE : 150 kHz ~ 108 MHz RE : 150 kHz ~ 18 GHz
EN 50121-2 : 2015	Railway applications - Electromagnetic compatibility - Part	RE : 9 kHz ~ 1 GHz

Korea Laboratory Accreditation Scheme

제 KT011호

03.011 전자기적합성

규격번호	규격명	시험범위
	2 : Emission of the whole railway system to the outside world	
EN 50121-3-1 : 2015	Railway applications - Electromagnetic compatibility - Part 3-1 : Rolling stock - Train and complete vehicle	RE : 9 kHz ~ 1 GHz
EN 50121-3-2 : 2015	Railway applications - Electromagnetic compatibility - Part 3-2 : Rolling stock - Apparatus	CE : 9 kHz ~ 30 MHz THD 50 Hz ~ 2 kHz RE : 30 MHz ~ 6 GHz ESD : 8 kV RS : 80 MHz ~ 6 GHz EFT : 2 kV Surge : 2 kV CS : 150 kHz ~ 80 MHz
EN 50121-4 : 2015	Railway applications - Electromagnetic compatibility - Part 4 : Emission and immunity of the signalling and telecommunications apparatus	CE : 9 kHz ~ 30 MHz RE : 30 MHz ~ 6 GHz ESD : 30 kV RS : 80 MHz ~ 3 GHz EFT : 8 kV Surge : 15 kV CS : 150 kHz ~ 300 MHz MF : 130 A/m Pulse MF : 1 000 A/m
EN 50121-5 : 2015	Railway applications - Electromagnetic compatibility - Part 5 : Emission and immunity of fixed power supply installations and apparatus	CE : 9 kHz ~ 30 MHz RE : 30 MHz ~ 6 GHz ESD : 30 kV RS : 80 MHz ~ 3 GHz EFT : 8 kV Surge : 15 kV CS : 150 kHz ~ 300 MHz
EN 50130-4 : 2014	Alarm systems - Part 4 : Electromagnetic compatibility - Product family standard : Immunity requirements for components of fire, intruder, hold up, CCTV, access	CE : 150 kHz ~ 30 MHz RE : 30 MHz ~ 6 GHz ESD : 30 kV RS : 80 MHz ~ 3 GHz EFT : 8 kV Surge : 15 kV

Korea Laboratory Accreditation Scheme

제 KT011호

03.011 전자기적합성

규격번호	규격명	시험범위
	control and social alarm systems	CS : 150 kHz ~ 300 MHz MF : 130 A/m V-Dip : 장격전류 125 A 이하
EN 50293 : 2012	Electromagnetic compatibility - Road traffic signal systems - Product standard	CE : 150 kHz ~ 30 MHz RE : 30 MHz ~ 6 GHz ESD : 30 kV RS : 80 MHz ~ 3 GHz EFT : 8 kV Surge : 15 kV CS : 150 kHz ~ 300 MHz MF : 130 A/m V-Dip : 장격전류 125 A 이하
EN 55011 : 2010	Industrial, scientific and medical (ISM) radio-frequency equipment - Electromagnetic disturbance characteristics - Limits and methods of measurement	CE : 150 kHz ~ 30 MHz RE : 9 kHz ~ 18 GHz
EN 55013 : 2013	Sound and television broadcast receivers and associated equipment - Radio disturbance characteristics - Limits and methods of measurement	CE : 150 kHz ~ 30 MHz RE : 30 MHz ~ 18 GHz DP : 30 MHz ~ 300 MHz
EN 55014-1 : 2011	Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1 : Emission	CE : 150 kHz ~ 30 MHz RE : 30 MHz ~ 1 GHz DP : 30 MHz ~ 300 MHz
EN 55014-2 : 2015	Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 2 : Immunity - Product family standard	ESD : 30 kV RS : 80 MHz ~ 3 GHz EFT : 8 kV Surge : 15 kV CS : 150 kHz ~ 300 MHz V-Dip : 장격전류 125 A 이하
EN 55015 : 2015	Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment	CE : 9 kHz ~ 30 MHz RE : 9 kHz ~ 1 GHz

Korea Laboratory Accreditation Scheme

제 KT011호

03.011 전자기적합성

규격번호	규격명	시험범위
EN 55020 : 2011	Sound and television broadcast receivers and associated equipment - Immunity characteristics - Limits and methods of measurement (Exclusion) 4.3.2 Requirements for input immunity to RF voltages(differential mode)of television receivers and associated video equipment with tuners(including satellite television receivers) 4.3.4 Requirements for screening effectiveness 4.7.1.2 Television broadcast receivers 4.7.1.3 Associated video tape equipment 5.2.3 Measurement procedure for video assessment 5.3.2 Measurement of television receivers and video tape equipment 5.5 Measurement of screening effectiveness	ESD : 30 kV EFT : 8 kV
EN 55022 : 2012	Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement	CE : 150 kHz ~ 30 MHz RE : 30 MHz ~ 1 GHz
EN 55024 : 2015	Information technology equipment - Immunity characteristics - Limits and methods of measurement A.2.2. Measurement method : sound pressure level (spl) (Exception)	ESD : 30 kV RS : 80 MHz ~ 3 GHz EFT : 8 kV Surge : 15 kV CS : 150 kHz ~ 300 MHz V-Dip : 정격전류 125 A 이하

Korea Laboratory Accreditation Scheme

제 KT011호

03.011 전자기적합성

규격번호	규격명	시험범위
EN 60945 : 2002	Maritime navigation and radio communication equipment and systems - General requirements - Methods of testing and required test results 9. Electromagnetic emission 10. Immunity to electromagnetic environment	CE : 10 kHz ~ 30 MHz RE : 150 kHz ~ 2 GHz ESD : 30 kV RS : 80 MHz ~ 3 GHz EFT : 8 kV Surge : 15 kV CS : 150 kHz ~ 300 MHz
EN 60947-1 : 2011	Low-voltage switchgear and controlgear - Part 5-1 : Control circuit devices and switching elements - Electromechanical control circuit devices 7.3 Electro-Magnetic Compatibility	CE : 150 kHz ~ 30 MHz RE : 30 MHz ~ 6 GHz ESD : 30 kV RS : 80 MHz ~ 3 GHz EFT : 8 kV Surge : 15 kV CS : 150 kHz ~ 300 MHz MF : 130 A/m V-Dip : 정격전류 125 A 이하
EN 61000-3-2 : 2014	Electromagnetic compatibility (EMC) - Part 3-2 : Limits - Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)	정격전류 125 A 이하
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	정격전류 125 A 이하

Korea Laboratory Accreditation Scheme

제 KT011호

03.011 전자기적합성

규격번호	규격명	시험범위
EN 61000-3-11 : 2001	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	정격전류 125 A 이하
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	정격전류 125 A 이하
EN 61000-4-2 : 2009	Electromagnetic compatibility (EMC) - Part 4-2 : Testing and measurement techniques - Electrostatic discharge immunity test	ESD : 30 kV
EN 61000-4-3 : 2010	Electromagnetic compatibility (EMC) - Part 4-3 : Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test	RS : 26 MHz ~ 6 GHz
EN 61000-4-4 : 2012	Electromagnetic compatibility (EMC) - Part 4-4 : Testing and measurement techniques - Electrical fast transient/burst immunity test	EFT : 8 kV
EN 61000-4-5 : 2014	Electromagnetic compatibility (EMC) - Part 4-5 : Testing and measurement techniques - Surge immunity test	Surge : 15 kV

Korea Laboratory Accreditation Scheme

제 KT011호

03.011 전자기적합성

규격번호	규격명	시험범위
EN 61000-4-6 : 2014	Electromagnetic compatibility (EMC) - Part 4-6 : Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields	CS : 150 kHz ~ 300 MHz
EN 61000-4-8 : 2010	Electromagnetic compatibility (EMC) - Part 4-8 : Testing and measurement techniques - Power frequency magnetic field immunity test	MF : 130 A/m(continuous), 1 000 A/m(short)
EN 61000-4-9 : 2001	Electromagnetic compatibility (EMC) - Part 4-9 : Testing and measurement techniques - Pulse magnetic field immunity test	Pulse MF : 1 000 A/m
EN 61000-4-11 : 2004	Electromagnetic compatibility (EMC) - Part 4-11 : Testing and measurement techniques - Voltage dips, short interruptions and voltage variations immunity tests	정격전류 125 A 이하
EN 61000-4-12 : 2006	Electromagnetic compatibility (EMC) Part 4-12 : Testing and measurement techniques - Ring wave immunity test	Ring wave : 6 kV
EN 61000-4-13 : 2009	Electromagnetic compatibility (EMC) Part 4-13 : Testing and measurement techniques - Harmonics and interharmonics including mains signalling at a.c. power port, low frequency immunity tests	정격전류 125 A 이하
EN 61000-4-14 : 2009	Electromagnetic compatibility (EMC) —Part 4-14 : Testing and measurement techniques — Voltage fluctuation immunity test	정격전압 270 V 이하

Korea Laboratory Accreditation Scheme

제 KT011호

03.011 전자기적합성

규격번호	규격명	시험범위
	for equipment with input current not exceeding 16 A per phase	
EN 61000-4-27 : 2009	Electromagnetic compatibility (EMC) Part 4-27 : Testing and measurement techniques - Unbalance, immunity test for equipment with input current not exceeding 16 A per phase	정격전압 270 V 이하
EN 61000-4-28 : 2009	Electromagnetic compatibility (EMC) - Part 4-28 : Testing and measurement techniques - Variation of power frequency, immunity test for equipment with input current not exceeding 16 A per phase	정격전류 125 A 이하
EN 61000-4-29 : 2001	Electromagnetic compatibility (EMC) -Part 4-29 : Testing and measurement techniques -Voltage dips, short interruptions and voltage variations on d.c. input power port immunity tests	직류 출력 전압 : 380 V 이하
EN 61000-6-1 : 2007	Electromagnetic compatibility (EMC) -Part 6-1 : Generic standards - Immunity for residential, commercial and light-industrial environments	ESD : 30 kV RS : 80 MHz ~ 3 GHz EFT : 8 kV Surge : 15 kV CS : 150 kHz ~ 300 MHz MF : 130 A/m V-Dip : 정격전류 125 A 이하
EN 61000-6-2 : 2005	Electromagnetic compatibility (EMC) - Part 6-2 : Generic standards - Immunity for industrial environments	ESD : 30 kV RS : 80 MHz ~ 3 GHz EFT : 8 kV Surge : 15 kV CS : 150 kHz ~ 300 MHz MF : 130 A/m

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Korea Laboratory Accreditation Scheme

제 KT011호

03.011 전자기적합성

규격번호	규격명	시험범위
		V-Dip : 정격전류 125 A 이하
EN 61000-6-3 : 2011	Electromagnetic compatibility (EMC) - Part 6-3 : Generic standards - Emission standard for residential, commercial and light-industrial environments	CE : 150 kHz ~ 30 MHz RE : 30 MHz ~ 6 GHz
EN 61000-6-4 : 2011	Electromagnetic compatibility (EMC) - Part 6-4 : Generic standards - Emission standard for industrial environments	CE : 150 kHz ~ 30 MHz RE : 30 MHz ~ 6 GHz
EN 61547 : 2009	Equipment for general lighting purposes - EMC immunity requirements	ESD : 30 kV RS : 80 MHz ~ 3 GHz EFT : 8 kV Surge : 15 kV CS : 150 kHz ~ 300 MHz MF : 130 A/m V-Dip : 정격전류 125 A 이하
EN 62040-2 : 2006	Uninterruptible power systems (UPS) - Part 2 : Electromagnetic compatibility (EMC) requirements	CE : 150 kHz ~ 30 MHz RE : 10 kHz ~ 6 GHz ESD : 30 kV RS : 80 MHz ~ 3 GHz EFT : 8 kV Surge : 15 kV CS : 150 kHz ~ 300 MHz MF : 130 A/m V-Dip : 정격전류 125 A 이하
AS/NZS 3652 : 2000	Electromagnetic compatibility - Arc welding equipment	CE : 150 kHz ~ 30 MHz RE : 30 MHz ~ 6 GHz ESD : 30 kV RS : 80 MHz ~ 3 GHz EFT : 8 kV Surge : 15 kV

Korea Laboratory Accreditation Scheme

제 KT011호

03.011 전자기적합성

규격번호	규격명	시험범위
		CS : 150 kHz ~ 300 MHz V-Dip : 정격전류 125 A 이하
AS/NZS 4251.1 : 1999	Electromagnetic compatibility (EMC) - Generic emission standard - Residential, commercial and light industry	CE : 150 kHz ~ 30 MHz RE : 30 MHz ~ 6 GHz
AS/NZS 4251.2 : 1999	Electromagnetic compatibility - Generic emission standard - Industrial environments	CE : 150 kHz ~ 30 MHz RE : 30 MHz ~ 6 GHz
AS/NZS CISPR 11 : 2011	Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement	CE : 9 kHz ~ 30 MHz RE : 30 MHz ~ 18 GHz
AS/NZS CISPR 13 : 2012	Sound and television broadcast receivers and associated equipment - Radio disturbance characteristics - Limits and methods of measurement	CE : 150 kHz ~ 30 MHz RE : 30 MHz ~ 18 GHz DP : 30 MHz ~ 300 MHz
AS/NZS CISPR 14-1 : 2013	Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1 : Emission	CE : 150 kHz ~ 30 MHz RE : 30 MHz ~ 1 GHz DP : 30 MHz ~ 300 MHz
AS/NZS CISPR 15 : 2011	Sound and television broadcast receivers and associated equipment - Radio disturbance characteristics - Limits and methods of measurement	CE : 9 kHz ~ 30 MHz RE : 9 kHz ~ 1 GHz ESD : 30 kV RS : 80 MHz ~ 3 GHz EFT : 4 kV Surge : 12 kV CS : 150 kHz ~ 300 MHz MF : 130 A/m V-Dip : 정격전류 125 A 이하

Korea Laboratory Accreditation Scheme

제 KT011호

03.011 전자기적합성

규격번호	규격명	시험범위
AS/NZS CISPR 22 : 2009	Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement	CE : 150 kHz ~ 30 MHz RE : 30 MHz ~ 6 GHz
ASTM D4935-10	Standard Test Method for Measuring the Electromagnetic Shielding Effectiveness of Planar Materials	30 MHz ~ 1.5 GHz
FCC PART 15 : 2013	Radio Frequency Devices (Exclusion)Larger than 18 GHz	CE : 150 kHz ~ 30 MHz RE : 9 kHz ~ 18 GHz
FCC PART 18 : 2013	Industrial, Scientific and Medical equipment (Exclusion)Larger than 18 GHz	CE : 150 kHz ~ 30 MHz RE : 9 kHz ~ 18 GHz
IEEE-STD-299 : 2006	IEEE Standard Method for Measuring the Effectiveness of Electromagnetic Shielding Enclosures	9 kHz ~ 18 GHz
MIL-STD-188-125-1 : 2005	High-altitude electromagnetic pulse(HEMP) protection for ground-based C4I facilities performing critical, time-urgent missions part 1 fixed facilities Long pulse (Exception)	SE : 10 kHz ~ 1 GHz PCI : 5 kA CW : 100 kHz ~ 1 GHz
IEC 60533 : 1999	Electrical and electronic installations in ships - Electromagnetic compatibility	CE : 10 kHz ~ 30 MHz RE : 150 kHz ~ 2 GHz ESD : 30 kV RS : 80 MHz ~ 3 GHz EFT : 8 kV Surge : 15 kV CS : 150 kHz ~ 300 MHz V-Dip : 정격전류 125 A 이하
EN 60601-1-2 : 2007	Medical electrical equipment - Part 1-2 : General requirements for basic safety and essential	CE : 150 kHz ~ 30 MHz RE : 9 kHz ~ 1 GHz ESD : 30 kV

Korea Laboratory Accreditation Scheme

제 KT011호

03.011 전자기적합성

규격번호	규격명	시험범위
	performance - Collateral standard : Electromagnetic compatibility - Requirements and tests	RS : 80 MHz ~ 3 GHz EFT : 8 kV Surge : 15 kV CS : 150 kHz ~ 300 MHz MF : 130 A/m V-Dip : 정격전류 125 A 이하
IEC 61000-4-16 : 2015	Electromagnetic compatibility (EMC) - Part 4-16 : Testing and measurement techniques - Test for immunity to conducted, common mode disturbances in the frequency range 0 Hz to 150 kHz	전원 주파수 : 직류, 16 ²³ , 60 Hz
EN 61000-4-16 : 2016	Electromagnetic compatibility (EMC) - Part 4-16 : Testing and measurement techniques - Test for immunity to conducted, common mode disturbances in the frequency range 0 Hz to 150 kHz	전원 주파수 : 직류, 16 ²³ , 60 Hz
MIL-STD-188-125-2 : 2005	High-altitude electromagnetic pulse(HEMP) protection for ground-based C4I facilities performing critical, time-urgent missions part 2 transportable systems - PCI Long Pulse, CWI, TLI (제외)	SE : 10 kHz ~ 1 GHz PCI : 5 kA
MIL-STD-220C : 2009	Method of insertion loss measurement	10 kHz ~ 3 GHz

Korea Laboratory Accreditation Scheme

제 KT011호

03.011 전자기적합성

규격번호	규격명	시험범위
MIL-STD-461F : 2007	Requirements for the control of electromagnetic interference characteristics of subsystems and equipment 5.4 CE101, conducted emissions, power leads, 30 Hz to 10kHz 5.5 CE102, conducted emissions, power leads, 10 kHz to 10 MHz 5.7 CS101, conducted susceptibility, power leads, 30 Hz to 150 kHz 5.11 CS106, conducted susceptibility, transients, power leads 5.13 CS114, conducted susceptibility, bulk cable injection, 10 kHz to 200 MHz 5.14 CS115, conducted susceptibility, bulk cable injection, impulse excitation 5.15 CS116, conducted susceptibility, damped sinusoidal transients, cables and power leads, 10 kHz to 100 MHz 5.16 RE101, radiated emissions, magnetic field, 30 Hz to 100 KHz 5.17 RE102, radiated emissions, electric field, 10 KHz to 18 GHz 5.19 RS101, radiated susceptibility, magnetic field, 30 Hz to 100 kHz 5.20 RS103, radiated susceptibility, electric field, 2 MHz to 40 GHz	CE101 : 30 Hz ~ 10 kHz CE102 : 10 kHz ~ 10 MHz CS101 : 30 Hz ~ 150 kHz CS106 : 400 V CS114 : 10 kHz ~ 200 MHz CS115 : 5 A CS116 : 10 kHz ~ 100 MHz RE101 : 30 Hz ~ 100 kHz RE102 : 10 kHz ~ 18 GHz RS101 : 30 Hz ~ 100 kHz RS103 : 2 MHz ~ 18 GHz
MIL-STD-461E : 1999	Requirements for the control of electromagnetic interference characteristics of subsystems and	

Korea Laboratory Accreditation Scheme

제 KT011호

03.011 전자기적합성

규격번호	규격명	시험범위
	equipment 5.4 CE101, conducted emissions, power leads, 30 Hz to 10kHz 5.5 CE102, conducted emissions, power leads, 10 kHz to 10 MHz 5.7 CS101, conducted susceptibility, power leads, 30 Hz to 150 kHz 5.12 CS114, conducted susceptibility, bulk cable injection, 10 kHz to 200 MHz 5.13 CS115, conducted susceptibility, bulk cable injection, impulse excitation 5.14 CS116, conducted susceptibility, damped sinusoidal transients, cables and power leads, 10 kHz to 100 MHz 5.15 RE101, radiated emissions, magnetic field, 30 Hz to 100 KHz 5,16 RE102, radiated emissions, electric field, 10 KHz to 18 GHz 5.18 RS101, radiated susceptibility, magnetic field, 30 Hz to 100 kHz 5.19 RS103, radiated susceptibility, electric field, 2 MHz to 40 GHz	CE101 : 30 Hz ~ 10 kHz CE102 : 10 kHz ~ 10 MHz CS101 : 30 Hz ~ 150 kHz CS114 : 10 kHz ~ 200 MHz CS115 : 5 A CS116 : 10 kHz ~ 100 MHz RE101 : 30 Hz ~ 100 kHz RE102 : 10 kHz ~ 18 GHz RS101 : 30 Hz ~ 100 kHz RS103 : 2 MHz ~ 18 GHz
ISO 7637-1 : 2002	Road vehicles – Electrical disturbances from conduction and coupling – Part 1 : Definitions and general considerations	입력전원 : 직류 60 V , 50 A
ISO 7637-2 : 2011	Road vehicles – Electrical disturbances from conduction and coupling – Part 2 : Electrical transient conduction along supply lines only	입력전원 : 직류 60 V , 50 A

Korea Laboratory Accreditation Scheme

제 KT011호

03.011 전자기적합성

규격번호	규격명	시험범위
ISO 7637-3 : 2007	Road vehicles – Electrical disturbances from conduction and coupling – Part 3 : Electrical transient transmission by capacitive and inductive coupling via lines other than supplu lines	입력전원 : 직류 60 V, 50 A
ISO 10605 : 2008	Road vehicles – Test methods for electrical disturbances from electrostatic discharge	ESD : ± 30 kV
ISO 11452-1 : 2005	Road vehicles – Component test methods for electrical disturbances from narrowband radiated electromagnetic energy – Part 1 : General principles and terminology	-
ISO 11452-2 : 2004	Road vehicles – Component test methods for electrical disturbances from narrowband radiated electromagnetic energy – Part 2 : Absorber-lined shielded enclosure	80 MHz ~ 18 GHz
ISO 11452-4 : 2011	Road vehicles — Component test methods for electrical disturbances from narrowband radiated electromagnetic energy — Part 4: Harness excitation methods	BCI : 1 MHz ~ 400 MHz
SAE J1113/4 : 2014	Immunity to Radiated Electromagnetic Fields-Bulk Current Injection (BCI) Method	BCI : 1 MHz ~ 400 MHz
SAE J1113/11 : 2012	Immunity to Conducted Transients on Power Leads	입력전원 : 직류 60 V, 50 A
SAE J1113/12 : 2006	Electrical Interference by Conduction and Coupling - Capacitive and	입력전원 : 직류 60 V, 50 A

Korea Laboratory Accreditation Scheme

제 KT011호

03.011 전자기적합성

규격번호	규격명	시험범위
	Inductive Coupling via Lines Other than Supply Lines	
SAE J1113/13 : 2011	Electromagnetic Compatibility Measurement Procedure for Vehicle Components--Part 13: Immunity to Electrostatic Discharge	ESD : ± 30 kV
SAE J1113/21 : 2005	Electromagnetic Compatibility Measurement Procedure for Vehicle Components - Part 21: Immunity to Electromagnetic Fields, 30 MHz to 18 GHz, Absorber-Lined Chamber	RS : 10 kHz ~ 3 GHz 전기장 : 200 V/m
ES 96200-00 : 2011	ELECTROMAGNETIC COMPATIBILITY SPECIFICATION (현대기아자동차 12 V) (Exception) 4.3 시험방법 - TEM cell testing - Stripline testing	CE : 150 kHz ~ 108 MHz RE : 150 kHz ~ 18 GHz ESD : ± 30 kV RS : 10 kHz ~ 3 GHz , 200 V/m BCI : 20 MHz ~ 3 GHz
ES 96202-01 : 2012	ELECTROMAGNETIC COMPATIBILITY SPECIFICATION (현대기아자동차 24 V)	CE : 150 kHz ~ 108 MHz RE : 150 kHz ~ 18 GHz ESD : ± 30 kV RS : 10 kHz ~ 3 GHz , 200 V/m BCI : 20 MHz ~ 3 GHz
GMW3097 : 2012	General Specification for Electrical/Electronic Components and Subsystems, Electromagnetic Compatibility (Exception) 3.4.3 Reverberation Chamber, Mode Tuning 3.4.4 Magnetic Field	BCI : 1 MHz ~ 400 MHz
GMW3100 : 2003	General Specification for Electrical/Electronic Components and Subsystems, Electromagnetic Compatibility- Verification (Exception) 3.4.3 Reverberation Chamber, Mode	입력전원 : 직류 60 V , 50 A

Korea Laboratory Accreditation Scheme

제 KT011호

03.011 전자기적합성

규격번호	규격명	시험범위
	Tuning 3.4.4 Magnetic Field	
GMW3172 : 2012	General Specification for Electrical/Electronic Component – Environmental/Durability	입력전원 : 직류 60 V , 50 A
R-10.04 : 2012	Uniform provisions concerning the approval of vehicles with regard to electromagnetic compatibility (Exception) 4.2 TEM cell testing Annex 4 : Method of measurement of radiated broadband electromagnetic emission from vehicles Annex 5 : Method of measurement of radiated narrowband electromagnetic emission from vehicles Annex 6 : Method of testing for immunity of vehicle to electromagnetic radiation	CE : 150 kHz ~ 108 MHz RE : 150 kHz ~ 18 GHz ESD : ± 30 kV RS : 10 kHz ~ 3 GHz , 200 V/m BCI : 20 MHz ~ 3 GHz
R-10.05 : 2014	Uniform provisions concerning the approval of vehicles with regard to electromagnetic compatibility (Exceptions) 4.2 TEM cell testing 4.4 Stripline testing Annex 4 : Method of measurement of radiated broadband electromagnetic emission from vehicles Annex 5 : Method of measurement of radiated narrowband electromagnetic emission from vehicles Annex 6 : Method of testing for immunity of vehicle to electromagnetic radiation	CE : 150 kHz ~ 108 MHz RE : 150 kHz ~ 18 GHz ESD : ± 30 kV RS : 10 kHz ~ 3 GHz , 200 V/m BCI : 20 MHz ~ 3 GHz

Korea Laboratory Accreditation Scheme

제 KT011호

03.011 전자기적합성

규격번호	규격명	시험범위
ECE R-97.01 : 2007	Uniform provisions concerning the approval for vehicle alarm systems and of motor vehicles with regard to their alarm systems	CE : 150 kHz ~ 108 MHz RE : 150 kHz ~ 18 GHz ESD : ± 30 kV RS : 10 kHz ~ 3 GHz , 200 V/m BCI : 20 MHz ~ 3 GHz
ECE R-116 : 2016	Uniform technical prescription concerning the protection of motor vehicles against unauthorized use	CE : 150 kHz ~ 108 MHz RE : 150 kHz ~ 18 GHz ESD : ± 30 kV RS : 10 kHz ~ 3 GHz , 200 V/m BCI : 20 MHz ~ 3 GHz
DMFC 4-40-70 : 2012	전자파 방호시설 설계기준 제 4장 HEMP 방호시설 성능시험절차서 4-1. SE(Shield effectiveness) 절차서 4-2. PCI(Pulsed current injection) 시험절차서 4-3. CWI (Continuous wave immersion) 시험절차서 4-4. SELDS(shielded enclosure leak detection system) 검사 절차서	SE : 10 kHz ~ 1 GHz PCI : 5 kA CWI : 100 kHz ~ 1 GHz SELDS : 95 kHz, 1 A
IEC 60945 : 2008	Maritime navigation and radiocommunication equipment and systems - General requirements - Methods of testing and required test results	CE : 10 kHz ~ 30 MHz RE : 150 kHz ~ 2 GHz ESD : 8 kV RS : 80 MHz ~ 2 GHz EFT : 2 kV Surge : 1 kV CS : 150 kHz ~ 80 MHz, V-Dip : 정격전류 125 A 이하
EN 50121-3-2 : 2008	Railway applications - Electromagnetic compatibility - Part 3-2 : Rolling stock - Apparatus	CE : 9 kHz ~ 30 MHz RE : 30 MHz ~ 1 GHz ESD : 8 kV RS : 80 MHz ~ 2.5 GHz

Korea Laboratory Accreditation Scheme

제 KT011호

03.011 전자기적합성

규격번호	규격명	시험범위
		EFT : 2 kV Surge : 2 kV CS : 150 kHz ~ 80 MHz
EN 50121-4 : 2008	Railway applications - Electromagnetic compatibility - Part 4 : Emission and immunity of the signalling and telecommunications apparatus	CE : 9 kHz ~ 30 MHz RE : 30 MHz ~ 6 GHz ESD : 8 kV RS : 80 MHz ~ 2.5 GHz EFT : 2 kV Surge : 2 kV CS : 150 kHz ~ 80 MHz MF : 130 A/m Pulse MF : 300 A/m
EN 50121-5 : 2017	Railway applications - Electromagnetic compatibility - Part 5 : Emission and immunity of fixed power supply installations and apparatus	CE : 150 kHz ~ 30 MHz RE : 30 MHz ~ 6 GHz ESD : 8 kV RS : 80 MHz ~ 6 GHz EFT : 4 kV Surge : 4 kV CS : 150 kHz ~ 80 MHz MF : 130 A/m Pulse MF : 300 A/m, Damped : 2.5 kV
IEC 62236-3-2 : 2008	Railway applications - Electromagnetic compatibility - Part 3-2: Rolling stock - Apparatus	CE : 9 kHz ~ 30 MHz RE : 30 MHz ~ 1 GHz ESD : 8 kV RS : 80 MHz ~ 2.5 GHz EFT : 2 kV Surge : 2 kV CS : 150 kHz ~ 80 MHz
IEC 62236-4 : 2008	Railway applications - Electromagnetic compatibility - Part 4: Emission and immunity of the signalling and telecommunications apparatus	CE : 9 kHz ~ 30 MHz RE : 30 MHz ~ 6 GHz ESD : 8 kV RS : 80 MHz ~ 2.5 GHz EFT : 2 kV Surge : 2 kV CS : 150 kHz ~ 80 MHz MF : 130 A/m Pulse MF : 300 A/m

Korea Laboratory Accreditation Scheme

제 KT011호

03.011 전자기적합성

규격번호	규격명	시험범위
IEC 62236-5 : 2008	Railway applications - Electromagnetic compatibility - Part 5: Emission and immunity of fixed power supply installations and apparatus	CE : 9 kHz ~ 30 MHz RE : 30 MHz ~ 6 GHz ESD : 8 kV RS : 80 MHz ~ 2.5 GHz EFT : 2 kV Surge : 2 kV CS : 150 kHz ~ 80 MHz MF : 130 A/m Pulse MF : 300 A/m
IEEE-STD-299.1 : 2013	IEEE Standard Method for Measuring the Shielding Effectiveness of Enclosures and Boxes Having all Dimensions between 0.1 m and 2 m	Part I – 0.75 m to 2 m SE : 10 kHz ~ 18 GHz
MIL-STD-461G : 2015	DEPARTMENT OF DEFENSE INTERFACE STANDARD 5.4 CE101, conducted emissions, audio frequency currents, power leads 5.5 CE102, conducted emissions, radio frequency potential, power leads 5.7 CS101, conducted susceptibility, power leads 5.12 CS114, conducted susceptibility, bulk cable injection 5.13 CS115, conducted susceptibility, bulk cable injection, impulse excitation 5.14 CS116, conducted susceptibility, damped sinusoidal transients, cables and power leads 5.17 RE101, radiated emissions, magnetic field 5.18 RE102, radiated emissions, electric field 5.20 RS101, radiated susceptibility, magnetic field 5.21 RS103, radiated susceptibility, electric field	CE101 : 30 Hz ~ 10 kHz CE102 : 10 kHz ~ 10 MHz CS101 : 30 Hz ~ 150 kHz CS114 : 10 kHz ~ 200 MHz CS115 : 5 A CS116 : 10 kHz ~ 100 MHz RE101 : 30 Hz ~ 100 kHz RE102 : 10 kHz ~ 18 GHz RS101 : 30 Hz ~ 100 kHz RS103 : 2 MHz ~ 100 MHz(50 V/m), 100 MHz ~ 18 GHz(200 V/m)

Korea Laboratory Accreditation Scheme

제 KT011호

03.011 전자기적합성

규격번호	규격명	시험범위
KS C IEC 62236-3-2 : 2006	철도용 전기 자기 적합성 - 제3-2부 : 철도 차량-장치	방출 - 포트 : 9 kHz ~ 30 MHz 방출 - 인클로저 : 30 MHz ~ 1 GHz 정전기 방전 : 8 kV 복사 전자기장 : 80 MHz ~ 25 GHz 고속 과도 현상 버스트 : 2 kV 서지 : 2 kV 전도 복사 주파수 : 150 kHz ~ 80 MHz 전압 공급의 변동 및 인터럽션 : 125 A 이하
KS C IEC 62236-4 : 2006	철도용 전기 자기 적합성 - 제4부 : 신호 처리 및 통신 장치의 방출 및 내성	전원단자 방사 : 9 kHz ~ 30 MHz 합체 방사 : 30 MHz ~ 6 GHz 정전기 방전 : 8 kV 복사 전자기장 : 80 MHz ~ 2 GHz 고속 과도 현상 : 2 kV 서지 : 2 kV 무선 주파수 공통 모드 진폭 변조 : 150 kHz ~ 80 MHz 전력 주파수 자기장 : 100 A/m 펄스 자기장 MF : 300 A/m
KS C IEC 62236-5 : 2006	철도용 전기 자기 적합성 - 제5부 : 고정 전력 공급 설비와 장치의 방출 및 내성	전원단자 방사 : 9 kHz ~ 30 MHz 합체 방사

Korea Laboratory Accreditation Scheme

제 KT011호

03.011 전자기적합성

규격번호	규격명	시험범위
		: 30 MHz ~ 6 GHz 정전기 방전 : 8 kV 복사 전자기장 : 80 MHz ~ 6 GHz 과속과도 현상: 2 kV 서지 : 2 kV 무선 주파수 선로-접지 공통 모드 진폭 변조 : 150 kHz ~ 80 MHz, 전력 주파수 자기장 : 100 A/m 감쇠 발진 전압: 25 kV

03.014 환경 및 신뢰성

규격번호	규격명	시험범위
KS C 0248-59 : 2001	환경 시험 방법 - 제2부 : 시험 방법 - 시험 Fe : 진동 - 사인비트 방법	주파수범위 : (1 ~ 2 500) Hz, 가속도 : 140 g
KS C 7620 : 2003	철도 차량용 형광등 기구	주파수범위 : (1 ~ 2 500) Hz, 가속도 : 140 g
KS C IEC 60068-2-1 : 2010	환경 시험 - 제2-1부 : 시험 - 시험 A : 내한성 시험	온도 : (-60 ~ 150) ℃
KS C IEC 60068-2-27 : 2008	환경 시험 - 제2-27부 : 시험 - 시험 Ea와 지침 : 충격 시험	주파수범위 : (1 ~ 2 500) Hz, 가속도 : 140 g
KS C IEC 60068-2-78 : 2002	환경 시험 방법(전기·전자) - 안정 상태의 내습성 시험	온도 : (-60 ~ 150) ℃, 습도 : (5 ~ 98) %R.H.
KS C IEC 60255-21-1 : 2002	전기 계전기 - 제21-1부 : 보호 계전기와 보호 기기의 진동, 충격, 충돌, 지진 시험 - 진동 시험	주파수범위 : (1 ~ 2 500) Hz, 가속도 : 140 g

한국인정기구(KOLAS)는 국제시험기관인정협력체(ILAC)의 상호인정협정(MRA) 서명기구입니다.

Korea Laboratory Accreditation Scheme

제 KT011호

03.014 환경 및 신뢰성

규격번호	규격명	시험범위
KS C IEC 60255-21-2 : 2002	전기 계전기-제21-2부 : 보호 계전기와 보호 기기의 진동, 충격, 충돌, 지진 시험-지진 시험	주파수범위 : (1 ~ 2 500) Hz, 가속도 : 140 g
KS C IEC 61373 : 2002	철도 차량 설비의 충격 및 진동 시험 방법	주파수범위 : (1 ~ 2 500) Hz, 가속도 : 140 g
KS T ISO 13355 : 2015	수송 포장 화물과 단위 화물의수직 랜덤 진동 시험 방법	주파수범위 : (1 ~ 2 500) Hz, 가속도 : 140 g
KS T ISO 8318 : 2013	포장 — 가변 주파수를 이용한 수송 포장 화물 및 단위 적재 화물의 정현파 진동 시험방법	주파수범위 : (1 ~ 2 500) Hz, 가속도 : 140 g
KS T ISO 2247 : 2013	포장 — 고정 저주파에서 수송 포장 화물 및 단위 적재 화물의 진동 시험방법	주파수범위 : (1 ~ 2 500) Hz, 가속도 : 140 g
KS R 9144 : 2014	철도 차량 부품의 진동 시험 방법	주파수범위 : (1 ~ 2 500) Hz, 가속도 : 140 g
KS R 9146 : 2002	철도 차량 부품의 충격 시험 방법	주파수범위 : (1 ~ 2 500) Hz, 가속도 : 140 g
KS R 9186 : 2001	철도 신호 보안 부품 - 진동 시험 방법	주파수범위 : (1 ~ 2 500) Hz, 가속도 : 140 g
KS R 9187 : 2003	철도 신호 보안 부품-충격 시험 방법	주파수범위 : (1 ~ 2 500) Hz, 가속도 : 140 g
KS R 9191 : 1996	철도 신호 보안 부품의 고온 및 저온 시험 방법	온도 : (-60 ~ 150) °C
KS R 9192 : 1996	철도 신호 보안 부품의 온도 사이클 시험 방법	온도 : (-60 ~ 150) °C
KS R 9213 : 2007	철도 차량 부품-고온 및 저온 시험 방법	온도 : (-60 ~ 150) °C

Korea Laboratory Accreditation Scheme

제 KT011호

03.014 환경 및 신뢰성

규격번호	규격명	시험범위
KS R 1034 : 2006	자동차 부품 진동 시험 방법	주파수범위 : (1 ~ 2 500) Hz, 가속도 : 140 g
KS V 8016 : 1985	선박용 전기기구의 진동 검사 통칙	주파수범위 : (1 ~ 2 500) Hz, 가속도 : 140 g
KS X IEC 60945 : 2005	해상 항해 및 무선 통신 기기와 시스템 - 일반 요구 사항 - 시험 방법과 요구되는 시험 결과 (사용항목) 8.2 건조고온 8.3 온·습도 8.4 저온 8.5 열충격 8.7 진동	주파수범위 : (1 ~ 2 500) Hz, 가속도 : 140 g 온도 : (-60 ~ 150) °C, 습도 : (5 ~ 98) %R.H.
KS R 9156 : 2002	철도 차량용 전자 기기의 시험 통칙 (사용항목) 4.1 성능시험 4.2 절연저항시험 4.5 온도상승시험 4.6 저온시험 4.7 고온시험 4.8 고온고습시험 4.9 온도사이클시험 4.10 진동시험 4.11 충격시험 4.12 방수시험 4.14 연속통전시험	주파수범위 : (1 ~ 2 500) Hz, 가속도 : 140 g 온도 : (-60 ~ 150) °C, 습도 : (5 ~ 98) %R.H.
KS R 9193 : 1996	철도 신호 보안 부품의 절연 저항 및 내전압 시험 방법	(0 ~ 1 000) MΩ, DC 500 V, (0 ~ 5 000) V
MIL-STD-810G : 2008	Environmental engineering considerations and laboratory tests (Scope)	Pressure

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03.014 환경 및 신뢰성

규격번호	규격명	시험범위
	500.5 Low Pressure (Altitude) 501.5 High Temperature 502.5 Low Temperature 503.5 Temperature Shock 506.5 Rain 507.5 Humidity 513.6 Acceleration 514.6 Vibration 516.6 Shock 528 Mechanical vibrations of shipboard equipment	: (100 ~ 0.5) kPa, Temperature : (-60 ~ 150) °C, Humidity : (5 ~ 98) % R.H., Frequency range : (1 ~ 2 000) Hz, Rainfall rate : 1.7 mm/min, Acceleration : 1 400 m/s ²
EN 50155 : 2007	Railway applications - Electronic equipment used on rolling stock (scope) 12.2.3 Cooling test 12.2.4 Dryheat test 12.2.5 Dampheat test, cyclic 12.2.11 Vibration, Shock and bump test 12.2.14 Low temperature storage test	Frequencyrange : (1 ~ 2 500) Hz, Acceleration : 140 g Temperature : (-60 ~ 150) °C, Humidity : (5 ~ 98) %R.H.
IEC 60068-2-64 : 2008	Environmental testing - Part 2-64 : Tests - Test Fh : Vibration, broadband random and guidance	Frequencyrange : (1 ~ 2 500) Hz, Acceleration : 140 g
MIL-STD-810F : 2003	Environmental engineering considerations and laboratory tests (Scope) 500.4 Low Pressure (Altitude) 501.4 High Temperature 502.4 Low Temperature 503.4 Temperature Shock 506.4 Rain 507.4 Humidity 513.5 Acceleration 514.5 Vibration 516.5 Shock	Pressure : (100 ~ 0.5) kPa, Temperature : (-60 ~ 150) °C, Humidity : (5 ~ 98) % R.H., Frequency range : (1 ~ 2 000) Hz, Rainfall rate

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제 KT011호

03.014 환경 및 신뢰성

규격번호	규격명	시험범위
		: 1.7 mm/min, Acceleration : 1 400 m/s ²
IEC 60068-2-31 : 2008	Environmental testing - Part 2-31 : Tests - Test Ec : Rough handling shocks, primarily for equipment-type specimens	Fall heights : (300 ~ 1 800) mm
IEC 60068-2-1 : 2007(6.0)	Environmental testing - Part 2-1 : Tests - Test A : Cold	Temperature : (-60 ~ 150) °C
IEC 60068-2-2 : 2007(5.0)	Environmental testing - Part 2-2 : Tests - Test B : Dry heat	Temperature : (RT ~ 300) °C
IEC 60068-2-6 : 2007(7.0)	Environmental testing - Part 2-6 : Tests - Test Fc : Vibration (sinusoidal)	Frequencyrange : (1 ~ 2 500) Hz, Acceleration : 140 g
IEC 60068-2-14 : 2009(6.0)	Environmental testing - Part 2-14 : Tests - Test N : Change of temperature (Exception) 9.Test Nc : Rapid change of temperature, two-fluid-bath method	Temperature : (-60 ~ 150) °C
IEC 60068-2-27 : 2008(4.0)	Environmental testing - Part 2-27 : Tests - Test Ea and guidance : Shock	Frequencyrange : (1 ~ 2 500) Hz, Acceleration : 140 g
IEC 60068-2-30 : 2005(3.0)	Environmental testing - Part 2-30 : Tests - Test Db : Damp heat, cyclic (12 h + 12 h cycle)	Temperature : (-60 ~ 150) °C, Humidity : (5 ~ 98) %R.H.
IEC 60068-2-78 : 2012(2.0)	Environmental testing - Part 2-78 : Tests - Test Cab : Damp heat, steady state	Temperature : (-60 ~ 150) °C, Humidity : (5 ~ 98) %R.H.
IEC 60255-21-1 : 1988(1.0)	Electrical relays - Part 21 : Vibration, shock, bump and seismic tests on measuring relays and	Frequencyrange : (1 ~ 2 500) Hz, Acceleration : 140 g

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03.014 환경 및 신뢰성

규격번호	규격명	시험범위
	protection equipment - Section One : Vibration tests (sinusoidal)	
IEC 60255-21-2 : 1988(1.0)	Electrical relays - Part 21 : Vibration, shock, bump and seismic tests on measuring relays and protection equipment - Section Two : Shock and bump tests	Frequencyrange : (1 ~ 2 500) Hz, Acceleration : 140 g
IEC 60945 : 2002(4.0)	Maritime navigation and radiocommunication equipment and systems - General requirements - Methods of testing and required test results (Scope) 8.2 Dry heat 8.3 Damp heat 8.4 Low temperature 8.5 Thermal shock 8.7 Vibration	Frequencyrange : (1 ~ 2 500) Hz, Acceleration : 140 g Temperature : (-60 ~ 150) °C, Humidity : (5 ~ 98) %R.H.
IEC 61373 : 2010(2.0)	Railway applications - Rolling stock equipment - Shock and vibration tests	Frequencyrange : (1 ~ 2 500) Hz, Acceleration : 140 g
EN 61373 : 2010	Railway applications - Rolling stock equipment - Shock and vibration tests	Frequencyrange : (1 ~ 2 500) Hz, Acceleration : 140 g
KS C IEC 60068-2-2 : 2014	환경시험-제2-2부: 시험-시험 B: 내열성시험	온도 : (RT ~ 150) °C
KS C IEC 60068-2-6 : 2015	환경시험-제2-6부: 시험-시험 Fc:진동 (정현파)	주파수범위 : (1 ~ 2 000) Hz, 가속도 : 500 m/s ²
KS C IEC 60068-2-14 : 2014	환경시험-제2-14부: 시험-시험 N: 온도변화 (제외) 9. 시험 Nc: 온도의 급변(2욕조법)	온도 : (-60 ~ 150) °C

Korea Laboratory Accreditation Scheme

제 KT011호

03.014 환경 및 신뢰성

규격번호	규격명	시험범위
KS C IEC 60068-2-30 : 2014	환경 시험-제2-30부 : 시험-시험 Db와 지침 : 내습 사이클(12 h + 12 h 사 이클)	온도 : (22 ~ 55) °C, 습도 : (5 ~ 98) % R.H.
KS C IEC 60068-2-31 : 2014	환경 시험-제2-31부 : 시험-시험 Ec : 주로 장비형 시편에 사용하는 거친 취급시 충격	낙하높이 : (300 ~ 1 800) mm
KS C IEC 60068-2-38 : 2014	환경 시험-제2-38부:시험-시험 Z/AD: 합성 온도/습도 사이클 시험	온도 : (-10 ~ 70) °C, 습도 : (5 ~ 98) % R.H.
KS C IEC 60068-2-53 : 2010	환경 시험-제2-53부 : 시험-시험 및 지침 : 기후(온도/습도) 및 동적(진동/ 충격) 결합 시험	주파수범위 : (1 ~ 2 000) Hz, 가속도 : 500 m/s ² , 온도 : (-60 ~ RT) °C
KS C IEC 60068-2-64 : 2014	환경 시험-제2-64부:시험-시험 Fh:광 대역 불규칙 진동 시험 및 지침	주파수범위 : (1 ~ 2 000) Hz, 가속도 : 1 400 m/s ²
KS C IEC 60068-2-67 : 2002	환경 시험 방법(전기·전자) 안정 상 태의 내습성 시험, 부품의 가속 시험 에 적용	온도 : (RT ~ 85) °C, 습도 : (5 ~ 98) % R.H.
KS C IEC 60068-2-81 : 2005	환경 시험 방법-2-81장 : 테스트 E i : 충격 응답 스펙트럼	주파수범위 : (1 ~ 2 000) Hz, 가속도 : 1 400 m/s ²
KS C IEC 60255-21-3 : 2012	전기계전기-제21-3부 : 보호계전기와 보호 기기의 진동, 충격, 충돌, 지진시 험-지진시험	주파수범위 : (1 ~ 50) Hz, 가속도 : 20 m/s ²
KS C IEC 60092-504 : 2007	선박용 전기설비 - 제504부 : 특별사 항 - 제어 및 사용 (사용항목)	(0 ~ 1 000) MΩ, DC 500 V, 주파수범위 :

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03.014 환경 및 신뢰성

규격번호	규격명	시험범위
	5. 절연저항 6. 점진적 온도 변화에 관한 냉각 7. 점진적 온도변화에 관한 건조열 8. 습기 열, 주기(12 h+12 h 주기) 10. 진동 시험(사인파)	(1 ~ 2 000) Hz, 가속도 : 100 $\frac{m}{s^2}$, 온도 : (-60 ~ 150) °C, 습도 : (5 ~ 98) % R.H.
IEC 60068-2-38 : 2009	Environmental testing-Part 2-38 : Tests-Test Z/AD : Composite temperature/humidity cyclic test	Temperature : (-10 ~ 70) °C, Humidity : (5 ~ 98) % R.H.
IEC 60068-2-53 : 2010	Environmental testing - Part 2-53: Tests and guidance - Combined climatic (temperature/humidity) and dynamic (vibration/shock) tests	Frequency range : (1 ~ 2 000) Hz, Acceleration : 500 $\frac{m}{s^2}$, Temperature : (-60 ~ RT) °C
IEC 60068-2-67 : 1995	Environmental testing - Part 2-67: Tests - Test Cy: Damp heat, steady state, accelerated test primarily intended for components	Temperature : (RT ~ 85) °C, Humidity : (5 ~ 98) % R.H.
IEC 60068-2-81 : 2003	Environmental testing - Part 2-81: Tests - Test Ei: Shock - Shock response spectrum synthesis	Frequency range : (1 ~ 2 000) Hz, Acceleration : 1 400 $\frac{m}{s^2}$
IEC 60255-21-3 : 1993	Electrical relays - Part 21: Vibration, shock, bump and seismic tests on measuring relays and protection equipment - Section 3: Seismic tests	Frequency range : (1 ~ 50) Hz, Acceleration : 20 $\frac{m}{s^2}$
IEC 60092-504 : 2016	Electrical installations in ships - Part 504 : Automation, control and instrumentation (Scope) 5. Insulation resistance 6. Cold with gradual change of	(0 ~ 1 000) MΩ, DC 500 V, Frequency range : (1 ~ 2 000) Hz, Acceleration : 100 $\frac{m}{s^2}$,

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03.014 환경 및 신뢰성

규격번호	규격명	시험범위
	temperature 7. Dry heat with gradual change of temperature 8. Damp heat, cyclic(12h+12h cycle) 10. Vibration(sinusoidal)	Temperature : (-60 ~ 150) °C, Humidity : (5 ~ 98) % R.H.
ISO 16750-3 : 2012	Road vehicles - Environmental conditions and testing for electrical and electronic equipment - Part 3: Mechanical loads	Frequency range : (1 ~ 2 000) Hz, Acceleration : 1 400 $\frac{m}{s^2}$, Temperature : (-60 ~ 150) °C, Fall heights : (300 ~ 1 000) mm
MIL-STD-167-1A : 2005	Mechanical Vibrations of Shipboard Equipment	Frequency range : (1 ~ 2 000) Hz, Acceleration : 1 400 $\frac{m}{s^2}$, Dynamic range : 150 dB
MIL-STD-202G : 2002	Test Method Standard Electronic and Electrical Component Parts (Scope) 103B Humidity(Steady State) 201A Vibration 204D Vibration, High Frequency 212A Acceleration 213B Shock(Specified Pulse) 214A Random Vibration	Temperature : (-60 ~ 150) °C, Humidity : (5 ~ 98) % R.H., Acceleration : 1 400 $\frac{m}{s^2}$, Frequency range : (1 ~ 2 000) Hz
MIL-STD-202H : 2015	Test Method Standard Electronic and Electrical Component Parts (Scope) 103 Humidity(Steady State) 201 Vibration 204 Vibration, High Frequency	Temperature : (-60 ~ 150) °C, Humidity : (5 ~ 98) % R.H., Acceleration : 1 400 $\frac{m}{s^2}$,

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03.014 환경 및 신뢰성

규격번호	규격명	시험범위
	212 Acceleration 213 Shock(Specified Pulse) 214 Random Vibration	Frequency range : (1 ~ 2 000) Hz
MIL-STD-781D : 1986	Reliability Testing for Engineering Development, Qualification, and Production (Scope) 401.2.2.2 Random Vibration 401.2.2.3 Temperature cycling	Frequency range : (1 ~ 2 000) Hz, Acceleration : 1 400 $\frac{m}{s^2}$, Temperature : (-60 ~ 150) °C, Humidity : (5 ~ 98) % R.H.
MIL-PRF-28800F : 1996	Test Equipment for Use with Electrical and Electronic Equipment, General Specification for (Scope) 4.5.3.1 c. Environmental stress screening (random vibration) 4.5.3.1 d. Environmental stress screening (temperature cycling) 4.5.5.1 Temperature and Humidity Tests 4.5.5.3.1 Random Vibration Test 4.5.5.3.2 Sinusoidal Vibration Test 4.5.5.4.1 Functional Shock Test	Frequency range : (1 ~ 2 000) Hz, Acceleration : 1 400 $\frac{m}{s^2}$, Temperature : (-60 ~ 150) °C, Humidity : (5 ~ 98) % R.H.
MIL-STD-810C : 1975	Test Method Standard for Environmental Engineering Considerations and Laboratory Tests (Scope) 501.1 High Temperature 502.1 Low Temperature 503.1 Temperature Shock 506.1 Rain 507.1 Humidity 513.2 Acceleration 514.2 Vibration (Exception)	Temperature : (-60 ~ 150) °C, Humidity : (5 ~ 98) % R.H., Frequency range : (1 ~ 2 000) Hz, Rainfall rate : 1.7 mm/min, Acceleration

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03.014 환경 및 신뢰성

규격번호	규격명	시험범위
	Procedure XI- Equipment transported as loose cargo 516.2 Shock	: 1 400 m/s ²
MIL-STD-810D : 1983	Test Method Standard for Environmental Engineering Considerations and Laboratory Tests (Scope) 500.2 Low Pressure (Altitude) 501.2 High Temperature 502.2 Low Temperature 503.2 Temperature Shock 506.2 Rain 507.2 Humidity 513.3 Acceleration 514.3 Vibration (Exception) Category 3- Loose cargo transport 516.3 Shock	Pressure : (100 ~ 0.5) kPa, Temperature : (-60 ~ 150) °C, Humidity : (5 ~ 98) % R.H., Frequency range : (1 ~ 2 000) Hz, Rainfall rate : 1.7 mm/min, Acceleration : 1 400 m/s ²
MIL-STD-810D : 1986	Test Method Standard for Environmental Engineering Considerations and Laboratory Tests (Scope) 500.2 Low Pressure (Altitude) 501.2 High Temperature 502.2 Low Temperature 503.2 Temperature Shock 506.2 Rain 507.2 Humidity 513.3 Acceleration 514.3 Vibration (Exception) Category 3- Loose cargo transport 516.3 Shock	Pressure : (100 ~ 0.5) kPa, Temperature : (-60 ~ 150) °C, Humidity : (5 ~ 98) % R.H., Frequency range : (1 ~ 2 000) Hz, Rainfall rate : 1.7 mm/min, Acceleration : 1 400 m/s ²
MIL-STD-810E : 1989	Test Method Standard for Environmental Engineering Considerations and Laboratory Tests	

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03.014 환경 및 신뢰성

규격번호	규격명	시험범위
	(Scope) 500.3 Low Pressure (Altitude) 501.3 High Temperature 502.3 Low Temperature 503.3 Temperature Shock 506.3 Rain 507.3 Humidity 513.4 Acceleration 514.4 Vibration (Exception) Category 3- Loose cargo transport 516.4 Shock	Pressure : (100 ~ 0.5) kPa, Temperature : (-60 ~ 150) °C, Humidity : (5 ~ 98) % R.H., Frequency range : (1 ~ 2 000) Hz, Rainfall rate : 1.7 mm/min, Acceleration : 1 400 m/s ²
MIL-STD-810F : 2000	Test Method Standard for Environmental Engineering Considerations and Laboratory Tests (Scope) 500.4 Low Pressure (Altitude) 501.4 High Temperature 502.4 Low Temperature 503.4 Temperature Shock 506.4 Rain 507.4 Humidity 513.5 Acceleration 514.5 Vibration (Exception) Category 5- Truck/trailer/tracked - loose cargo 516.5 Shock	Pressure : (100 ~ 0.5) kPa, Temperature : (-60 ~ 150) °C, Humidity : (5 ~ 98) % R.H., Frequency range : (1 ~ 2 000) Hz, Rainfall rate : 1.7 mm/min, Acceleration : 1 400 m/s ²
MIL-STD-810G w/Change 1 : 2014	Test Method Standard for Environmental Engineering Considerations and Laboratory Tests (Scope) 500.6 Low Pressure (Altitude) 501.6 High Temperature 502.6 Low Temperature 503.6 Temperature Shock 506.6 Rain	Pressure : (100 ~ 0.5) kPa, Temperature : (-60 ~ 150) °C, Humidity : (5 ~ 98) % R.H.,

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제 KT011호

03.014 환경 및 신뢰성

규격번호	규격명	시험범위
	507.6 Humidity 513.7 Acceleration 514.7 Vibration (Exception) Category 5- Truck/trailer-loose cargo 516.7 Shock 528.1 Mechanical Vibrations of Shipboard Equipment	Frequency range : (1 ~ 2 000) Hz, Rainfall rate : 1.7 mm/min, Acceleration : 1 400 m/s ²
RTCA/DO-160G : 2010	Environmental Conditions and Test Procedures for Airborne Equipment (Scope) Section 4. Temperature and Altitude Section 6. Humidity Section 7. Operational Shocks and Crash Safety Section 8. Vibration Section 10. Waterproofness	Pressure : (100 ~ 0.5) kPa, Temperature : (-60 ~ 150) °C, Humidity : (5 ~ 98) % R.H., Frequency range : (1 ~ 2 000) Hz, Drip rate : 140 L/m ² /h, Acceleration : 1 400 m/s ²
KR : 2015	한국선급 : 제조법 및 형식 승인 등에 관한 지침 3장 23절 표 3.23.1 (사용항목) 6. 건조고온시험 7. 온습도시험 8. 진동시험 12. 저온시험	주파수범위 : (1 ~ 500) Hz, 가속도 : 40 m/s ² , 온도 : (-60 ~ 150) °C, 습도 : (5 ~ 98) % R.H.
DNV : 2006	Environmental Test Specification For Instrumentation And Automation Equipment (Scope)	Frequency range : (1 ~ 500) Hz, Acceleration : 40 m/s ² ,

Korea Laboratory Accreditation Scheme

제 KT011호

03.014 환경 및 신뢰성

규격번호	규격명	시험범위
	3.6 Vibration Test 3.7 Dry Heat Test 3.8 Damp Heat Test 3.9 Cold Test	Temperature : (-60 ~ 150) °C, Humidity : (5 ~ 98) % R.H.
LR : 2013	Performance and Environmental Test Specification for the following Environmentally Tested Products used in Marine Applications: Electrical Equipment Control and Monitoring Equipment Instrumentation and Internal Communication Equipment Programmable Electronic Systems (Scope) Section 12 Vibration Test 1 Section 13 Vibration Test 2 Section 14 Humidity Test 1 - Cyclic Section 14 Humidity Test 2 - Steady State Section 17 Dry Heat Test Section 18 Low Temperature Test	Frequency range : (1 ~ 500) Hz, Acceleration : 40 m/s^2 , Temperature : (-60 ~ 150) °C, Humidity : (5 ~ 98) % R.H.
NK : 2013	Guidance For The Approval And Type Approval Of Materials And Equipment For Marine Use (Scope) Part 7 Control And Instrumentation Equipment And Electrical Installations 1.3 Environmental Test(Table7.1-1(a) Environmental Test Items, Testing Conditions, Methods, and Criteria) Dry Heat Test	Frequency range : (1 ~ 500) Hz, Acceleration : 40 m/s^2 , Temperature : (-60 ~ 150) °C, Humidity : (5 ~ 98) % R.H.

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03.014 환경 및 신뢰성

규격번호	규격명	시험범위
	Damp Heat Test Vibration Test Cold Test	
IACS : 2014	E10 Test Specification For Type Approval (Scope) 5. Dry Heat 6. Damp Heat 7. Vibration 11. Cold	Frequency range : (1 ~ 500) Hz, Acceleration : 40 m/s^2 , Temperature : (-60 ~ 150) °C, Humidity : (5 ~ 98) % R.H.
KS C IEC 60571 : 2002	철도 차량용 전자 기기의 개별 요구 사항 (사용항목) 12.2.3 냉각 시험 12.2.4 건열(Dry heat) 시험 12.2.5 습열 시험(Cyclic) 12.2.11 진동, 충격 및 충돌 시험 12.2.14 저기온 충전 시험	온도: (-60 ~ 150) °C, 습도 : (5 ~ 98) % RH, 주파수범위 : (1 ~ 2 000) Hz, 가속도: 1 400 m/s^2
KS C IEC 60068-2-13 : 2014	환경 시험 — 제2-13부: 시험 — 시험 M: 저기압	온도: (-60 ~ 150) °C, 기압: (100 ~ 0.5) kPa
IEC 60571 : 2012	Railway applications - Electronic equipment used on rolling stock (Scope) 12.2.4 Cold start test 12.2.5 Dry heat test 12.2.6 Damp heat test, cyclic 12.2.12 Vibration, shock and bump test 12.2.15 Low temperature storage test	Temperature : (-60 ~ 150) °C, Humidity : (5 ~ 98) % R.H., Frequency range : (1 ~ 2 000) Hz, Acceleration : 1 400 m/s^2
IEC 62498-3 : 2010	Railway applications - Environmental conditions for equipment - Part 3: Equipment for signalling and telecommunications (Scope) 4.13 Vibrations and shocks	Frequency range : (1 ~ 2 000) Hz, Acceleration : 2 500 m/s^2

Korea Laboratory Accreditation Scheme

제 KT011호

03.014 환경 및 신뢰성

규격번호	규격명	시험범위
IEC 60068-2-13 : 1983	Basic environmental testing procedures - Part 2-13: Tests - Test M: Low air pressure	Temperature : (-60 ~ 150) °C, Pressure : (100 ~ 0.5) kPa