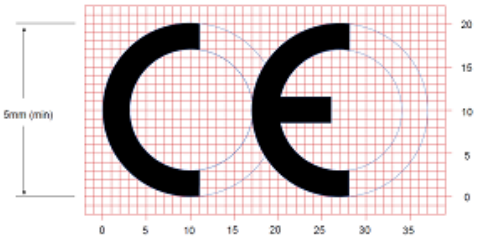
ELECTRICAL SAFETY
ELEKTRİKSEL GÜVENLİK

Test Report File No / Rapor No	:	L 1196 21821 01 AC
Client / Müşteri	:	ELOCK2 Sicherheitstechnik Sancak e.K. Gutenbergstr.10-12 73779 Deizisau / ALMANYA
Phone / Tel	:	0049 711 90 12 13 50
Fax / Faks	:	0049 711 90 12 13 95
Contact Person / İlgili	:	Sn. Ahmet SANCAK
Kind of Product / Ürün	: :	Steuerungsmodul RS485-TCP/IP Kontrol Ünitesi RS485-TCP/IP
Trade Mark / Ticari Tanım	: :	ELOCK2
Model / Model	:	SLS83/85, Z83/85, ZH83/85, MT183, ZT185, VT185
Manufacturer / Üretici	:	Same as Client / Müşteri ile Aynı
Electrical Safety Test Results	:	The tested sample meets the requirements according to EN 62368-1:2014/A11:2017
Elektriksel Güvenlik Test Sonuçları	:	Test numunesi EN 62368-1:2014/A11:2017 standardı kapsamında yapılan testlerden geçmiştir.
Date of Issue / Tarih	:	10.10.2017



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√ LVD TEST REPORT √ LVD TEST RAPORU √

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IDENTIFICATION OF THE TEST LABORATORY
TEST LABORATUARI BİLGİLERİ

Company name / Laboratuar İsmi	:	Consept Test ve Teknoloji Merkezi Ltd. Sti.
Technical Services responsible for the carrying out the test / Testler için yetkilendirilmiş Teknik Servis	:	Consept Hungary Kft

We, Consept, were founded in 2002 to provide our best services in EMC, LVD, Automotive – Type Approval, Acoustic and Performance testing based on related directive and consultation. Our company is an independent inspection body and testing laboratory in accordance with the EN ISO/IEC 17020: 2012 and ISO/EN 17025: 2005.

Consept Ltd. Şti. 2002 yılında EMC, LVD, Otomotiv – Tip Onayı, Akustik ve performans testlerini bağlı oldukları direktifler kapsamında en iyi şekilde sunmak için kurulmuştur. Kuruluşumuz EN ISO/IEC 17020: 2012 ve ISO/EN 17025: 2005 Standardları ile uyumlu olarak çalışan tamamen bağımsız bir muayene kuruluşu ve test laboratuvarıdır.

Consept accreditation scope can be check from the link / Laboratuvarımız akreditasyon kapsamı verilen linkten sorgulanabillir, http://www.iasonline.org/More/search.html.
Consept has below certification mark related our testing and inspection / Consept denetim ve testleri ile ilgili aşağıdaki sertfikasyon markalarına sahiptir.

Address / Adres	:	Köşklü Çeşme Mh. 577 Sk. No: 17 41400 Gebze – KOCAELI / TURKIYE
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Note / Not:

This report refers to the General Conditions for Inspection and Testing Services, printed overleaf. / Bu rapor tüm sayfaları ile test ve denetim hizmetleri için genel koşullar anlamına gelmektedir.

This report details the results of the testing carried out on one sample. The results contained in this test report do not related to other samples of the same product and does not permit the use of the above Consept Certification Marks. / Bu rapor içeriğinde yer alan sonuçlar bir tane test edilen örnek içindir. Test sonuçları ve yukarıdaki Consept sertifikasyon markaları diğer ürünler için kullanılması uygun değildir. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. / Üretici rapor içeriğinde yer alan ürün ile seri üretimdeki ürünlerin aynı şekilde üretildiğinden emin olmalıdır.

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All test result in this report can be traceable to National or International Standards. / Bu rapordaki tüm test sonuçları Ulusal veya Uluslararası Standartlara göre izlenebilir durumdadır.

DESCRIPTION OF THE EQUIPMENT UNDER TEST (EUT)

Test Altındaki Cihazın Tanımlaması

Date of Receipt of Test Sample Test Örneğinin Geliş Tarihi	: :	According to storage records of Consept Ltd. Consept 'in depo kayıtlarındadır
Testing Start Date Test Başlangıç Tarihi	: :	05.09.2017
Testing End Date Test Bitiş Tarihi	: :	10.10.2017
Testing Location Testin Yapıldığı Yer	: :	Consept Test ve Teknoloji Merkezi Köşklü Çeşme Mh. 577 Sk. No:17 41400 GEBZE/TURKEY
Standard Standart	: :	EN 62368-1:2014/A11:2017
Test Item Description Test Cihazı Tanıtımı	: :	Steuerungsmodul RS485-TCP/IP Kontrol ünitesi RS485-TCP/IP

SLS83/85 is a control module for door lock systems. Door locking and unlocking is controlled with RF tag keys. / SLS83/85 kapı kilit sistemleri için kontrol modülüdür. Kapı kilitleme ve açma RF tag anahtarları ile sağlanmaktadır.

The models are, Like: X Y Z; (**SLS83)**

Model Description:

X	X can be	**SLS**	:	System independent
		Z	:	Entree Terminal
		ZT1	:	Time Tracking Terminal
		VT1	:	Validation Terminal
		MT1	:	Master Terminal
		ZH	:	Hotel Terminal
Y :	Y can be	**8**	:	Control Modul
Z :	Communication type			
	Z can be	**3**	:	RS485
		5	:	TCP/IP

Installation conditions

- The equipment is a permanent connected equipment provided with terminals for connections to mains supply. The protective earthing conductor shall refer to the national building wiring requirements.
- There is no disconnecting device incorporated in the equipment. Therefore an appropriate disconnecting device like circuit break shall be provided as part of the building installation.
- The equipment is intended to be installed in a restricted access area, which is only accessible to instructed person or skilled persons with the proper authorization. The internal part of equipment shall be only accessible to skilled persons.
- The temperatures were evaluated for an ambient temperature of 40°C without an additional forced air condition. The environment, where the equipment installed in, shall be fulfilled with the manufacturer's requirements, like e.g. temperature, distance, etc.
- The equipment is intended to be mounted to wall at heights ≤2m. Proper installation kit shall be used according to manual.

Manufacturer Üretici	: :	ELOCK2 Sicherheitstechnik Sancak e.K.
Production Facilities Üretim Yeri Bilgileri	: :	Gutenbergstr.10-12 73779 Deizisau / ALMANYA
Trade Mark Ticari Tanım	: :	ELOCK2
Model/Type Reference Model/Tip	: :	SLS83/85
Ratings Değerler	: :	8-30 VDC (12-24 VDC)
Serial Number Seri No	: :	R&D Sample / Ar-Ge Numunesi
Number of Received/Tested Samples Teste Gelen/Edilen Cihaz Sayısı	: :	1 pcs each
Product Status Cihaz Durumu	: :	☒ Development Sample / Ar-Ge Numunesi ☐ Preproduction Sample / Ön Üretim Numunesi ☐ Production Sample / Üretim Numunesi

Following system devices are parts of the EUT and were connected during the measurement
Cihazın testleri süresince aşağıdaki parçalar bağlı ve çalışır durumdadır

Antenna / Anten

Following cables were connected during the measurement
Cihazın testleri süresince aşağıdaki kablolar bağlı durumdadır

DC Power Cable (2 m), Ethernet Cable (2 m)
DC Güç Kablosu (2 m), Ethernet Kablosu (2 m)

Following peripheral devices were connected during the measurement
Cihazın testleri süresince aşağıdaki çevresel parçalar bağlı ve çalışır durumdadır

Notebook Lenovo IdeaPad S210 Touch (COMP-06) for monitoring
Gözlem için Notebook Lenovo IdeaPad S210 Touch (COMP-06)

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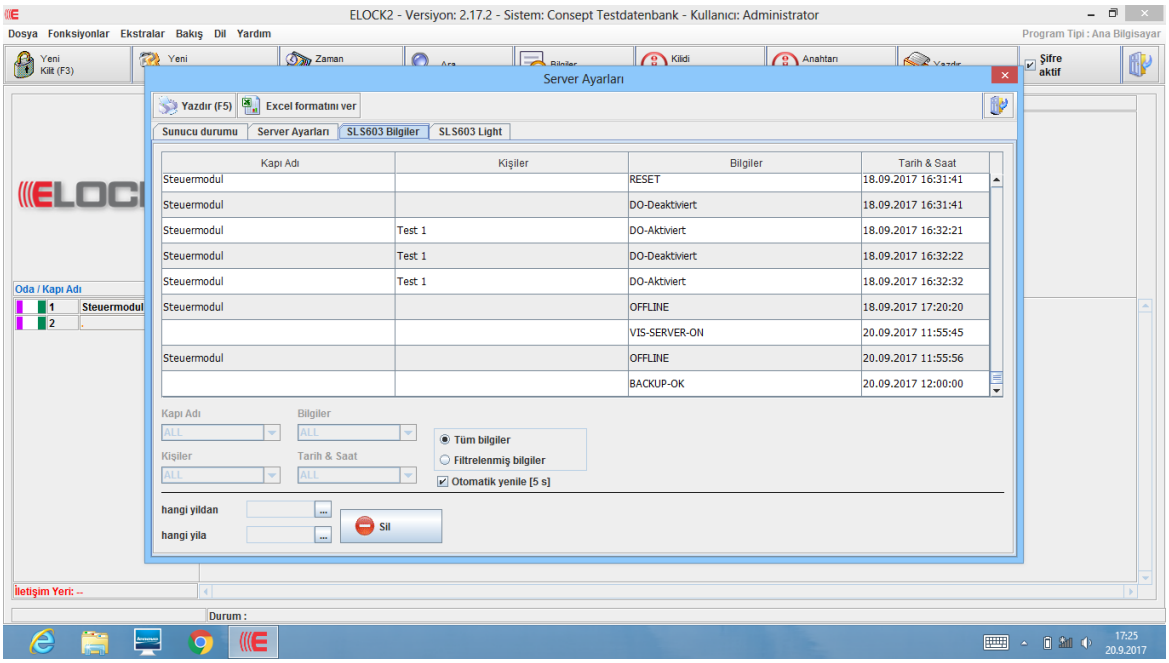
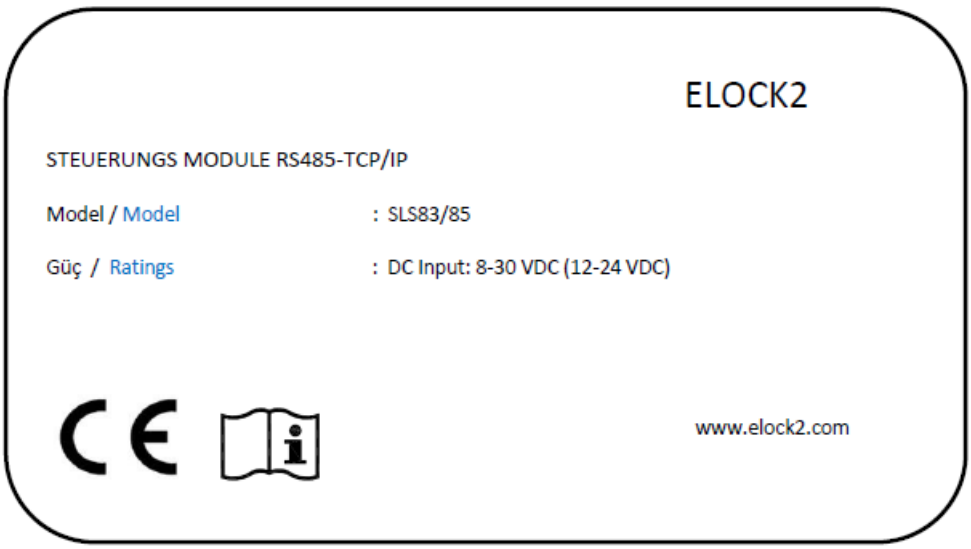
Following bios settings adjusted during the measurement
Cihazın testleri süresince aşağıdaki bios ayarları yapılmıştır.

ELOCK2 – Versiyon 2.17.2 is used for monitoring the data. Lock and unlock datas can be observed. / ELOCK2 – Versiyon 2.17.2 veri izlemek için kullanılmıştır. Kapı kilitli ve açık bilgili takip edilebilmektedir.



Copy of Marking Plate
Ürün Etiketi



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Summary of testing / Özet	
All test performed on SLS83/85. / Tüm testler SLS83/85'e yapılmıştır. All applicable tests of IEC/EN 62368-1 have been performed on one sample. For the testing SLS83/85 fully accessories was evaluated. The installed power supply is an approved subunit providing secondary SELV output / IEC/EN 62368-1'in ilgili kısımları tek bir numune için uygulanmıştır. SLS83/85 tüm aksesuarlarıyla set olarak değerlendirilmiştir. Kullanılan güç kaynağı onaylı ve SELV çıkış ucuna sahiptir.	
General Product İnformation / Genel Ürün Bilgileri	
Classification of use by	[] Ordinaryperson [x] Instructed person [] Skilled person [] Children likely to be present
Supply Connection	[] AC Mains [x] DC Mains [] External Circuit - not Mains connected [x] ES1 [] ES2 [] ES3
Mains supply tolerance (%)	[] +10%/-10% (AC Mains) [x] +20%/-15% (DC Mains) [] +…%/-…% [] None
Supply Connection – Type	[] Pluggable equipment type A - [] non-detachable supply [] cord appliance coupler [] direct plug-in [] mating connector [] Pluggable equipment type B - [] non-detachable supply cord [] appliance coupler [x] Permanent connection [] Mating connector other: _____
Considered current rating of protective device as part of building or equipment installation	16A for Europe Installation location: [] building; [] equipment
Equipment mobility	[] movable [] hand-held [] transportable [] stationary [x] for building-in [] direct plug-in [] rack-mounting [x] wall-mounted
Over voltage category (OVC)	[] OVC I [] OVC II [] OVC III [] OVC IV [x] other: DC supply
Class of equipment	[] Class I [] Class II [X] Class III [] Not classified
Access location	[] Restricted access location [] NA
Pollution degree (PD)	[] PD 1 [X] PD 2 [] PD 3
Manufacturer's specified maximum operating ambient	40°C
IP protection class	[x] IPX0 [] IP2X
Altitude during operation (m)	[x] 2000 m or less [] …….m

Altitude of test laboratory (m)	[x] 2000 m or less [] …….m
Mass of equipment (kg)/ Cihazın ağırlığı:	--

- This product is intended for general use / Bu ürün genel kullanım amaçlıdır.
- The enclosures secured together by screws and mechanical fixing / Ürünün kabı mekanik olarak ve vidalar aracılığı ile kapatılmıştır.

Insulation system

- Supplied by approved DC source
  Ürün onaylı DC güç kaynağından beslenmelidir
- Separation between primary – secondary (SELV) is provided by approved power source.
  Birincil ve ikincil devreler arası yalıtım (SELV) onaylı güç kaynağı tarafından sağlanmaktadır.

Sub-units (PCB's, ...) / Alt Üniteler

With pri – sec separation / Birincil-İkincil yalıtım .....: DC product / Ürün DC ile çalışmaktadır
With pri – parts only / Sadece birincil kısımlar .....: None/ Yok
HV-unit(s) / Yüksek Gerilim üniteleri.....: None/ Yok

Pri - sec components, which are not part of the above mentioned sub-units
Yukarıda belirtilen alt ünitelerin parçası olmayan Birincil-İkincil komponentler

None/ Yok

Non certified pri-components directly mounted to chassis
Doğrudan kasaya monte edilmiş sertifikasız birincil komponentler

(certified components only checked for correct-application (see 4.1.2)
Yalnızca sertifikalı ürünlerin doğru uygulaması control edilmiş ve tablo 4.1.2'de gösterilmiştir.

Summary of compliance with National Differences / Ulusal farklılıklar özeti

Refer to end of test report. / Test raporu sonunda.

Abbreviations used throughout this test report / Bu raporda kullanılan kısaltamalar

PE /PB : protective earth/bonding (Koruyucu toprak/bağlama)
CB : circuit breaker (sigorta)
(S)PS : (switching) power supply (Güç Kaynağı)
HV : high voltage (Yüksek gerilim)
PCB : printed circuit (wiring) board (Elektronik baskı devre)
TIW : triple insulated wire (Üç yalıtımlı iletken)
F/B/S/R : Functional/Basic/Supplementary/Reinforced Insulation
Fonksiyonel/Temel/Ek/Güçlendirilmiş yalıtım

pri : primary (birincil)
sec : secondary (İkincil)
gnd : ground (toprak)
I/O : input/output (Giriş/Çıkış)
ii : installation instruction (Kurulum klavuzu)

Attachments / Ekler

1. Photo documentation / Fotoğraflar
2. Critical components list / Kritik parçaların listesi

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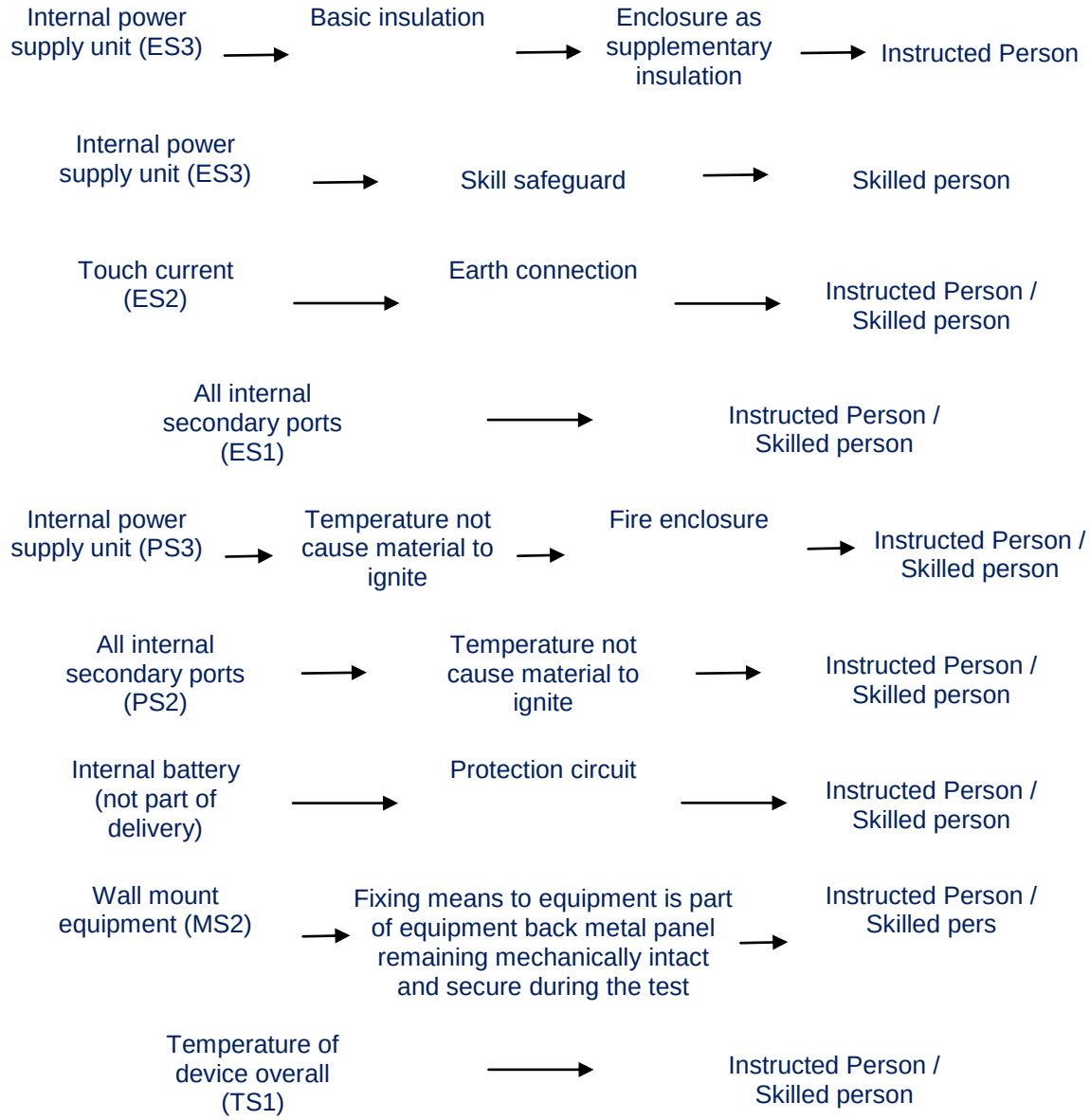
ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE	
(Note 1: Identify the following six (6) energy source forms based on the origin of the energy.) (Note 2: The identified classification e.g., ES2, TS1, should be with respect to its ability to cause pain or injury on the body or its ability to ignite a combustible material. Any energy source can be declared Class 3 as a worse case classification e.g. PS3, ES3.	
ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:	
N/A	N/A

ENERGY SOURCE DIAGRAM

Indicate which energy sources are included in the energy source diagram. Insert diagram below

[X] **ES** [] **PS** [] **MS** [] **TS** [] **RS**



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OVERVIEW OF EMPLOYED SAFEGUARDS				
Clause	**Possible Hazard**			
5.1	Electrically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (ES3: Primary Filter circuit)	Safeguards		
		Basic	Supplementary	Reinforced Enclosure
Ordinary	ES3: Internal primary circuit of built-in power supply	N/A	N/A	Enclosure
Ordinary	ES1: Internal secondary circuit after T1 sec. output or C5 of built-in power supply	N/A	N/A	N/A
6.1	Electrically-caused fire			
Material part (e.g. mouse enclosure)	Energy Source (PS2: 100 Watt circuit)	Safeguards		
		Basic	Supplementary	Reinforced
All combustible materials within equipment fire enclosure	PS3: All primary circuits and secondary circuits inside the equipment enclosure	No excessive temperature	Suitable Material	N/A
All external wiring materials	PS1: Secondary output wire	N/A	N/A	N/A
7.1	Injury caused by hazardous substances			
Body Part (e.g., skilled)	Energy Source (hazardous material)	Safeguards		
		Basic	Supplementary	Reinforced
N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A
8.1	Mechanically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (MS3:High Pressure Lamp)	Safeguards		
		Basic	Supplementary	Reinforced Enclosure
Ordinary	MS1: Sharp edges and corners	N/A	N/A	N/A
Ordinary	MS1: Equipment mass	N/A	N/A	N/A
9.1	Thermal Burn			
Body Part (e.g., Ordinary)	Energy Source (TS2)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary	TS1: Accessible surfaces	N/A	N/A	N/A
--	--	--	--	--
10.1	Radiation			

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Body Part (e.g., Ordinary)	Energy Source (Output from audio port)	Safeguards		
		Basic	Supplementary	Reinforced
Ordinary	RS1: LED indicator	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A

Supplementary Information:
(1) See attached energy source diagram for additional details.
(2) “N” – Normal Condition; “A” – Abnormal Condition; “S” Single Fault

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SUMMARY / ÖZET:

Product passed all the testing. All testing was done on the models SLS83/85. This report can also be used for the models Z83/85, ZH83/85, MT183, ZT185 and VT185. There are only cosmetic differences. / Ürün testlerin tamamından geçmiştir. Tüm testler SLS83/85'e uygulanmıştır. Bu rapor Z83/85, ZH83/85, MT183, ZT185 ve VT185 modelleri için de kullanılabilir.

REVISION HISTORY / Revizyon Geçmişi

Revision 1 / Revizyon 1: This report has been revised due to the additional models. / Bu rapor ilave modeller nedeniyle revize edilmiştir.

FIN/AL JUDGEMENT/ Son Hüküm:

All applicable functional safety requirements of this standard have been performed. The above mentioned equipment passed the applicable tests.

Bu standartın uygulanabilir tüm işlevsel güvenlik gereklilikleri uygulanmıştır. Yukarıda belirtilen cihaz uygulanabilir testleri geçmiştir.

Gebze, 10.10.2017

Consept Ltd. Sti:

Test Engineer
Test Mühendisi

Esra Yalcin
Quality Manager / Kalite Müdürü

Ahmet Arda Cosan
Testing Eng. / Test Müh.

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EN 62368-1			
Clause	Requirements	Remarks	Verdict
4	**GENERAL REQUIREMENTS**		P
4.1.1	Acceptance of materials, components and subassemblies	(See appended table 4.1.2)	P
4.1.2	Use of components	(See appended table 4.1.2)	P
4.1.3	Equipment design and construction		P
4.1.15	Markings and instructions:	(See Annex F)	P
4.4.4	Safeguard robustness		P
4.4.4.2	Steady force tests:	(See Annex T.4, T.5)	P
4.4.4.3	Drop tests:	(See Annex T.7)	N/A
4.4.4.4	Impact tests:	(See Annex T.6) Only for Direct plug-in type model series. For open frame model series shall be evaluated at end product level.	N/A
4.4.4.5	Internal accessible safeguard enclosure and barrier tests:	(See Annex T.3) No ordinary person access No such parts	N/A
4.4.4.6	Glass Impact tests:	(See Annex T.9, Annex U) No such parts	N/A
4.4.4.7	Thermoplastic material tests:	(See Annex T.8)	P
4.4.4.8	Air comprising a safeguard:	(See Annex T) No such parts	N/A
4.4.4.9	Accessibility and safeguard effectiveness		P
4.5	Explosion	No explosion	N/A
4.6	Fixing of conductors	Conductors are not liable to become loose.	N/A
4.6.1	Fix conductors not to defeat a safeguard		N/A
4.6.2	10 N force test applied to:	Internal wire or components	N/A
4.7	Equipment for direct insertion into mains socket - outlets	Not such equipment	N/A
4.7.2	Mains plug part complies with the relevant standard:	No such parts	N/A
4.7.3	Torque (Nm):		N/A
4.8	Products containing coin/button cell batteries	No battery	N/A
4.8.2	Instructional safeguard		N/A
4.8.3	Battery Compartment Construction	No battery	N/A
	Means to reduce the possibility of children removing the battery:		N/A
4.8.4	Battery Compartment Mechanical Tests:	(See Table 4.8.4)	N/A

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EN 62368-1			
Clause	Requirements	Remarks	Verdict
4.8.5	Battery Accessibility	No battery	N/A
4.9	Likelihood of fire or shock due to entry of conductive object:	No openings. Entry not possible. (See Annex P)	P
5	**ELECTRICALLY-CAUSED INJURY**		P
5.2.1	Electrical energy source classifications:	ES3: Internal primary circuit of built- in power supply ES1: DC operated product (See appended table 5.2)	P
5.2.2	ES1, ES2 and ES3 limits	ES1	P
5.2.2.2	Steady-state voltage and current:	(See appended table 5.2)	P
5.2.2.3	Capacitance limits:	Part of certified power supply unit	N/A
5.2.2.4	Single pulse limits:	No such parts	N/A
5.2.2.5	Limits for repetitive pulses:	No such parts	N/A
5.2.2.6	Ringing signals:	No such parts	N/A
5.2.2.7	Audio signals:	No such parts	N/A
5.3	Protection against electrical energy sources	See table “OVERVIEW OF EMPLOYED SAFEGUARDS”	P
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons	Not ordinary person accessible	P
5.3.2.1	Accessibility to electrical energy sources and safeguards	No accessible energy sources for instructed person	P
5.3.2.2	Contact requirements	DC product	N/A
	a) Test with test probe from Annex V:	Voltages less than 420 V peak	N/A
	b) Electric strength test potential (V):	Not above 420Vpeak	N/A
	c) Air gap (mm):	Not above 420Vpeak	N/A
5.3.2.4	Terminals for connecting stripped wire	No contact with ES2 or ES3	P
5.4	Insulation materials and requirements		P
5.4.1.2	Properties of insulating material	No hygroscopic material	P
5.4.1.3	Humidity conditioning:		N/A
5.4.1.4	Maximum operating temperature for insulating materials:	(See appended table 5.4.1.4)	P
5.4.1.5	Pollution degree:	Pollution degree 2	_
5.4.1.5.2	Test for pollution degree 1 environment and for an insulating compound		N/A
5.4.1.5.3	Thermal cycling		N/A
5.4.1.6	Insulation in transformers with varying	Part of certified power supply	N/A

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EN 62368-1			
Clause	Requirements	Remarks	Verdict
	dimensions	unit	
5.4.1.7	Insulation in circuits generating starting pulses	No such parts	N/A
5.4.1.8	Determination of working voltage		P
5.4.1.9	Insulating surfaces		P
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted	No such mounting	N/A
5.4.1.10.2	Vicat softening temperature:	(See appended table 5.4.1.10.2)	N/A
5.4.1.10.3	Ball pressure:	(See appended table 5.4.1.10.3)	N/A
5.4.2	Clearances		P
5.4.2.2	Determining clearance using peak working voltage	(See appended table 5.4.2.2)	P
5.4.2.3	Determining clearance using required withstand voltage:	(See appended table 5.4.2.3)	P
	a) a.c. mains transient voltage:		–
	b) d.c. mains transient voltage:	500Vpeak	–
	c) external circuit transient voltage:		–
	d) transient voltage determined by measurement:		–
5.4.2.4	Determining the adequacy of a clearance using an electric strength test	(See appended table 5.4.2.4)	N/A
5.4.2.5	Multiplication factors for clearances and test voltages:	1.48 for clearances	P
5.4.3	Creepage distances:	(See appended table 5.4.3)	P
5.4.3.1	General		P
5.4.3.3	Material Group:	Material group IIIb is used	–
5.4.4	Solid insulation	Part of certified power supply unit	N/A
5.4.4.2	Minimum distance through insulation:	(See appended table 5.4.4.2)	N/A
5.4.4.3	Insulation compound forming solid insulation		N/A
5.4.4.4	Solid insulation in semiconductor devices		N/A
5.4.4.5	Cemented joints		N/A
5.4.4.6	Thin sheet material		N/A
5.4.4.6.1	General requirements		N/A
5.4.4.6.2	Separable thin sheet material		N/A
	Number of layers (pcs):		N/A
5.4.4.6.3	Non-separable thin sheet material		N/A
5.4.4.6.4	Standard test procedure for non-separable thin sheet material:	(See appended Table 5.4.9)	N/A

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Clause	Requirements	Remarks	Verdict
5.4.4.6.5	Mandrel test		N/A
5.4.4.7	Solid insulation in wound components		N/A
5.4.4.9	Solid insulation at frequencies >30 kHz:	(See appended Table 5.4.4.9)	N/A
5.4.5	Antenna terminal insulation	No such parts	N/A
5.4.5.1	General		N/A
5.4.5.2	Voltage surge test		N/A
	Insulation resistance (M:		–
5.4.6	Insulation of internal wire as part of supplementary safeguard:	(See appended table 5.4.4.2)	N/A
5.4.7	Tests for semiconductor components and for cemented joints		N/A
5.4.8	Humidity conditioning	Non-hygroscopic material used	N/A
	Relative humidity:		–
	Temperature (°C):		–
	Duration (h):		–
5.4.9	Electric strength test:	(See appended table 5.4.9)	P
5.4.9.1	Test procedure for a solid insulation type test		P
5.4.9.2	Test procedure for routine tests	Type test	P
5.4.10	Protection against transient voltages between external circuit	No such parts	N/A
5.4.10.1	Parts and circuits separated from external circuits	(See appended table 5.4.9)	N/A
5.4.10.2	Test methods		N/A
5.4.10.2.1	General		N/A
5.4.10.2.2	Impulse test:	(See appended table 5.4.9)	N/A
5.4.10.2.3	Steady state test	(See appended table 5.4.9)	N/A
5.4.11	Insulation between external circuits and earthed circuitry:	No such parts	N/A
5.4.11.1	Exceptions to separation between external circuits and earth		N/A
5.4.11.2	Requirements		N/A
	Rated operating voltage Uop (V):		–
	Nominal voltage Upeak (V):		–
	Max increase due to variation Usp:		–
	Max increase due to ageing ΔUsa :		–
	Uop= Upeak + ΔUsp + ΔUsa:		–
5.5	Components as safeguards		P

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Clause	Requirements	Remarks	Verdict
5.5.1	General		P
5.5.2	Capacitors and RC units	Part of certified power supply unit	P
5.5.2.1	General requirement		P
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector	(See appended table 5.5.2.2)	N/A
5.5.3	Transformers	(See Annex G.5.3)	N/A
5.5.4	Optocouplers		N/A
5.5.5	Relays	No such parts	N/A
5.5.6	Resistors		N/A
5.5.7	SPD's	(See Annex G.8)	P
5.5.7.1	Use of an SPD connected to reliable earthing		N/A
5.5.7.2	Use of an SPD between mains and protective earth		N/A
5.5.8	Insulation between the mains and external circuit consisting of a coaxial cable:	(See Annex G.10.3)	N/A
5.6	Protective conductor		N/A
5.6.2	Requirement for protective conductors	Open frame model series shall be evaluated at end product level.	N/A
5.6.2.1	General requirements		N/A
5.6.2.2	Colour of insulation		N/A
5.6.3	Requirement for protective earthing conductors	DC product	N/A
	Protective earthing conductor size (mm^2)		–
5.6.4	Requirement for protective bonding conductors		N/A
5.6.4.1	Protective bonding conductors		N/A
	Protective bonding conductor size (mm^2).		–
	Protective current rating (A):		–
5.6.4.3	Current limiting and overcurrent protective devices		N/A
5.6.5	Terminals for protective conductors		N/A
5.6.5.1	Requirement		N/A
	Conductor size (mm^2), nominal thread diameter (mm).		N/A
5.6.5.2	Corrosion		N/A
5.6.6	Resistance of the protective system		N/A
5.6.6.1	Requirements		N/A
5.6.6.2	Test Method Resistance		N/A

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Clause	Requirements	Remarks	Verdict
5.6.7	Reliable earthing		N/A
5.7	Prospective touch voltage, touch current and protective conductor current		N/A
5.7.2	Measuring devices and networks	DC product	N/A
5.7.2.1	Measurement of touch current		N/A
5.7.2.2	Measurement of prospective touch voltage		N/A
5.7.3	Equipment set-up, supply connections and earth connections	DC product	N/A
	System of interconnected equipment (separate connections/single connection)		–
	Multiple connections to mains (one connection at a time/simultaneous connections)		–
5.7.4	Earthed conductive accessible parts	(See appended Table 5.7.4)	N/A
5.7.5	Protective conductor current	DC product	N/A
	Supply Voltage (V)		–
	Measured current (mA)		–
	Instructional Safeguard		N/A
5.7.6	Prospective touch voltage and touch current due to external circuits		N/A
5.7.6.1	Touch current from coaxial cables		N/A
5.7.6.2	Prospective touch voltage and touch current from external circuits		N/A
5.7.7	Summation of touch currents from external circuits		N/A
	a) Equipment with earthed external circuits Measured current (mA)		N/A
	b) Equipment whose external circuits are not referenced to earth. Measured current (mA)		N/A

6	**ELECTRICALLY- CAUSED FIRE**		P
6.2	Classification of power sources (PS) and potential ignition sources (PIS)		N/A
6.2.2	Power source circuit classifications	Approved power source	N/A
6.2.2.1	General		N/A
6.2.2.2	Power measurement for worst-case load fault:	(See appended table 6.2.2)	N/A
6.2.2.3	Power measurement for worst-case power source fault:	(See appended table 6.2.2)	N/A
6.2.2.4	PS1:		N/A
6.2.2.5	PS2:		N/A
6.2.2.6	PS3:		N/A
6.2.3	Classification of potential ignition sources	No ignition source	N/A
6.2.3.1	Arcing PIS:		N/A

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Clause	Requirements	Remarks	Verdict
6.2.3.2	Resistive PIS:		N/A
6.3	Safeguards against fire under normal operating and abnormal operating conditions		N/A
6.3.1 (a)	No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 □C for unknown materials:	(See appended table 5.4.1.5, 6.3.2, 9.0, B.2.6)	P
6.3.1 (b)	Combustible materials outside fire enclosure		P
6.4	Safeguards against fire under single fault conditions		P
6.4.1	Safeguard Method		P
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits	Approved power source	N/A
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits	Approved power source	N/A
6.4.3.1	General		N/A
6.4.3.2	Supplementary Safeguards		N/A
	Special conditions if conductors on printed boards are opened or peeled		N/A
6.4.3.3	Single Fault Conditions:	(See appended table 6.4.3)	N/A
	Special conditions for temperature limited by fuse		N/A
6.4.4	Control of fire spread in PS1 circuits	Approved power source	N/A
6.4.5	Control of fire spread in PS2 circuits	Approved power source	N/A
6.4.5.2	Supplementary safeguards:	No ignition source (See appended tables 4.1.2 and Annex G)	N/A
6.4.6	Control of fire spread in PS3 circuit	Approved power source	N/A
6.4.7	Separation of combustible materials from a PIS	No ignition source	N/A
6.4.7.1	General:	(See tables 6.2.3.1 and 6.2.3.2)	N/A
6.4.7.2	Separation by distance		N/A
6.4.7.3	Separation by a fire barrier		N/A
6.4.8	Fire enclosures and fire barriers		N/A
6.4.8.1	Fire enclosure and fire barrier material properties		N/A
6.4.8.2.1	Requirements for a fire barrier		N/A
6.4.8.2.2	Requirements for a fire enclosure	Min. V-1	P
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier		P
6.4.8.3.1	Fire enclosure and fire barrier openings		P
6.4.8.3.2	Fire barrier dimensions		N/A
6.4.8.3.3	Top Openings in Fire Enclosure: dimensions (mm):	No opening	P
	Needle Flame test		N/A
6.4.8.3.4	Bottom Openings in Fire Enclosure, condition met a), b) and/or c) dimensions (mm):	No opening	P

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Clause	Requirements	Remarks	Verdict
	Flammability tests for the bottom of a fire enclosure		N/A
6.4.8.3.5	Integrity of the fire enclosure, condition met: a), b) or c):		N/A
6.4.8.4	Separation of PIS from fire enclosure and fire barrier distance (mm) or flammability rating:		N/A
6.5	Internal and external wiring		P
6.5.1	Requirements		P
6.5.2	Cross-sectional area (mm^2)		–
6.5.3	Requirements for interconnection to building wiring:	Not intended to provide power	N/A
6.6	Safeguards against fire due to connection to additional equipment		N/A
	External port limited to PS2 or complies with Clause Q.1		N/A
7	**INJURY CAUSED BY HAZARDOUS SUBSTANCES**		N/A
7.2	Reduction of exposure to hazardous substances		N/A
7.3	Ozone exposure	No ozone production	N/A
7.4	Use of personal safeguards (PPE)		N/A
	Personal safeguards and instructions:		–
7.5	Use of instructional safeguards and instructions		N/A
	Instructional safeguard (ISO 7010)		–
7.6	Batteries:	No battery	N/A
8	**MECHANICALLY-CAUSED INJURY**		N/A
8.1	General	No mechanical energy	N/A
8.2	Mechanical energy source classifications		N/A
8.3	Safeguards against mechanical energy sources		N/A
8.4	Safeguards against parts with sharp edges and corners		N/A
8.4.1	Safeguards		N/A
8.5	Safeguards against moving parts	No moving parts	N/A
8.5.1	MS2 or MS3 part required to be accessible for the function of the equipment		N/A
8.5.2	Instructional Safeguard:		–
8.5.4	Special categories of equipment comprising moving parts		N/A
8.5.4.1	Large data storage equipment		N/A
8.5.4.2	Equipment having electromechanical device for destruction of media		N/A
8.5.4.2.1	Safeguards and Safety Interlocks		N/A

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Clause	Requirements	Remarks	Verdict
8.5.4.2.2	Instructional safeguards against moving parts		N/A
	Instructional Safeguard		–
8.5.4.2.3	Disconnection from the supply		N/A
8.5.4.2.4	Probe type and force (N)		N/A
8.5.5	High Pressure Lamps		N/A
8.5.5.1	Energy Source Classification		N/A
8.5.5.2	High Pressure Lamp Explosion Test		N/A
8.6	Stability	No stability requirements	N/A
8.6.1	Product classification		N/A
	Instructional Safeguard		–
8.6.2	Static stability		N/A
8.6.2.2	Static stability test		N/A
	Applied Force:		–
8.6.2.3	Downward Force Test		N/A
8.6.3	Relocation stability test		N/A
	Unit configuration during 10□□tilt:		–
8.6.4	Glass slide test		N/A
8.6.5	Horizontal force test (Applied Force		N/A
	Position of feet or movable parts:		–
8.7	Equipment mounted to wall or ceiling		N/A
8.7.1	Mounting Means (Length of screws (mm) and mounting surface):		N/A
8.7.2	Direction and applied force:		N/A
8.8	Handles strength	No handles	N/A
8.8.1	Classification		N/A
8.8.2	Applied Force:		N/A
8.9	Wheels or casters attachment requirements	No wheels or casters	N/A
8.9.1	Classification		N/A
8.9.2	Applied force:		–
8.10	Carts, stands and similar carriers	No such parts	N/A
8.10.1	General		N/A
8.10.2	Marking and instructions		N/A
	Instructional Safeguard:		–
8.10.3	Cart, stand or carrier loading test and compliance		N/A
	Applied force:		–
8.10.4	Cart, stand or carrier impact test		N/A
8.10.5	Mechanical stability		N/A
	Applied horizontal force (N):		–
8.10.6	Thermoplastic temperature stability (□C):		N/A
8.11	Mounting means for rack mounted equipment	Not rack mounted equipment	N/A
8.11.1	General		N/A

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Clause	Requirements	Remarks	Verdict
8.11.2	Product Classification		N/A
8.11.3	Mechanical strength test, variable *N*		N/A
8.11.4	Mechanical strength test 250N, including end stops		N/A
8.12	Telescoping or rod antennas	No suh antennas	N/A
	Button/Ball diameter (mm)		–
9	**THERMAL BURN INJURY**		N/A
9.2	Thermal energy source classifications	No thermal burn injury	N/A
9.3	Safeguard against thermal energy sources		N/A
9.4	Requirements for safeguards		N/A
9.4.1	Equipment safeguard		N/A
9.4.2	Instructional safeguard		N/A
10	**RADIATION**		N/A
10.2	Radiation energy source classification	RS1: LED indicator	P
10.2.1	General classification		P
10.3	Protection against laser radiation	No lasers	N/A
	Laser radiation that exists equipment:		–
	Normal, abnormal, single-fault:		N/A
	Instructional safeguard:		–
	Tool:		–
10.4	Protection against visible, infrared, and UV radiation	No such radiation	N/A
10.4.1	General		N/A
10.4.1.a)	RS3 for Ordinary and instructed persons		N/A
10.4.1.b)	RS3 accessible to a skilled person		N/A
	Personal safeguard (PPE) instructional safeguard		- –
10.4.1.c)	Equipment visible, IR, UV does not exceed RS1:		N/A
10.4.1.d)	Normal, abnormal, single-fault conditions:		N/A
10.4.1.e)	Enclosure material employed as safeguard is opaque		N/A
10.4.1.f)	UV attenuation		N/A
10.4.1.g)	Materials resistant to degradation UV		N/A
10.4.1.h)	Enclosure containment of optical radiation		N/A
10.4.1.i)	Exempt Group under normal operating conditions		N/A
10.4.2	Instructional safeguard		N/A
10.5	Protection against x-radiation	No such radiation	N/A
10.5.1	X- radiation energy source that exists equipment:		N/A

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Clause	Requirements	Remarks	Verdict
	Normal, abnormal, single fault conditions		N/A
	Equipment safeguards		N/A
	Instructional safeguard for skilled person:		N/A
10.5.3	Most unfavourable supply voltage to give maximum radiation		–
	Abnormal and single-fault condition:		N/A
	Maximum radiation (pA/kg:		N/A
10.6	Protection against acoustic energy sources		N/A
10.6.1	General		N/A
10.6.2	Classification		N/A
	Acoustic output, dB(A):		N/A
	Output voltage, unweighted r.m.s:		N/A
10.6.4	Protection of persons		N/A
	Instructional safeguards:		N/A
	Equipment safeguard prevent ordinary person to RS2:		–
	Means to actively inform user of increase sound pressure:		–
	Equipment safeguard prevent ordinary person to RS2:		–
10.6.5	Requirements for listening devices (headphones, earphones, etc.)		N/A
10.6.5.1	Corded passive listening devices with analog input		N/A
	Input voltage with 94 dB(A) *LAeq* acoustic pressure output:		–
10.6.5.2	Corded listening devices with digital input		N/A
	Maximum dB(A):		-
10.6.5.3	Cordless listening device		N/A
	Maximum dB(A):		-

B	**NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS**		P
B.2	Normal Operating Conditions		P
B.2.1	General requirements:	(See Test Item Particulars and appended test tables)	P
	Audio Amplifiers and equipment with audio amplifiers:		N/A
B.2.3	Supply voltage and tolerances		P
B.2.5	Input Test	(See appended table B.2.5)	P
B.3	Simulated abnormal operating conditions		P
B.3.1	General requirements:	(See appended table B.3)	P

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Clause	Requirements	Remarks	Verdict
B.3.2	Covering of ventilation openings		N/A
B.3.3	D.C. mains polarity test		N/A
B.3.4	Setting of voltage selector:	No such parts	N/A
B.3.5	Maximum load at output terminals:	(See appended table B.3)	P
B.3.6	Reverse battery polarity		N/A
B.3.7	Abnormal operating conditions as specified in Clause E.2.		N/A
B.3.8	Safeguards functional during and after abnormal operating conditions		P
B.4	Simulated single fault conditions		P
B.4.2	Temperature controlling device open or short- circuited:		N/A
B.4.3	Motor tests		N/A
B.4.3.1	Motor blocked or rotor locked increasing the internal ambient temperature:		N/A
B.4.4	Short circuit of functional insulation		P
B.4.4.1	Short circuit of clearances for functional insulation		P
B.4.4.2	Short circuit of creepage distances for functional insulation		P
B.4.4.3	Short circuit of functional insulation on coated printed boards		N/A
B.4.5	Short circuit and interruption of electrodes in tubes and semiconductors		P
B.4.6	Short circuit or disconnect of passive components		P
B.4.7	Continuous operation of components		N/A
B.4.8	Class 1 and Class 2 energy sources within limits during and after single fault conditions		P
B.4.9	Battery charging under single fault conditions ... :		N/A
C	**UV RADIATION**		N/A
C.1	Protection of materials in equipment from UV radiation	No UV radiation	N/A
C.1.2	Requirements		N/A
C.1.3	Test method		N/A
C.2	UV light conditioning test		N/A
C.2.1	Test apparatus		N/A
C.2.2	Mounting of test samples		N/A
C.2.3	Carbon-arc light-exposure apparatus		N/A
C.2.4	Xenon-arc light exposure apparatus		N/A

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Clause	Requirements	Remarks	Verdict
D	**TEST GENERATORS**		N/A
D.1	Impulse test generators	No such generators	N/A
D.2	Antenna interface test generator		N/A
D.3	Electronic pulse generator		N/A
E	**TEST CONDITIONS FOR EQUIPMENT CONTAINING AUDIO AMPLIFIERS**		N/A
E.1	Audio amplifier normal operating conditions		N/A
	Audio signal voltage (V):		–
	Rated load impedance (Ω):		–
E.2	Audio amplifier abnormal operating conditions		N/A
F	**EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS**		P
F.1	General requirements		P
	Instructions – Language	German, English	–
F.2	Letter symbols and graphical symbols		P
F.2.1	Letter symbols according to IEC60027-1		P
F.2.2	Graphic symbols IEC, ISO or manufacturer specific		P
F.3	Equipment markings		P
F.3.1	Equipment marking locations		P
F.3.2	Equipment identification markings		P
F.3.2.1	Manufacturer identification:	See marking plate	–
F.3.2.2	Model identification:	See marking plate	–
F.3.3	Equipment rating markings		P
F.3.3.1	Equipment with direct connection to mains		N/A
F.3.3.2	Equipment without direct connection to mains		P
F.3.3.3	Nature of supply voltage	See marking plate	–
F.3.3.4	Rated voltage	See marking plate	–
F.3.3.4	Rated frequency		–
F.3.3.6	Rated current or rated power	See marking plate	–
F.3.3.7	Equipment with multiple supply connections		N/A
F.3.4	Voltage setting device		N/A
F.3.5	Terminals and operating devices		N/A
F.3.5.1	Mains appliance outlet and socket-outlet markings:		N/A
F.3.5.2	Switch position identification marking:		N/A
F.3.5.3	Replacement fuse identification and rating markings:		N/A
F.3.5.4	Replacement battery identification marking:		N/A
F.3.5.5	Terminal marking location		N/A

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Clause	Requirements	Remarks	Verdict
F.3.6	Equipment markings related to equipment classification		N/A
F.3.6.1	Class I Equipment		N/A
F.3.6.1.1	Protective earthing conductor terminal		N/A
F.3.6.1.2	Neutral conductor terminal		N/A
F.3.6.1.3	Protective bonding conductor terminals		N/A
F.3.6.2	Class II equipment (IEC60417-5172)		P
F.3.6.2.1	Class II equipment with or without functional earth		P
F.3.6.2.2	Class II equipment with functional earth terminal marking		N/A
F.3.7	Equipment IP rating marking:		—
F.3.8	External power supply output marking	See marking plate	N/A
F.3.9	Durability, legibility and permanence of marking		P
F.3.10	Test for permanence of markings		P
F.4	Instructions		P
	a) Equipment for use in locations where children not likely to be present - marking		N/A
	b) Instructions given for installation or initial use		P
	c) Equipment intended to be fastened in place		N/A
	d) Equipment intended for use only in restricted access area		N/A
	e) Audio equipment terminals classified as ES3 and other equipment with terminals marked in accordance F.3.6.1		N/A
	f) Protective earthing employed as safeguard		N/A
	g) Protective earthing conductor current exceeding ES 2 limits		N/A
	h) Symbols used on equipment		P
	i) Permanently connected equipment not provided with all-pole mains switch		N/A
	j) Replaceable components or modules providing safeguard function		N/A
F.5	Instructional safeguards		N/A
	Where “instructional safeguard” is referenced in the test report it specifies the required elements, location of marking and/or instruction		N/A
G	**COMPONENTS**		P
G.1	**Switches**		N/A
G.1.1	General requirements		N/A
G.1.2	Ratings, endurance, spacing, maximum load		N/A
G.2	**Relays**		N/A

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Clause	Requirements	Remarks	Verdict
G.2.1	General requirements		N/A
G.2.2	Overload test		N/A
G.2.3	Relay controlling connectors supply power		N/A
G.2.4	Mains relay, modified as stated in G.2		N/A
G.3	**Protection Devices**		N/A
G.3.1	Thermal cut-offs		N/A
G.3.1.1a) &b)	Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b)		N/A
G.3.1.1c)	Thermal cut-outs tested as part of the equipment as indicated in c)		N/A
G.3.1.2	Thermal cut-off connections maintained and secure		N/A
G.3.2	Thermal links		N/A
G.3.2.1a)	Thermal links separately tested with IEC 60691		N/A
G.3.2.1b)	Thermal links tested as part of the equipment		N/A
	Aging hours (H):		–
	Single Fault Condition:		–
	Test Voltage (V) and Insulation Resistance (Ω). :		–
G.3.3	PTC Thermistors		N/A
G.3.4	Overcurrent protection devices		P
G.3.5	Safeguards components not mentioned in G.3.1 to G.3.5		N/A
G.3.5.1	Non-resettable devices suitably rated and marking provided		N/A
G.3.5.2	Single faults conditions	(See appended Table B.4)	N/A
G.4	**Connectors**		P
G.4.1	Spacings		P
G.4.2	Mains connector configuration:	Compliance with standard IEC 60083 & IEC 60320	P
G.4.3	Plug is shaped that insertion into mains socket- outlets or appliance coupler is unlikely		N/A
G.5	**Wound Components**		N/A
G.5.1	Wire insulation in wound components	No wound components	N/A
G.5.1.2 a)	Two wires in contact inside wound component, angle between 45° and 90°		N/A
G.5.1.2 b)	Construction subject to routine testing		N/A
G.5.2	Endurance test on wound components		N/A
G.5.2.1	General test requirements		N/A

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Clause	Requirements	Remarks	Verdict
G.5.2.2	Heat run test		N/A
	Time (s):		–
	Temperature (^{0}C):		–
G.5.2.3	Wound Components supplied by mains		N/A
G.5.3	**Transformers**		N/A
G.5.3.1	Requirements applied (IEC61204-7, IEC61558- 1/-2, and/or IEC62368-1):		N/A
	Position:		–
	Method of protection:		–
G.5.3.2	Insulation		N/A
	Protection from displacement of windings		–
G.5.3.3	Overload test:	(See appended table B.3)	N/A
G.5.3.3.1	Test conditions		N/A
G.5.3.3.2	Winding Temperatures testing in the unit		N/A
G.5.3.3.3	Winding Temperatures - Alternative test method		N/A
G.5.4	**Motors**		N/A
G.5.4.1	General requirements	No motors	N/A
	Position:		–
G.5.4.2	Test conditions		N/A
G.5.4.3	Running overload test		N/A
G.5.4.4	Locked-rotor overload test		N/A
	Test duration (days):		–
G.5.4.5	Running overload test for d.c. motors in secondary circuits		N/A
G.5.4.5.2	Tested in the unit		N/A
	Electric strength test (V):		–
G.5.4.5.3	Tested on the Bench - Alternative test method; test time (h):		N/A
	Electric strength test (V):		–
G.5.4.6	Locked-rotor overload test for d.c. motors in secondary circuits		N/A
G.5.4.6.2	Tested in the unit		N/A
	Maximum Temperature:		N/A
	Electric strength test (V):		N/A
G.5.4.6.3	Tested on the bench - Alternative test method; test time (h):		N/A
	Electric strength test (V):		N/A
G.5.4.7	Motors with capacitors		N/A
G.5.4.8	Three-phase motors		N/A

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Clause	Requirements	Remarks	Verdict
G.5.4.9	Series motors		N/A
	Operating voltage:		–
G.6	**Wire Insulation**		N/A
G.6.1	General	DC product	N/A
G.6.2	Solvent-based enamel wiring insulation		N/A
G.7	**Mains supply cords**		N/A
G.7.1	General requirements	DC product, building in	N/A
	Type		–
	Rated current (A)		–
	Cross-sectional area (mm^2), (AWG):		–
G.7.2	Compliance and test method		N/A
G.7.3	Cord anchorages and strain relief for non- detachable power supply cords		N/A
G.7.3.2	Cord strain relief		N/A
G.7.3.2.1	Requirements		N/A
	Strain relief test force (N):		–
G.7.3.2.2	Strain relief mechanism failure		N/A
G.7.3.2.3	Cord sheath or jacket position, distance (mm)		–
G.7.3.2.4	Strain relief comprised of polymeric material		N/A
G.7.4	Cord Entry:	(See appended table 5.4.11.1)	N/A
G.7.5	Non-detachable cord bend protection		N/A
G.7.5.1	Requirements		N/A
G.7.5.2	Mass (g):		–
	Diameter (m):		–
	Temperature (□C):		–
G.7.6	Supply wiring space		N/A
G.7.6.2	Stranded wire		N/A
G.7.6.2.1	Test with 8 mm strand		N/A
G.8	**Varistors**		N/A
G.8.1	General requirements	No varistors	N/A
G.8.2	Safeguard against shock		N/A
G.8.3	Safeguard against fire		N/A
G.8.3.2	Varistor overload test		N/A
G.8.3.3	Temporary overvoltage		N/A

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Clause	Requirements	Remarks	Verdict
G.9	**Integrated Circuit (IC) Current Limiters**		N/A
G.9.1 a)	Manufacturer defines limit at max. 5A.		N/A
G.9.1 b)	Limiters do not have manual operator or reset		N/A
G.9.1 c)	Supply source does not exceed 250 VA:		–
G.9.1 d)	IC limiter output current (max. 5A):		–
G.9.1 e)	Manufacturers' defined drift:		–
G.9.2	Test Program 1		N/A
G.9.3	Test Program 2		N/A
G.9.4	Test Program 3		N/A
G.10	**Resistors**		P
G.10.1	General requirements	Approved part used	N/A
G.10.2	Resistor test		N/A
G.10.3	Test for resistors serving as safeguards between the mains and an external circuit consisting of a coaxial cable		N/A
G.10.3.1	General requirements		N/A
G.10.3.2	Voltage surge test		N/A
G.10.3.3	Impulse test		N/A
G.11	**Capacitor and RC units**		P
G.11.1	General requirements	Approved part used	N/A
G.11.2	Conditioning of capacitors and RC units		N/A
G.11.3	Rules for selecting capacitors		N/A
G.12	**Optocouplers**		P
	Optocouplers comply with IEC 60747-5-5:2007 Spacing or Electric Strength Test (specify option and test results)	Approved part used	N/A
	Type test voltage Vini:		–
	Routine test voltage, Vini,b:		–
G.13	**Printed boards**		P
G.13.1	General requirements	Approved part used	P
G.13.2	Uncoated printed boards		P
G.13.3	Coated printed boards		N/A
G.13.4	Insulation between conductors on the same inner surface		N/A
	Compliance with cemented joint requirements (Specify construction):		–
G.13.5	Insulation between conductors on different surfaces		N/A
	Distance through insulation		N/A

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Clause	Requirements	Remarks	Verdict
	Number of insulation layers (pcs):		–
G.13.6	Tests on coated printed boards		N/A
G.13.6.1	Sample preparation and preliminary inspection		N/A
G.13.6.2 a)	Thermal conditioning		N/A
G.13.6.2 b)	Electric strength test		N/A
G.13.6.2 c)	Abrasion resistance test		N/A
G.14	**Coating on components terminals**		N/A
G.14.1	Requirements:	(See G.13)	N/A
G.15	**Liquid filled components**		N/A
G.15.1	General requirements	No such kind of components	N/A
G.15.2	Requirements		N/A
G.15.3	Compliance and test methods		N/A
G.15.3.1	Hydrostatic pressure test		N/A
G.15.3.2	Creep resistance test		N/A
G.15.3.3	Tubing and fittings compatibility test		N/A
G.15.3.4	Vibration test		N/A
G.15.3.5	Thermal cycling test		N/A
G.15.3.6	Force test		N/A
G.15.4	Compliance		N/A
G.16	**IC including capacitor discharge function (ICX)**		N/A
a)	Humidity treatment in accordance with sc5.4.8 – 120 hours	No such kind of capacitor	N/A
b)	Impulse test using circuit 2 with Uc = to transient voltage :		N/A
C1)	Application of ac voltage at 110% of rated voltage for 2.5 minutes		N/A
C2)	Test voltage:		–
D1)	10,000 cycles on and off using capacitor with smallest capacitance resistor with largest resistance specified by manufacturer		N/A
D2)	Capacitance:		–
D3)	Resistance:		–

H	**CRITERIA FOR TELEPHONE RINGING SIGNALS**		N/A
H.1	General	No telephone ringing signals	N/A
H.2	Method A		N/A

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Clause	Requirements	Remarks	Verdict
H.3	Method B		N/A
H.3.1	Ringing signal		N/A
H.3.1.1	Frequency (Hz)		–
H.3.1.2	Voltage (V)		–
H.3.1.3	Cadence; time (s) and voltage (V)		–
H.3.1.4	Single fault current (mA)		–
H.3.2	Tripping device and monitoring voltage		N/A
H.3.2.1	Conditions for use of a tripping device or a monitoring voltage complied with		N/A
H.3.2.2	Tripping device		N/A
H.3.2.3	Monitoring voltage (V)		–
J	**INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION**		P
	General requirements	UL approved	P
K	**SAFETY INTERLOCKS**		N/A
K.1	General requirements	No safety interlock	N/A
K.2	Components of safety interlock safeguard mechanism		N/A
K.3	Inadvertent change of operating mode		N/A
K.4	Interlock safeguard override		N/A
K.5	Fail-safe		N/A
	Compliance		N/A
K.6	Mechanically operated safety interlocks		N/A
K.6.1	Endurance requirement		N/A
K.6.2	Compliance and Test method		N/A
K.7	Interlock circuit isolation		N/A
K.7.1	Separation distance for contact gaps & interlock circuit elements (type and circuit location)		N/A
K.7.2	Overload test, Current (A)		N/A
K.7.3	Endurance test		N/A
K.7.4	Electric strength test		N/A
L	**DISCONNECT DEVICES**		N/A
L.1	General requirements	See user manual	N/A
L.2	Permanently connected equipment		N/A

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Clause	Requirements	Remarks	Verdict
L.3	Parts that remain energized		N/A
L.4	Single phase equipment		N/A
L.5	Three-phase equipment		N/A
L.6	Switches as disconnect devices		N/A
L.7	Plugs as disconnect devices		N/A
L.8	Multiple power sources		N/A
M	**EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS**		N/A
M.1	General requirements	No battery	N/A
M.2	Safety of batteries and their cells		N/A
M.2.1	Requirements		N/A
M.2.2	Compliance and test method (identify method):		N/A
M.3	Protection circuits		N/A
M.3.1	Requirements		N/A
M.3.2	Tests		N/A
	- Overcharging of a rechargeable battery		N/A
	- Unintentional charging of a non-rechargeable battery		N/A
	- Reverse charging of a rechargeable battery		N/A
	- Excessive discharging rate for any battery		N/A
M.3.3	Compliance:		N/A
M.4	Additional safeguards for equipment containing secondary lithium battery		N/A
M.4.1	General		N/A
M.4.2	Charging safeguards		N/A
M.4.2.1	Charging operating limits		N/A
M.4.2.2a)	Charging voltage, current and temperature		–
M.4.2.2b)	Single faults in charging circuitry		–
M.4.3	Fire Enclosure		N/A
M.4.4	Endurance of equipment containing a secondary lithium battery		N/A
M.4.4.2	Preparation		N/A
M.4.4.3	Drop and charge/discharge function tests		N/A
	Drop		N/A
	Charge		N/A

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Clause	Requirements	Remarks	Verdict
	Discharge		N/A
M.4.4.4	Charge-discharge cycle test		N/A
M.4.4.5	Result of charge-discharge cycle test		N/A
M.5	Risk of burn due to short circuit during carrying		N/A
M.5.1	Requirement		N/A
M.5.2	Compliance and Test Method (Test of P.2.3)		N/A
M.6	Prevention of short circuits and protection from other effects of electric current		N/A
M.6.1	Short circuits		N/A
M.6.1.1	General requirements		N/A
M.6.1.2	Test method to simulate an internal fault		N/A
M.6.1.3	Compliance (Specify M.6.1.2 or alternative method) :		N/A
M.6.2	Leakage current (mA):		N/A
M.7	Risk of explosion from lead acid and NiCd batteries		N/A
M.7.1	Ventilation preventing explosive gas concentration		N/A
M.7.2	Compliance and test method		N/A
M.8	Protection against internal ignition from external spark sources of lead acid batteries		N/A
M.8.1	General requirements		N/A
M.8.2	Test method		N/A
M.8.2.1	General requirements		N/A
M.8.2.2	Estimation of hypothetical volume *Vz* (m^3/s:		–
M.8.2.3	Correction factors:		–
M.8.2.4	Calculation of distance *d* (mm):		–
M.9	Preventing electrolyte spillage		N/A
M.9.1	Protection from electrolyte spillage		N/A
M.9.2	Tray for preventing electrolyte spillage		N/A
M.10	Instructions to prevent reasonably foreseeable misuse (Determination of compliance: inspection, data review; or abnormal testing):		N/A

N	**ELECTROCHEMICAL POTENTIALS**		N/A
	Metal(s) used:		–

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Clause	Requirements	Remarks	Verdict
O	**MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES**		P
	Figures O.1 to O.20 of this Annex applied:	O.5	_
P	**SAFEGUARDS AGAINST ENTRY OF FOREIGN OBJECTS AND SPILLAGE OF INTERNAL LIQUIDS**		P
P.1	General requirements		P
P.2.2	Safeguards against entry of foreign object		P
	Location and Dimensions (mm):	No openings	_
P.2.3	Safeguard against the consequences of entry of foreign object		N/A
P.2.3.1	Safeguards against the entry of a foreign object		N/A
	Openings in transportable equipment		N/A
	Transportable equipment with metalized plastic parts:		N/A
P.2.3.2	Openings in transportable equipment in relation to metallized parts of a barrier or enclosure (identification of supplementary safeguard):		N/A
P.3	Safeguards against spillage of internal liquids	No internal liquids	N/A
P.3.1	General requirements		N/A
P.3.2	Determination of spillage consequences		N/A
P.3.3	Spillage safeguards		N/A
P.3.4	Safeguards effectiveness		N/A
P.4	Metallized coatings and adhesive securing parts		N/A
P.4.2 a)	Conditioning testing		N/A
	Tc (°C):		_
	Tr (°C):		_
	Ta (°C):		_
P.4.2 b)	Abrasion testing:	(See G.13.6.2)	N/A
P.4.2 c)	Mechanical strength testing:	(See Annex T)	N/A
Q	**CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING**		N/A
Q.1	Limited power sources	See user manual	N/A
Q.1.1 a)	Inherently limited output		N/A
Q.1.1 b)	Impedance limited output		N/A
	- Regulating network limited output under normal operating and simulated single fault condition		N/A

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Clause	Requirements	Remarks	Verdict
Q.1.1 c)	Overcurrent protective device limited output		N/A
Q.1.1 d)	IC current limiter complying with G.9		N/A
Q.1.2	Compliance and test method		N/A
Q.2	Test for external circuits – paired conductor cable		N/A
	Maximum output current (A):		–
	Current limiting method:		–
R	**LIMITED SHORT CIRCUIT TEST**		N/A
R.1	General requirements	DC product	N/A
R.2	Determination of the overcurrent protective device and circuit		N/A
R.3	Test method Supply voltage (V) and short-circuit current (A)).:		N/A
S	**TESTS FOR RESISTANCE TO HEAT AND FIRE**		N/A
S.1	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W	Approved materials used	N/A
	Samples, material:		–
	Wall thickness (mm		–
	Conditioning (^{0}C)		–
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	- Material not consumed completely		N/A
	- Material extinguishes within 30s		N/A
	- No burning of layer or wrapping tissue		N/A
S.2	Flammability test for fire enclosure and fire barrier integrity		N/A
	Samples, material:		–
	Wall thickness (mm		–
	Conditioning (^{0}C		–
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	Test specimen does not show any additional hole		N/A
S.3	Flammability test for the bottom of a fire enclosure		N/A
	Samples, material:		–

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Clause	Requirements	Remarks	Verdict
	Wall thickness (mm)		–
	Cheesecloth did not ignite		N/A
S.4	Flammability classification of materials		N/A
S.5	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W		N/A
	Samples, material:		–
	Wall thickness (mm)		–
	Conditioning (test condition), (^{0}C)		–
	Test flame according to IEC 60695-11-20 with conditions as set out		N/A
	After every test specimen was not consumed completely		N/A
	After fifth flame application, flame extinguished within 1 min		N/A

T	**MECHANICAL STRENGTH TESTS**		P
T.1	General requirements		P
T.2	Steady force test, 10 N	(See appended table T.2)	P
T.3	Steady force test, 30 N	(See appended table T3)	N/A
T.4	Steady force test, 100 N	(See appended table T4)	N/A
T.5	Steady force test, 250 N		N/A
T.6	Enclosure impact test		N/A
	Fall test		N/A
	Swing test		N/A
T.7	Drop test	(See appended table T7)	N/A
T.8	Stress relief test	(See appended table T8)	N/A
T.9	Impact Test (glass)		N/A
T.9.1	General requirements		N/A
T.9.2	Impact test and compliance		N/A
	Impact energy (J)		–
	Height (m)		–
T.10	Glass fragmentation test	(See sub-clause 4.4.4.9)	N/A
T.11	Test for telescoping or rod antennas		N/A
	Torque value (Nm)		–

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Clause	Requirements	Remarks	Verdict
U	**MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFECTS OF IMPLOSION**		N/A
U.1	General requirements	No CRT	N/A
U.2	Compliance and test method for non-intrinsically protected CRTs		N/A
U.3	Protective Screen		N/A
V	**DETERMINATION OF ACCESSIBLE PARTS (FINGERS, PROBES AND WEDGES)**		P
V.1	Accessible parts of equipment	External enclosure & wire	P
V.2	Accessible part criterion		P

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Clause	Requirements	Remarks	Verdict

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Contents	Add the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZC (informative) A-deviations Annex ZD (informative) IEC and CENELEC code designations for flexible cords	P
General	Delete all the "country" notes in the reference document according to the following list: 0.2.1 Note 1 Note 3 4.1.15 Note 4.7.3 Note 1 & 2 5.2.2.2 Note 5.4.2.3.2.2.Note c 5.4.2.3.2.4 Note 1 & 3 5.4.2.5 Note 2 5.4.5.1 Note 5.5.2.1 Note 5.5.6 Note 5.6.4.2.1 Note 2 & 3 5.7.5 Note 5.7.6.1 Note 1 &2 10.2.1 Note 2, 3 & 4 10.5.3 Note 2 10.6.2.1 Note 3 F.3.3.6 Note 3	P
4.Z1	Add the following new subclause after 4.9: To protect against excessive current, short circuits and earth faults in circuits connected to an a.c. mains, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c): a) except as detailed in b) and c), protective devices necessary to comply with the requirements of B.3.1 and B.4 shall be included as parts of the equipment; b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation; it is permitted for pluggable equipment type B or permanently connected equipment, to	P
5.4.2.3.2 .4	Add the following to the end of this subclause: The requirement for interconnection with external circuit is in addition given in EN 50491-3:2009.	N/A
10.2.1	Add the following to c) and d) in Table 39: For additional requirements, see 10.5.1.	N/A

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EN 62368-1			
Clause	Requirements	Remarks	Verdict
10.5.1	Add the following after the first paragraph: *For RS 1 compliance is checked by measurement under the following conditions*: *In addition to the normal operating conditions, all controls adjustable from the outside by hand, by any object such as a tool or a coin, and those internal adjustments or pre-sets which are not locked in a reliable manner, are adjusted so as to give maximum radiation whilst maintaining an intelligible picture for 1 h, at the end of which the measurement is made.* NOTE Z1 Soldered joints and paint lockings are examples of adequate locking. *The dose-rate is determined by means of a radiation monitor with an effective area of 10 cm², at any point 10 cm from the outer surface of the apparatus. Moreover, the measurement shall be made under fault conditions causing an increase of the high-voltage, provided an intelligible picture is maintained for 1 h, at the end of which the measurement is made.* *For RS1, the dose-rate shall not exceed 1 µSv/h taking account of the background level.* NOTE Z2 These values appear in Directive 96/29/Euratom of 13 May 1996.		N/A
10.6.2.1	Add the following paragraph to the end of the subclause: EN 71-1:2011, 4.20 and the related tests methods and measurement distances apply.		N/A
10.Z1	Add the following paragraph to the end of the subclause: 10.Z1 Non-ionizing radiation from radio frequencies in the range 0 to 300 GHz. The amount of non-ionizing radiation is regulated by European Council Recommendation 1999/519/EC of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz). For intentional radiators, ICNIRP guidelines should be taken into account for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields (up to 300 GHz). For hand-held and body-mounted devices, attention is drawn to EN 50360 and EN 50566		N/A
G.7.1	Add the following standards: Add the following notes for the standards indicated: IEC 60130-9 NOTE Harmonized as EN 60130-9. IEC 60269-2 NOTE Harmonized as HD 60269-2. IEC 60309-1 NOTE Harmonized as EN 60309-1. IEC 60364NOTE some parts harmonized in HD 384/HD 60364 series. IEC 60601-2-4NOTE Harmonized as EN 60601-2-4. IEC 60664-5 NOTE Harmonized as EN 60664-5. IEC 61032:1997 NOTE Harmonized as EN 61032:1998 (not modified). IEC 61508-1NOTE Harmonized as EN		P
Biblio-graphy	Add the following standards: Add the following notes for the standards indicated: IEC 60130-9 NOTE Harmonized as EN 60130-9. IEC 60269-2 NOTE Harmonized as HD 60269-2. IEC 60309-1 NOTE Harmonized as EN 60309-1. IEC 60364NOTE some parts harmonized in HD 384/HD 60364 series. IEC 60601-2-4NOTE Harmonized as EN 60601-2-4. IEC 60664-5 NOTE Harmonized as EN 60664-5. IEC 61032:1997 NOTE Harmonized as EN 61032:1998 (not modified). IEC 61508-1NOTE Harmonized as EN		P

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EN 62368-1			
Clause	Requirements	Remarks	Verdict
ZA	NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS		P

ZB	SPECIAL NATIONAL CONDITIONS	N/A
4.1.15	Denmark, Finland, Norway and Sweden To the end of the subclause the following is added: Class I pluggable equipment type A intended for connection to other equipment or a network shall, if safety relies on connection to reliable earthing or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment shall be connected to an earthed mains socket- outlet. The marking text in the applicable countries shall be as follows: In Denmark: “Apparatets stikprop skal tilsluttes en stikkontakt med jord som giver forbindelse til	N/A
4.7.3	United Kingdom To the end of the subclause the following is added: The torque test is performed using a socket-outlet complying with BS 1363, and the plug part shall be assessed to the relevant clauses of BS 1363. Also see Annex G.4.2 of this annex	N/A
5.2.2.2	Denmark After the 2nd paragraph add the following: A warning (marking safeguard) for high touch current is required if the touch current exceeds the limits of 3,5 mA a.c. or 10 mA d.c.	N/A

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EN 62368-1			
Clause	Requirements	Remarks	Verdict
5.4.11.1 and Annex G	Finland and Sweden To the end of the subclause the following is added: For separation of the telecommunication network from earth the following is applicable: If this insulation is solid, including insulation forming part of a component, it shall at least consist of either • two layers of thin sheet material, each of which shall pass the electric strength test below, or • one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that clearances and creepage distances do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition • passes the tests and inspection criteria of 5.4.8 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 5.4.9 shall be performed using 1,5 kV), and • is subject to routine testing for electric strength during manufacturing, using a test voltage of 1,5 kV. It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2. A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions: • the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in 5.4.11; • the additional testing shall be performed on all the test specimens as described in EN 60384-14; the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14.		N/A
5.5.2.1	Norway After the 3rd paragraph the following is added: Due to the IT power system used, capacitors are required to be rated for the applicable line-to-line voltage (230 V).		N/A
5.5.6	Finland, Norway and Sweden To the end of the subclause the following is added: Resistors used as basic safeguard or bridging basic insulation in class I pluggable equipment type A shall comply with G.10.1 and the test of G.10.2.		N/A
5.6.1	Denmark Add to the end of the subclause Due to many existing installations where the socket- outlets can be protected with fuses with higher rating than the rating of the socket-outlets the protection for pluggable equipment type A shall be an integral part of the equipment. *Justification:* In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.		N/A
5.6.4.2.1	Ireland and United Kingdom After the indent for pluggable equipment type A, the following is added: the protective current rating is taken to be 13 A, this being the largest rating of fuse used in the mains plug.		N/A

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EN 62368-1			
Clause	Requirements	Remarks	Verdict
5.6.5.1	To the second paragraph the following is added: The range of conductor sizes of flexible cords to be accepted by terminals for equipment with a rated current over 10 A and up to and including 13 A is: 1,25 mm^2 to 1,5 mm^2 in cross-sectional area.		N/A
5.7.5	Denmark To the end of the subclause the following is added: The installation instruction shall be affixed to the equipment if the protective conductor current exceeds the limits of 3,5 mA a.c. or 10 mA d.c.		N/A
5.7.6.1	Norway and Sweden To the end of the subclause the following is added: The screen of the television distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation needs to be isolated from the screen of a cable distribution system. It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by a retailer, for example. The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in: “Apparatus connected to the protective earthing of the building installation through the mains connection or through other apparatus with a connection to protective earthing – and to a television distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a television distribution system therefore has to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11)” NOTE In Norway, due to regulation for CATV-installations, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min. Translation to Norwegian (the Swedish text will also be accepted in Norway): “Apparater som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et koaksialbasert kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av apparater til kabel-TV nett installeres en galvanisk isolator mellom apparatet og kabel-TV nettet.” Translation to Swedish: ”Apparater som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av apparaten till kabel-TV nät galvanisk isolator finnas mellan apparaten och kabel-TV nätet.”		N/A
5.7.6.2	Denmark To the end of the subclause the following is added: The warning (marking safeguard) for high touch current is required if the touch current or the protective current exceed the limits of 3,5 mA .		N/A

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EN 62368-1			
Clause	Requirements	Remarks	Verdict
B.3.1 and B.4	Ireland and United Kingdom The following is applicable: To protect against excessive currents and short-circuits in the primary circuit of direct plug-in equipment, tests according to Annexes B.3.1 and B.4 shall be conducted using an external miniature circuit breaker complying with EN 60898-1, Type B, rated 32A. If the equipment does not pass these tests, suitable protective devices shall be included as an integral part of the direct plug-in equipment, until the requirements of Annexes B.3.1 and B.4 are met		N/A
G.4.2	Denmark To the end of the subclause the following is added: Supply cords of single phase appliances having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1:2011. CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a. If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2. Mains socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance DS 60884-2-D1:2011 standard sheet DKA 1-4a. Other current rating socket outlets shall be in compliance with Standard Sheet DKA 1-3a or DKA 1-1c. Mains socket-outlets with earth shall be in compliance with DS 60884-2-D1:2011 Standard Sheet DK 1-3a, DK 1-1c, DK1-1d, DK 1-5a or DK 1-7a *Justification:* Heavy Current Regulations, Section 6c		N/A
G.4.2	United Kingdom To the end of the subclause the following is added: The plug part of direct plug-in equipment shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16, and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.		N/A
G.7.1	United Kingdom To the first paragraph the following is added: Equipment which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord shall be fitted with a 'standard plug' in accordance with the Plugs and Sockets etc (Safety) Regulations 1994, Statutory Instrument 1994 No. 1768, unless exempted by those regulations. Note: "Standard plug" is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.		N/A

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EN 62368-1			
Clause	Requirements	Remarks	Verdict
G.7.1	Ireland To the first paragraph the following is added: Apparatus which is fitted with a flexible cable or cord shall be provided with a plug in accordance with Statutory Instrument 525: 1997, "13 A Plugs and Conversion Adapters for Domestic Use Regulations: 1997. S.I. 525 provides for the recognition of a standard of another Member State which is equivalent to the relevant Irish Standard		N/A
G.7.2	Ireland and United Kingdom To the first paragraph the following is added: A power supply cord with a conductor of 1,25 mm^2 is allowed for equipment which is rated		N/A
ZC	A-DEVIATIONS (informative)		N/A
10.5.2	Germany The following requirement applies: For the operation of any cathode ray tube intended for the display of visual images operating at an acceleration voltage exceeding 40 kV, authorization is required, or application of type approval (Bauartzulassung) and marking. *Justification*: German ministerial decree against ionizing radiation (Röntgenverordnung), in force since 2002-07-01, implementing the European Directive 96/29/EURATOM. Note: Contact address: Physikalisch-Technische Bundesanstalt, Bundesallee 100, D-38116 Braunschweig, Tel.: Int+49-531-592-6320, Internet: http://www.ptb.de		N/A

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EN 62368-1			
Clause	Requirements	Remarks	Verdict
F.1	Italy The following requirements shall be fulfilled: • The power consumption in Watts (W) shall be indicated on TV receivers and in their instruction for use (Measurement according to EN 60555-2). Note/Nota *EN 60555-2 has since been replaced by IEC 60107-1:1997.* • TV receivers shall be provided with an instruction for use, schematic diagrams and adjustments procedure in Italian language. • Marking for controls and terminals shall be in Italian language. Abbreviation and international symbols are allowed provided that they are explained in the instruction for use. • The ECC manufacturers are bound to issue a conformity declaration according to the above requirements in the instruction manual. The correct statement for conformity to be written in the instruction manual, shall be: *Questo apparecchio è fabbricato nella CEE nel rispetto delle disposizioni del D.M. marzo 1992 ed è in particolare conforme alle prescrizioni dell'art. 1 dello stesso D.M.* • The first importers of TV receivers manufactured outside EEC are bound to submit the TV receivers for previous conformity certification to the Italian Post Ministry (PP.TT). The TV receivers shall have on the backcover the certification number in the following form: D.M. 26/03/1992 xxxxx/xxxxx/S or T or pT S for stereo T for Teletext pT for retrofitable teletext *Justification:* Ministerial Decree of 26 March 1992 : National rules for television receivers trade. NOTE/NOTA:*Ministerial decree above contains additional, but not safety relevant requirements*		N/A
ZD	IEC and CENELEC code designations for flexible cords (Informative)		N/A

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EN 62368-1			
Clause	Requirements	Remarks	Verdict

4.1.2	TABLE: List of critical components				P
Object/part No.	Manufacturer / trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity[1])
Enclosure	--	Plastıc	thickness 1.5 mm min. V-1	--	Tested in appliance
Antenna	Elock2	--	400u/250u/6	--	Tested in appliance
Rectifier	Diotec Semiconductor	S80	Input: Max 110Vrms		UR E175067
DC-DC Converter	Mornsun	K7805-500R2	Input: 12-24 VDC Output: ±5 V, -400, 500 mA	--	CE
Voltage Regulator	Texas Instruments	LM2937	2.5-3.3 V, 400-500mA	--	CE
Serial to Ethernet Module	Tibbo	RJ203-00+ EM203-01	--	--	CE
Key (Defined)	Elock2	F 124083	--	--	Tested in appliance
Key (Undefined)	Elock2	F 127820	--	--	Tested in appliance
Connectors	various	various	--	--	CE
PCB's	Elock2	various	--	--	UR
Filter	Elock2	--	2x4,7 nF,470nf, 25mH	--	CE
[1]) An asterisk indicates a mark which assures the agreed level of surveillance					
Supplementary information: All parts is working under 36VDC.					

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EN 62368-1			
Clause	Requirements	Remarks	Verdict

4.8.4, 4.8.5	TABLE: Lithium coin/button cell batteries mechanical tests	N/A

(The following mechanical tests are conducted in the sequence noted.)

4.8.4.2	TABLE: Stress Relief test		--
Part	Material	Oven Temperature (°C)	Comments
--	--	--	--
4.8.4.3	TABLE: Battery replacement test		--
Battery part no. .....:			—
Battery Installation/withdrawal		Battery Installation / Removal Cycle	Comments
--		--	--
4.8.4.4	TABLE: Drop test		--
Impact Area	Drop Distance	Drop No.	Observations
--	--	--	--
4.8.4.5	TABLE: Impact		--
Impacts per surface	Surface tested	Impact energy (Nm)	Comments
--	--	--	--
4.8.4.6	TABLE: Crush test		--
Test position	Surface tested	Crushing Force (N)	Duration force
--	--	--	--

Supplementary information: No coin/button batteries

4.8.5	TABLE: Lithium coin/button cell batteries mechanical test result	N/A

Test position	Surface tested	Force (N)	Duration force applied (s)
---	---	---	-

Supplementary information: No coin/button batteries

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EN 62368-1			
Clause	Requirements	Remarks	Verdict

5.2	**Table: Classification of electrical energy sources**						N/A
5.2.2.2 – Steady State Voltage and Current conditions							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				U (Vrms or Vpk or Vdc)	I (Apk or Arms)	Hz	
			Normal				
			Abnormal				
			Single fault				
5.2.2.3 - Capacitance Limits							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				Capacitance, nF	Upk (V)		
			Normal				
			Abnormal				
			Single fault				
5.2.2.4 - Single Pulses							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				Off time (ms)	Upk (V)	Ipk (mA)	
			Normal				
			Abnormal				
			Single fault				
5.2.2.5 - Repetitive Pulses							
No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				Off time (ms)	Upk (V)	Ipk (mA)	
			Normal				
			Abnormal				
			Single fault				
Test Conditions: Normal – Test with rated output current. Abnormal – Test with max. output current.							

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Clause	Requirements	Remarks	Verdict

5.4.1.4, 6.3.2, 9.0, B.2.6	TABLE: Temperature measurements						P
	Supply voltage (V) :	12Vdc	24Vdc				--
	Ambient T_{min} (°C) :	23	23				--
	Ambient T_{max} (°C) :	25	25				
	Tmax (°C) :	40	40				
Maximum measured temperature T of part/at:		T (°C)					Allowed T_{max} (°C)
Enclosure		26	26,1				80
Antenna		29,3	31,2				80
Rectifier		28,8	29,2				80
DC-DC Converter		29,2	29,8				80
Voltage Regulator		30,1	29,6				80
Serial to Ethernet Module		27,7	27,8				80
Key		24,5	24,5				80
Connectors		29,2	29,1				80
PCB's		26,7	26,8				80

Supplementary information:

Temperature T of winding:	t_1 (°C)	R_1 (Ω)	t_2 (°C)	R_2 (Ω)	T (°C)	Allowed T_{max} (°C)	Insulation class

Supplementary information:

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EN 62368-1			
Clause	Requirements	Remarks	Verdict

5.4.1.10.2	TABLE: Vicat softening temperature of thermoplastics		N/A
Penetration (mm) ..... :			--
Object/ Part No./Material		Manufacturer/trademark	T softening (°C)
---		---	-
Supplementary information: No thermoplastics			

5.4.1.10.3	TABLE: Ball pressure test of thermoplastics		N/A
Allowed impression diameter (mm) .....:		≤ 2 mm	--
Part		Test temperature (°C)	Impression diameter (mm)
Supplementary information: No thermoplastics			

5.4.2.2, 5.4.2.4 and 5.4.3	TABLE: Minimum Clearances/Creepage distance						N/A
Clearance (cl) and creepage distance (cr) at/of/between:	Up (V)	U r.m.s. (V)	Frequency (kHz)[1]	Required cl (mm)	cl (mm) 2	Required cr (mm)	cr (mm)
Primary to PE	2000	---	50	1.27	>5	2.3	>5
Primary to Secondary	2000	---	50	2.54	>5	4.6	>5
Supplementary information: Note 1: Only for frequency above 30 kHz Note 2: See table 5.4.2.4 if this is based on electric strength test Note 3: Provide Material Group							

5.4.2.3	TABLE: Minimum Clearances distances using required withstand voltage			N/A
	Overvoltage Category (OV):			II
	Pollution Degree:			2
Clearance distanced between:	Required withstand voltage	Required cl (mm)	Measured cl (mm)	
Primary to PE	2500	1.5	>5	
Primary to Secondary	2500	3.0	>5	
Supplementary information: DC Product				

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Clause	Requirements	Remarks	Verdict

5.4.2.4	TABLE: Clearances based on electric strength test			N/A
Test voltage applied between:		Required cl (mm)	Test voltage (kV) peak/ r.m.s. / d.c.	Breakdown Yes / No
---		---	---	---
Supplementary information: DC Product				

5.4.4.2, 5.4.4.5 c) 5.4.4.9	TABLE: Distance through insulation measurements				N/A
Distance through insulation di at/of:	Peak voltage (V)	Frequency (kHz)	Material	Required DTI (mm)	DTI (mm)
---	---	---	---	---	---
Supplementary information: ---					

5.4.9	TABLE: Electric strength tests			P
Test voltage applied between:		Voltage shape (AC, DC)	Test voltage (V)	Breakdown Yes / No
Functional:				
---		---	---	-
Basic/supplementary:				
Positive to Enclosure		DC	500V	No
Reinforced:				
---		---	---	-
Routine Tests:				
---		---	---	-
Supplementary information:				

5.5.2.2	TABLE: Stored discharge on capacitors					N/A
Supply Voltage (V), Hz	Test Location	Operating Condition (N, S)	Switch position On or off	Measured Voltage (after 2 seconds)	ES Classification	
--	--	---	---	-	-	
Supplementary information: Part of certified power supply unit. Permanent mounted equipment.						

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Clause	Requirements	Remarks	Verdict

5.6.6.2	TABLE: Resistance of protective conductors and terminations			N/A
Accessible part	Test current (A)	Duration (min)	Voltage drop (V)	Resistance (Ω)
---	---	---	---	-
Supplementary information: ---				

5.7.2.2, 5.7.4	TABLE: Earthed accessible conductive part	N/A
Supply voltage	240Vac	—
Location	Test conditions specified in 6.1 of IEC 60990 or Fault Condition No in IEC 60990 clause 6.2.2.1 through 6.2.2.8, except for 6.2.2.7	Touch current (mA)
Supplementary Information: No earthed accessible conductives		

6.2.2	Table: Electrical power sources (PS) measurements for classification				N/A
Source	Description	Measurement	Max Power after 3 s	Max Power after 5 s*)	PS Classification
		Power (W)....:			
		VA (V) .....:			
		IA (A) .....:			
Supplementary Information: Approved power source.					

6.2.3.1	Table: Determination of Potential Ignition Sources (Arcing PIS)			N/A
Location	Open circuit voltage After 3 s (Vp)	Measured r.m.s current (Irms)	Calculated value (Vp x Irms)	Arcing PIS? Yes / No
--	---	---	---	-
Supplementary information: No potential ignition source.				

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Clause	Requirements	Remarks	Verdict

6.2.3.2	Table: Determination of Potential Ignition Sources (Resistive PIS)				N/A
Circuit Location (x-y)	Operating Condition (Normal / Describe Single Fault)	Measured wattage or VA During first 30 s (W / VA)	Measured wattage or VA After 30 s (W / VA)	Protective Circuit, Regulator, or PTC Operated? Yes / No (Comment)	Resistive PIS? Yes/No
-	---	- -	---	-	- -
Supplementary Information: No potential ignition source.					

8.5.5	TABLE: High Pressure Lamp		N/A
Description	Values	Energy Source Classification	
Lamp type		—	
Manufacturer		—	
Cat no.		—	
Pressure (cold) (MPa)		MS	
Pressure (operating) (MPa)		MS	
Operating time (minutes)		—	
Explosion method		—	
Max particle length escaping enclosure (mm)		MS	
Max particle length beyond 1 m (mm)		MS	
Overall result	---		
Supplementary information: No such part.			

B.2.5	TABLE: Input test						P
U (V)	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status
12Vdc	201mA	1A	---	12W	---	---	---
24Vdc	103mA	1A	---	12W	---	---	---
Supplementary information:							

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B.3	TABLE: Abnormal operating condition tests		P
Ambient temperature (^{0}C) .....:		23	--
Power source for EUT: Manufacturer, model/type, output rating .....:		12 VDC	--

Component No.	Abnormal Condition	Supply voltage (V)	Test time (hour)	Fuse no.	Fuse current (A)	T-couple	Temp. (^{0}C)	Observation
Rear panel opening	Covered	12	4 Hours	---	---	---	---	No obvious changes on temperature, no hazards
Output (power)	Overload	36	2 Min.	---	---	---	---	No obvious changes on temperature, no hazards

Supplementary information:
Test table is provided to record abnormal and fault conditions for all applicable energy sources including Thermal burn injury. Column “Abnormal/Fault.” Specify if test condition by indicating “Abnormal” then the condition for a Clause B.3 test or “Single Fault” then the condition for Clause B.4.

B.4	TABLE: Fault condition tests		N/A
Ambient temperature (^{0}C) .....:			--
Power source for EUT: Manufacturer, model/type, output rating ....:			--

Component No.	Fault Condition	Supply voltage (V)	Test time (ms)	Fuse no.	Fuse current (A)	T-couple	Temp. (^{0}C)	Observation

Supplementary information:

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Clause	Requirements	Remarks	Verdict

Annex M	TABLE: Batteries	N/A
The tests of Annex M are applicable only when appropriate battery data is not available		--
Is it possible to install the battery in a reverse polarity position?..... :	---	--

	Non-rechargeable batteries			Rechargeable batteries					
	Discharging		Un-intentional charging	Charging		Discharging		Reversed charging	
	Meas. current	Manuf Specs		Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.
Max. current during normal condition				<8A	-- -	<8A	---	N/A	N/A
Max. current during fault condition				<8A	-- -	>10A	---	N/A	N/A

Test results:		Verdict
- Chemical leaks		---
- Explosion of the battery		---
- Emission of flame or expulsion of molten metal		---
- Electric strength tests of equipment after completion of tests		---
Supplementary information: No battery.		

Annex M.4	Table: Additional safeguards for equipment containing secondary lithium batteries	N/A

Battery/Cell No.	Test conditions	Measurements			Observation
		U (V)	I (A)	Temp (°C)	
---	---	---	---	---	---
Supplementary Information: No battery.					

Battery identification	Charging at Tlowest (^{0}C)	Observation	Charging at Thighest (^{0}C)	Observation
---	---	---	---	-
Supplementary Information: No battery.				

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Clause	Requirements	Remarks	Verdict

Annex Q.1	TABLE: Circuits intended for interconnection with building wiring (LPS)						N/A
Note: Measured UOC (V) with all load circuits disconnected: 15.2							
Output Circuit	Components	Uoc (V)	Isc (A)		S (VA)		
			Meas.	Limit	Meas.	Limit	
Supplementary Information: SC=Short circuit, OC=Open circuit							

T.2, T.3, T.4, T.5	TABLE: Steady force test					N/A
Part/Location	Material	Thickness (mm)	Force (N)	Test Duration (sec)	Observation	
Internal components	Various	Various	10	5	No hazards	
Enclosure	Metal	1.5	250	5	No hazards	
Supplementary information: Stationary equipment, not accessible to ordinary person						

T.6, T.9	TABLE: Impact tests				N/A
Part/Location	Material	Thickness (mm)	Vertical distance (mm)	Observation	
---	---	---	-	---	
Supplementary information: No glass					

T.7	TABLE: Drop tests				N/A
Part/Location	Material	Thickness	Drop Height (mm)	Observation	
---	---	---	---	--	
Supplementary information: Stationary equipment					

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Clause	Requirements	Remarks	Verdict

T.8	TABLE: Stress relief test				N/A
Part/Location	Material	Thickness (mm)	Oven Temperature (^{0}C)	Duration (h)	Observation
---	---	---	---	---	-
Supplementary information: No thermoplastic material					

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PHOTOS OF THE TESTED SAMPLE

Test Numuesinin Fotoğrafları

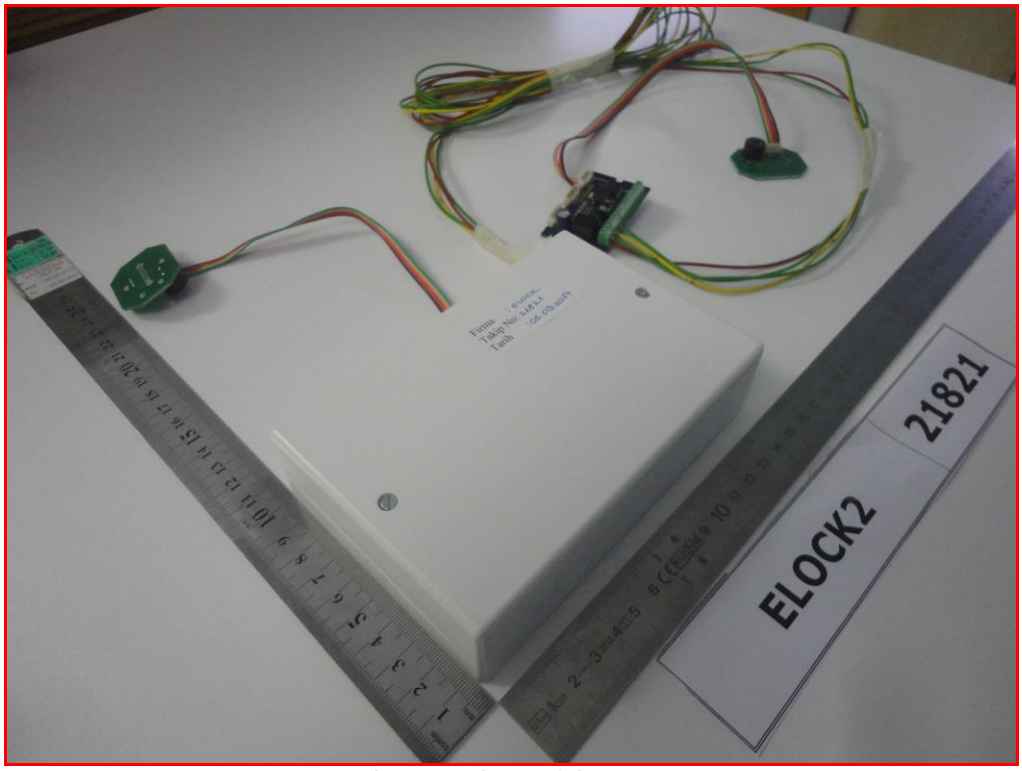

Photo 1: Photo of the EUT

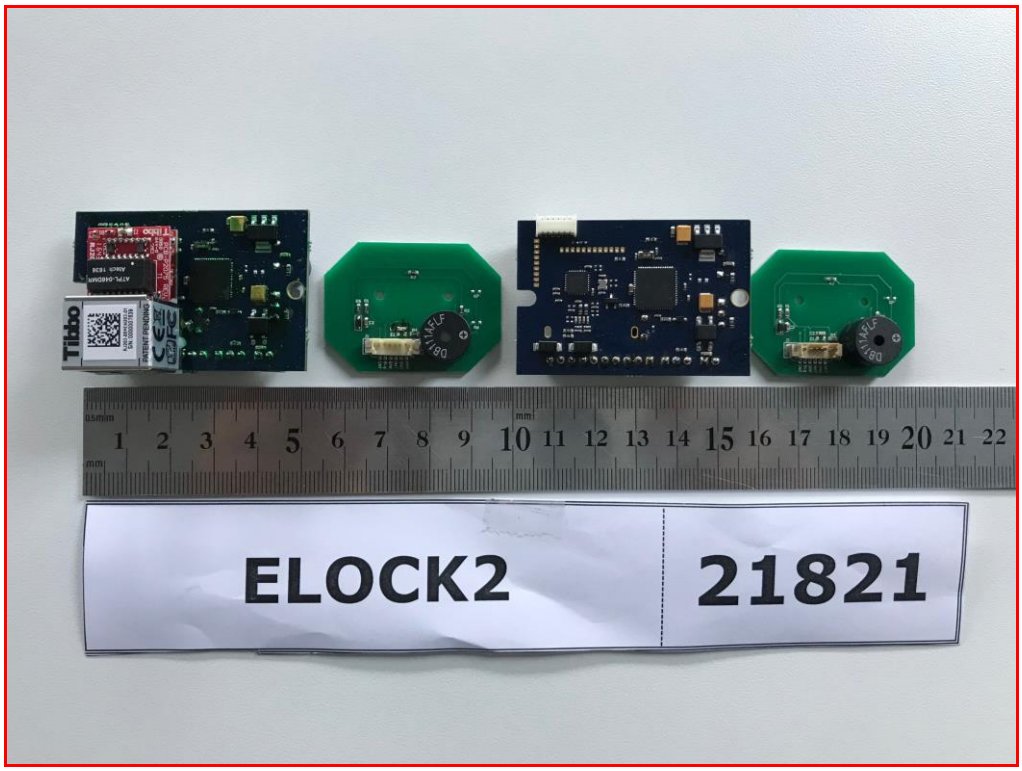

Photo 2: Photo of the pcb

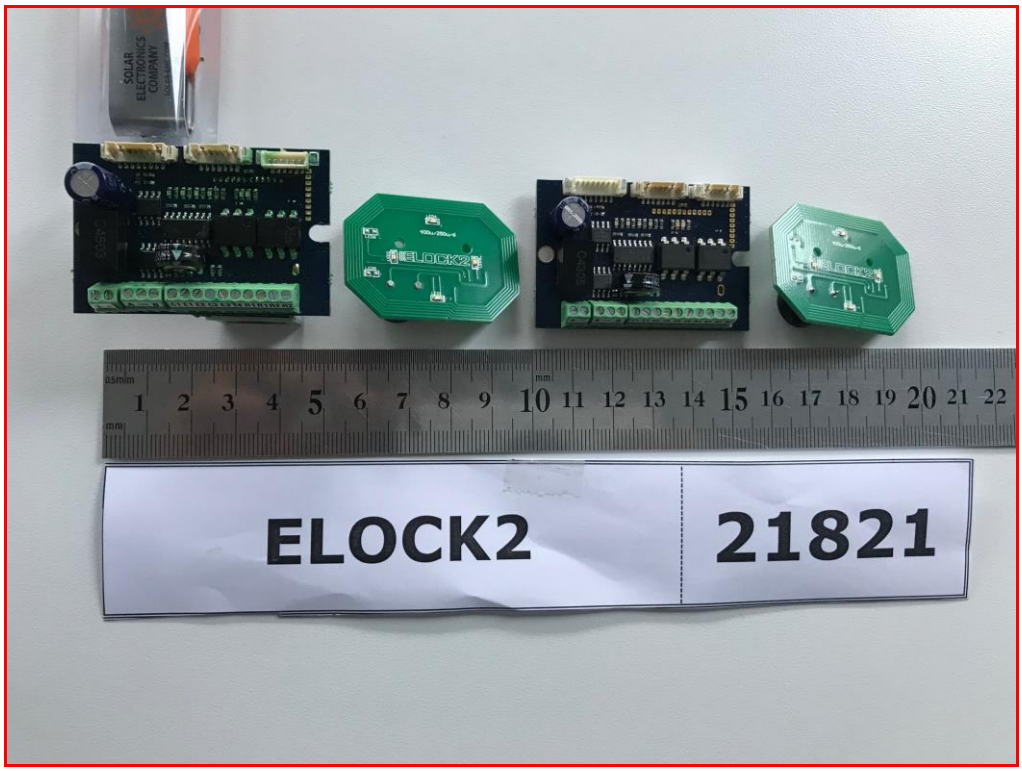

Photo 3:Photo of the PCB (back side)

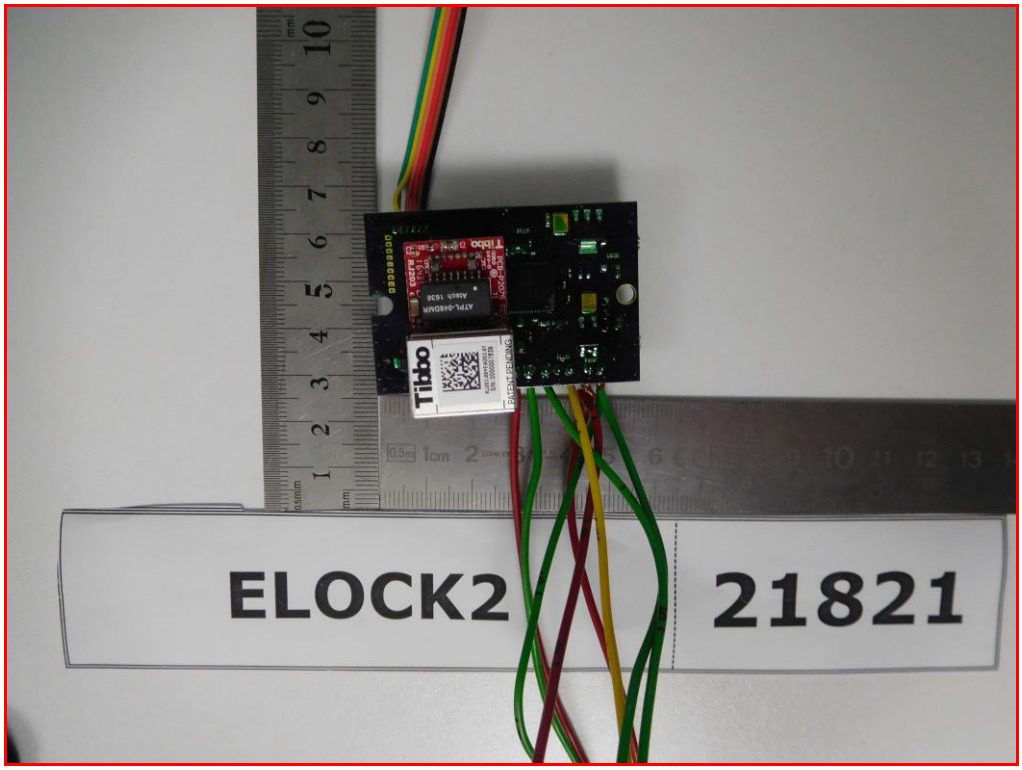

Photo 4: Photo of the TCP/IP module

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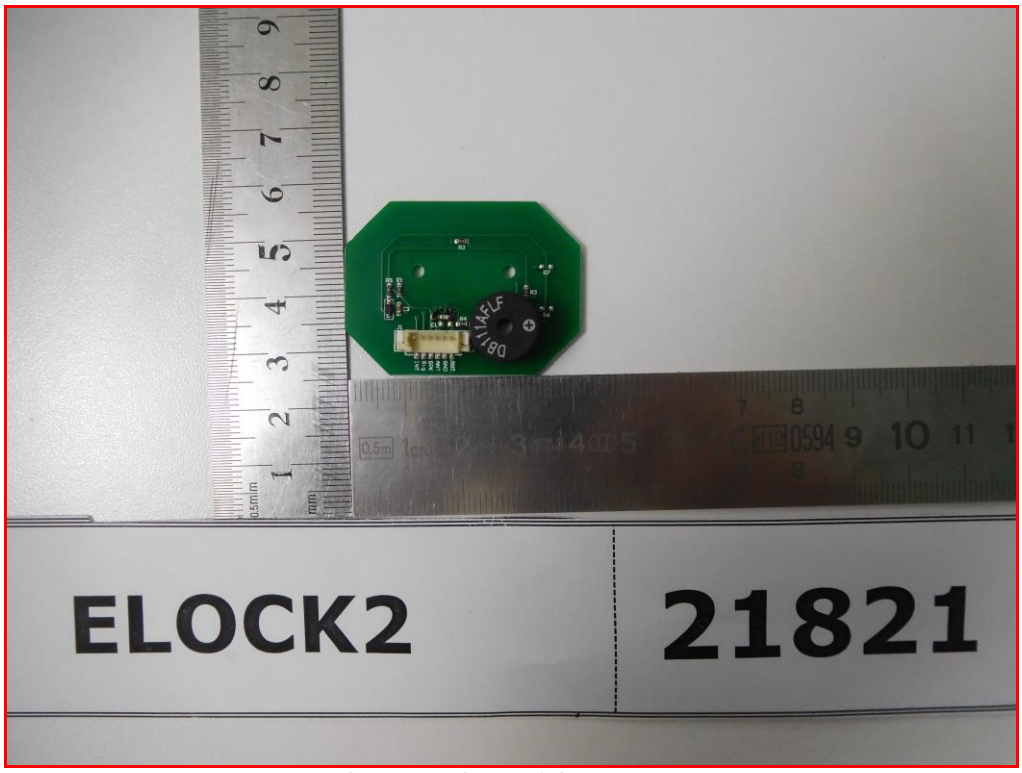

Photo 5 : Photo of the antenna

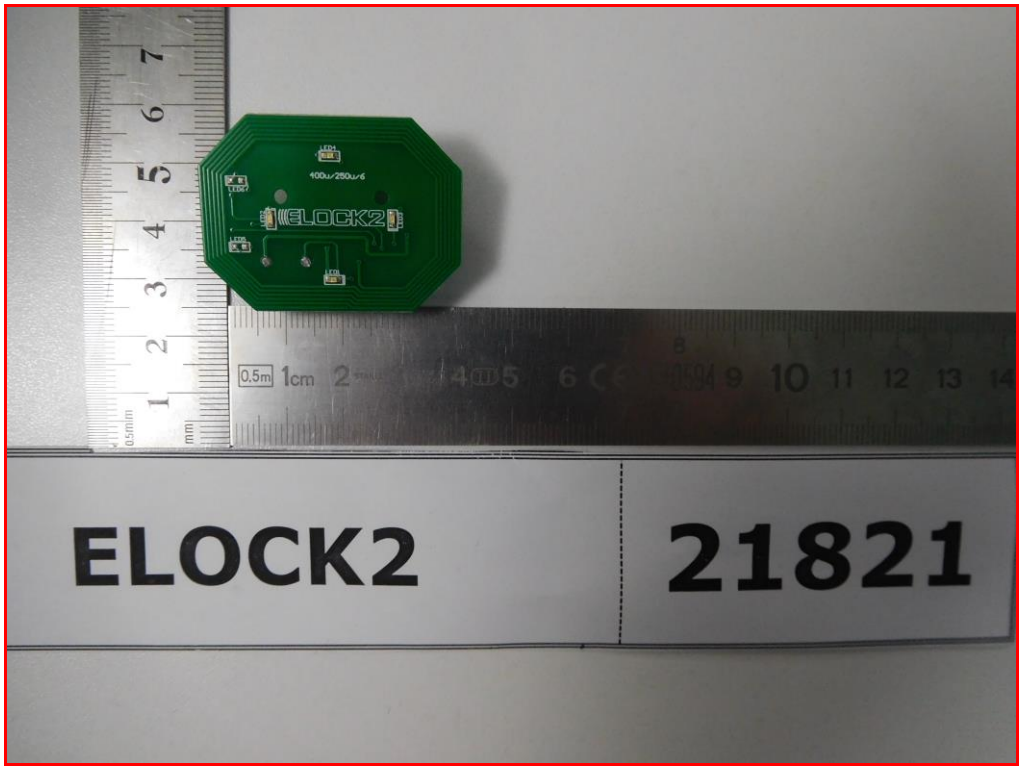

Photo 6 : Photo of the antenna (back side)

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Photo 7 : Photo of the undefined key

Photo 8: Photo of the defined key

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Z83/85 models

ZH83/85 and MT1 models

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VT1 and ZT1 models

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Used test instruments and test accessories / Kullanılan test cihazları ve aksesuarları:

Test instrument Test Cihazı	**Type** Tip	**Manufacturer** Üretici	**ID - No.** Kayıt No
Scope	WaveJet 352A	LeCroy	MLT-13
Digital Multimeter	34401A	Agilent Technologies	MLT-15
Harmonics 1000	HAR1000-1P	EMC PARTNER	IG-02
High Voltage Tester	F1-1A	ELABO	MLT-19
Lekage Current Tester	92-4A.3	ELABO	MLT-23
Conducter Tester	90-2A	ELABO	MLT-20
Insulation Tester	90-2E	ELABO	MLT-21
Ohmmeter	90-3K	ELABO	MLT-22
Glow wire	KT1000	BASKIN	MLT-24
Digital Thermometer	345	FINE INST.	MLT-08
Digital Thermometer	345	FINE INST.	MLT-09
Digital Thermometer	345	FINE INST.	MLT-10
Digital Thermometer	345	FINE INST.	MLT-11
Infrared Thermometer	DT-8833	RAM	MLT-29
RMS True Meter	506	PROTEK	MLT-01
Caliper	**	**	MLT-17
Power Supply	CPX-400S	TTI	PWSPLY-06
Voltage Regulator	0-270 V/16 A AC	ÇETİNKAYA	RG-01
Velocity Probe	435-1	Testo	PRB-11
Multitester	MI 2094	METREL	MLT-07
Climatic chamber	ID 300	Nüve	CH-06
Dust chamber	IS 300 Spec	CONSEPT	CH-07
Digital Force Gauge	D 2009	Wisent	MLT-38
IP Bath Set	Consept H.36	CONSEPT	N-01
IPX5 Nozzle set	Consept H.37	CONSEPT	N-02
Vibration Test Eq	Consept H.02	CONSEPT	MLT-68
Digital Dynamometer	SH-500	Loyka	MLT-60
Ball Pressure Test Eq	TA 2732	CONSEPT	MLT-39
Needle Flame	NFB	BASKIN MAKİN/A	MLT-33
Test Finger	**	**	PRB-17
Test Pin	**	**	PRB-18
Access Probe	**	**	PRB-19
Fingernail Probe	**	**	PRB-20

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Rigid Finger Probe	**	**	PRB-21
Metal Bun Probe	**	**	PRB-22
Weighing	TAR29	İhlas TARSAN	MLT-18
Weighing	SBS 4414	SINBO	MLT-114
Load Cell	SBA-5T	CAS	MLT-47
Weighing System	CI-200A	CAS	MLT-49

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