



Test Laboratuvarları

LVT Test Laboratuvarları Ltd. Şti.

www.lvt.com.tr
Saray Modern Keresteciler Sanayi Sitesi 4.Cadde No:9
Kazan / ANKARA
Tel: 0 312 815 13 25-26 Faks: 0 312 815 13 27



Test
TS EN ISO/IEC 17025
AB-0341-T

AB-0341-T

23-2369-
R0-N1-1

04-24

DENEY RAPORU

Test Report

1/76

Müşteri Client	: TECHNO LIFE SİSTEMLERİ SANAYİ TİCARET LİMİTED ŞİRKETİ
Adres Address	: ATATÜRK MAHALLESİ ERZİNCAN SOKAK NO:11 ATAŞEHİR / İSTANBUL
İmalatçı Manufacturer	: ARGEKOM YAZILIM ve KONTROL SİSTEMLERİ SANAYİ TİCARET LİMİTED ŞİRKETİ
Teklif Numarası Order No	: 23-2369-R0
Deney Numunesi Test Sample	: NETWORK BAĞLANTILI KONTROL MODÜLÜ (MODEL: TC-101)
Marka Trade Mark	: TECHNO LIFE
Deney Metodu Test Method	: IEC 62368-1:2023 RLV
Deney Tarihi Date of Test	: 07.03.2024 – 18.03.2024
Toplam Sayfa Sayısı Total Number of Pages	: 76
Basım Tarihi Date of Issue	: 22.04.2024

Deney laboratuvarı olarak faaliyet gösteren LVT Test Laboratuvarları Ltd. Şti. TÜRKAK' tan AB-0341-T numarası ile IEC/ISO TS EN 17025:2017 standardına göre akredite edilmiştir.
LVT Test Laboratuvarları Ltd. Şti. accredited by TÜRKAK under registration number AB-0341-T for IEC/ISO 17025:2017 as test laboratory.

Türk Akreditasyon Kurumu (TÜRKAK) deney raporlarının tanınması konusunda Avrupa Akreditasyon Birliği (EA) ile Çok Taraflı Anlaşma ve Uluslararası Laboratuvar Akreditasyon Birliği (ILAC) ile karşılıklı tanınma anlaşmasını imzalamıştır.
The Turkish Accreditation Agency (TÜRKAK) is a signatory to the European co-operation for Accreditation (EA) Multilateral Agreements (MLA) and to the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement (MRA) for the recognition of test reports

Deney ve / veya ölçüm sonuçları, genişletilmiş ölçüm belirsizlikleri (talep halinde) ve deney metodları, bu raporun tamamlayıcı kısmı olan takip eden sayfalarda verilmiştir.
The test and / or measurements results, the uncertainties (if required) with confidence probability and test methods are given on the following pages which are part of this report.

Mühür
Seal

Deney Sorumlusu
Person in Charge of Test

Bölüm Müdürü
Department Manager



Enes Emre ERGUN

Ata Gürül ARSLANLI



Rapor detaylarını karekod ile kontrol edebilirsiniz.
You can check the report details via QR code.

Bu rapor, Laboratuvarımızın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz.
İmzasız ve mühürlü raporlar geçersizdir.

This report shall not be reproduced other than in full except with the permission of the laboratory.
Testing reports without signature and seal are not valid.

FRT.68/Rev11/1223

İçindekiler

Contents

	Sayfa
	Page
1. Numunelerin Tanımı (Definition of the Samples).....	3
2. Deney Sonuçları (Test Results).....	3
3. Çevre Şartları (Environmental Conditions).....	3
4. Deney Metodundan Sapma, Ekleme ve Çıkarmalar (Deviations , Additions & Cutbacks from the Test Method)...	3
5. Şartnamelere Uygunluk (Conformity to Specifications).....	3
6. Dağıtım Bilgileri (Distrubition Information).....	4
7. Açıklama (Explanations).....	4
8. Ölçüm Belirsizliği (Uncertainty of Measurement).....	4
9. Deney Uygulamaları (Test Applications).....	5
10. Deney ve Ölçüm Bilgileri (Test & Measuring Arrangements).....	55
11. Deney Osilogramları (Test Oscillograms).....	56
12. Deney Fotoğrafları (Test Photographs).....	57
13. Firma Dokümanları (Documentation of Client).....	62



1. Numunelerin Tanımı

Definition of the Samples

Güvenlik ve Bilişim projelerinde ortamdaki cihazların (kapı geçiş kontrolü, turnike kontrolü, ısı sensörleri, izleme sensörleri, endüstride kullanılan elektronik cihazların haberleşmesi ve kontrolü) yönetimi ve izlenmesini sağlamaktadır.

It provides management and monitoring of devices in the enviromental (door access control turnstile control, heat sensors, mnitoring sensors, communication and control of electronic devices in the industry markets) in Security and IT projects.

1.1 Network Bağlantılı Kontrol Paneli (Model: TC-101)

(23-2369-R0-N1)

Numune Kabul Tarihi	:	14.10.2023
Receiving Date		
Numune Seri No	:	101000004
Serial No		
Tip	:	TC-101
Type		
Kutup Sayısı	:	DC Equipment
Number of Poles		
Beyan Gerilimi	U_n :	9 – 24 V _{DC}
Rated Voltage		
Beyan Akımı	I_n :	1 A
Rated Current		
Beyan Frekans	f_n :	DC Equipment
Rated Frequency		
Beyan Koruma Derecesi	IP :	Not Declared
Rated Degree of Protection		
Numune Boyutları	mm :	Firma Dokümanlarına Bakınız
Dimensions of the Sample		See Documentation of Client
Numune Ağırlığı	kg :	0.176
Weight of the Sample		
Sınıf	:	III
Class		
Cihaz – Malzeme Listesi	:	Firma Dokümanlarına Bakınız
Device – Component List		See Documentation of Client

2. Deney Sonuçları

Test Results

Deney sonuçları, müşteri tarafından laboratuvara teslim edilen ve sadece deneyi yapılan numuneye aittir.
The test results only belong to the tested sample(s) delivered to the laboratory by client.

Numune Sample	Uygulanan Deney Applied Test	Sonuç Result
Network Bağlantılı Kontrol Paneli (Model: TC-101) Networked Control Panels (Model: TC-101)	IEC 62368-1:2023 RLV	Olumlu Passed

3. Çevre Şartları

Environmental Conditions

3.1 Ortam Sıcaklığı	:	(20 – 30) °C
Ambient Temperature		
3.2 Ortam Nemi	:	(45 – 60) %Rh
Ambient Moisture		

Deney Metodundan

Sapma, Ekleme ve

4. Çıkarmalar

Deviations, Additions &

Cutbacks from the Test Method

Deneyler; standart deney metoduna göre uygulanmıştır.
Tests were made according to the clauses of the relevant standards.

LVT Test Laboratuvarları Ltd. Şti.

AB-0341-T

23-2369-
R0-N1-1

04-24

4/76

5.	Şartnamelere Uygunluk (Gerekli Hallerde) <i>Conformity to Specifications (If Necessary)</i>	:	-
6.	Dağıtım Bilgileri <i>Distribution Information</i>	:	TECHNO LIFE SİSTEMLERİ SANAYİ TİCARET LİMİTED ŞİRKETİ
7.	Açıklama <i>Explanation</i>	:	Testler firmanın sağlamış olduğu düzeneğe ile yapılmıştır. Düzeneğin fotoğrafları için test fotoğraflarına bakınız. Stand-by konumda test yapılmıştır. <i>The tests were carried out with the device provided by the company. See the test photos for photos of the setup. Test was performed in stand-by position.</i>
8.	Ölçüm Belirsizliği <i>Uncertainty of Measurement</i>	:	-





Test Laboratuvarları

AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

9. Deney Uygulamaları:

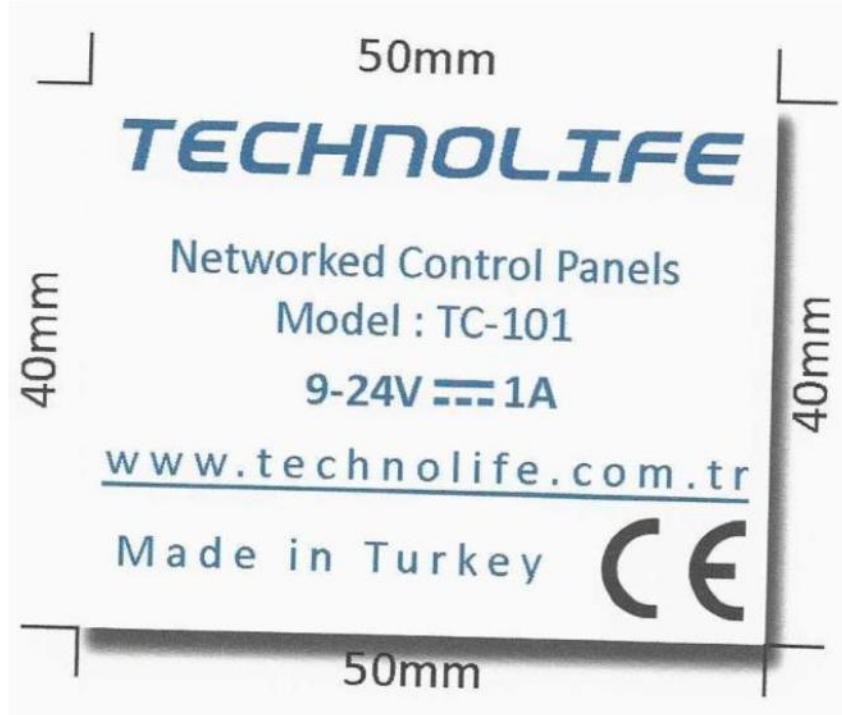
Test Applications

TEST REPORT IEC 62368-1 Audio/video, information and communication technology equipment Part 1: Safety requirements	
Test specification:	
Standard	IEC 62368-1:2023
Test procedure	Type test
Non-standard test method	N/A
TRF template used	IECEE OD-2020-F1:2023, Ed.1.6
Test Report Form No.	IEC62368_1F
Test Report Form(s) Originator	UL Solutions (US)
Master TRF	Dated 2023-08-18
Copyright © 2021 IEC System of Conformity Assessment Schemes for Electrotechnical Equipment and Components (IECEE System). All rights reserved.	
This publication may be reproduced in whole or in part for non-commercial purposes as long as the IECEE is acknowledged as copyright owner and source of the material. IECEE takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context.	
If this Test Report Form is used by non-IECEE members, the IECEE/IEC logo and the reference to the CB Scheme procedure shall be removed.	
This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.	
General disclaimer:	
The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing CB Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.	



Copy of marking plate:

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.





Test Laboratuvarları

AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

Test item particulars:

Product group	☐ end product ☒ built-in component
Classification of use by	☒ Ordinary person ☒ Children likely present ☒ Instructed person ☒ Skilled person
Supply connection	☐ AC mains ☐ DC mains ☒ not mains connected: ☒ ES1 ☐ ES2 ☐ ES3
Supply tolerance	☐ +10%/-10% ☐ +20%/-15% ☐ + %/ - % ☒ None
Supply connection – type	☐ pluggable equipment type A - ☐ non-detachable supply cord ☐ appliance coupler ☐ direct plug-in ☐ pluggable equipment type B - ☐ non-detachable supply cord ☐ appliance coupler ☒ permanent connection ☐ mating connector ☐ other: ☐ A; Location: ☐ building ☐ equipment
Considered current rating of protective device	☒ N/A
Equipment mobility	☐ movable ☐ hand-held ☐ transportable ☐ direct plug-in ☐ stationary ☒ for building-in ☐ wall/ceiling-mounted ☐ SRME/rack-mounted ☐ other:
Overvoltage category (OVC)	☐ OVC I ☐ OVC II ☒ OVC III ☐ OVC IV ☐ other:
Class of equipment	☐ Class I ☐ Class II ☒ Class III ☐ Not classified ☐
Special installation location	☐ N/A ☐ restricted access area ☐ outdoor location ☒ Mounting in an enclosure with IP55 protection
Pollution degree (PD)	☐ PD 1 ☒ PD 2 ☐ PD 3
Manufacturer's specified T _{ma}	°C ☐ Outdoor: minimum °C
IP protection class	☒ IPX0 ☐ IP__
Power systems	☐ TN ☐ TT ☐ IT - V _{L-L} ☒ not AC mains
Altitude during operation (m)	☒ 2000 m or less ☐ m
Altitude of test laboratory (m)	☐ 2000 m or less ☒ 780 m
Mass of equipment (kg)	0.176





Test Laboratuvarları

AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

Possible test case verdicts:

- test case does not apply to the test object ... : N/A
- test object does meet the requirement : P (Pass)
- test object does not meet the requirement ... : F (Fail)

Testing:

Date of receipt of test item : 14.10.2023
Date (s) of performance of tests..... : 07.03.2024 – 18.03.2024

General remarks:

"(See Enclosure #)" refers to additional information appended to the report.
"(See appended table)" refers to a table appended to the report.

Throughout this report a ☐ comma / ☒ point is used as the decimal separator.

General product information and other remarks: It provides management and monitoring of devices in the enviromental (door accsess controli turnstile control, heat sensors, mnitoring sensors, communication and control of electronic devices in the industry markets) in Security and IT projects. Networked Control Panels (Model: TC-101)



OVERVIEW OF ENERGY SOURCES AND SAFEGUARDS				
Clause	Possible Hazard			
5	Electrically-caused injury			
Class and Energy Source (e.g. ES3: Primary circuit)	Body Part (e.g. Ordinary)	Safeguards		
		B	S	R
ES1: Enclosure	Ordinary	-	-	-
ES1: All Circuits	Ordinary	-	-	-
6	Electrically-caused fire			
Class and Energy Source (e.g. PS2: 100 Watt circuit)	Material part (e.g. Printed board)	Safeguards		
		B	1 st S	2 nd S
PS1: Circuit	Printed Board	-	-	-
7	Injury caused by hazardous substances			
Class and Energy Source (e.g. Ozone)	Body Part (e.g., Skilled)	Safeguards		
		B	S	R
N/A	-	-	-	-
8	Mechanically-caused injury			
Class and Energy Source (e.g. MS3: Plastic fan blades)	Body Part (e.g. Ordinary)	Safeguards		
		B	S	R
MS1: Sharp edges and corners	Ordinary	-	-	-
MS1: Equipment mass	Ordinary	-	-	-
9	Thermal burn			
Class and Energy Source (e.g. TS1: Keyboard caps)	Body Part (e.g., Ordinary)	Safeguards		
		B	S	R
TS1: Enclosure Surface	Ordinary	-	-	-
*10	Radiation			
Class and Energy Source (e.g. RS1: PMP sound output)	Body Part (e.g., Ordinary)	Safeguards		
		B	S	R
*N/A	*-	*-	*-	*-
Supplementary Information:				
"B" – Basic Safeguard; "S" – Supplementary Safeguard; "R" – Reinforced Safeguard				

*Deney/Deneyler akreditasyon kapsamı dahilinde değildir.

*The test/tests are not within the scope of accreditation.



Test Laboratuvarları

AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

ENERGY SOURCE DIAGRAM

Optional. Manufacturers are to provide the energy sources diagram identify declared energy sources and identifying the demarcations are between power sources. Recommend diagram be provided included in power supply and multipart systems.

Insert diagram below. Example diagram designs are; Block diagrams; image(s) with layered data; mechanical drawings

☐ ES ☐ PS ☐ MS ☐ TS ☐ RS





AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

Test Laboratuvarları

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4	GENERAL REQUIREMENTS		P
4.1.1	Acceptance of materials, components and subassemblies	Requirements are specified in the relevant clauses and, where referenced in those clauses, in the relevant annexes. Classification is used throughout the document to clearly identify the energy sources, the number of required safeguards and the requirements for each safeguard. Where compliance of materials, components or subassemblies is demonstrated by inspection, such compliance may be checked by review of published data or previous test results.	P
4.1.2	Use of components	Where the component, or a characteristic of a component, is a safeguard or a part of a safeguard, components comply with the requirements.	P
4.1.3	Equipment design and construction	Equipment so designed and constructed that, under normal operating conditions, abnormal operating conditions, and single fault conditions, safeguards provided to reduce the likelihood of injury or, in the case of fire, property damage.	P
4.1.4	Specified ambient temperature for outdoor use (°C):	Except as given in 4.1.6, equipment evaluation according to this document is take into account manufacturer's instructions with regard to installation, relocation, servicing and operation, as applicable. Not an outdoor equipment.	N/A





AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

Test Laboratuvarları

4.1.5	Constructions and components not specifically covered	Where the equipment involves technologies, components and materials or methods of construction not specifically covered in this document, the equipment shall provide safeguards not less than that generally afforded by this document and the principles of safety contained herein.	P
4.1.8	Liquids, refrigerants and liquid filled components (LFCs)	No liquid included. (See Clause G.15)	N/A
4.1.15	Markings and instructions	Instructions provided. (See Annex F)	P
4.4.3	Safeguard robustness	No safeguard needed for class I energy sources. Class III equipment.	N/A
4.4.3.1	General	All parts of the equipment are ES1.	N/A
4.4.3.2	Steady force tests	(See Clause T.3, T.4, T.5)	N/A
4.4.3.3	Drop tests	(See Clause T.7)	N/A
4.4.3.4	Impact tests	(See Clause T.6)	N/A
4.4.3.5	Internal accessible safeguard tests	(See Clause T.3)	N/A
4.4.3.6	Glass impact tests	(See Clause T.9)	N/A
4.4.3.7	Glass fixation test		N/A
	Glass impact test (1J)	(See Clause T.9)	N/A
	Push/pull test (10 N)		N/A
4.4.3.8	Thermoplastic material tests	(See Clause T.8)	N/A
4.4.3.9	Air comprising a safeguard		N/A
4.4.3.10	Accessibility, glass, safeguard effectiveness		N/A
4.4.4	Displacement of a safeguard by an insulating liquid		N/A
4.4.5	Safety interlocks	(See Annex K)	N/A
4.5	Explosion		N/A
4.5.1	General	(See Annex M for batteries)	N/A
4.5.2	No explosion during normal/abnormal operating conditions	(See Clause B.2, B.3)	N/A
	No harm by explosion during single fault conditions	(See Clause B.4)	N/A
4.6	Fixing of conductors and conductive parts		N/A





AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

Test Laboratuvarları

	Fix conductors and conductive parts not to defeat a safeguard	Conductors are such that displacement can not defeat a safeguard.	N/A
	Compliance is checked by test	(See Clause T.2)	N/A
4.7	Equipment for direct insertion into mains socket-outlets		N/A
4.7.2	Mains plug part complies with relevant standard ... :	Not a direct plug-in equipment.	N/A
4.7.3	Torque (Nm).....:		N/A
4.8	Equipment containing coin or button cell batteries		N/A
4.8.1	General	The equipment is not accessible to children. The company has declared this in the user manual. Please refer to the user manual.	N/A
4.8.2	Instructional safeguard		N/A
4.8.3	Coin or button cell battery compartment, door or cover construction		N/A
	Open torque test		N/A
4.8.4.2	Stress relief test	(See Clause T.8)	N/A
4.8.4.3	Battery replacement test		N/A
4.8.4.4	Drop test	(See Clause T.7)	N/A
4.8.4.5	Impact test	(See Clause T.6)	N/A
4.8.4.6	Crush test		N/A
4.8.5	Compliance		N/A
	30N force test with test probe		N/A
	20N force test with test hook		N/A
4.9	Likelihood of fire or shock due to entry of conductive object		N/A
4.10	Component requirements		N/A
4.10.1	Disconnect device	(See Annex L)	N/A
4.10.2	Switches and relays	(See Annex G)	N/A
4.10.3	Mains power supply cords	(See Clause G.7)	N/A
4.10.4	Batteries and their protection circuits	(See Annex M)	N/A

5	ELECTRICALLY-CAUSED INJURY		P
5.2	Classification and limits of electrical energy sources		P
5.2.2	ES1 and ES2 limits	ES1 equipment.	P
5.2.2.2	Steady-state voltage and current limits	Energy source class determined by declaration of manufacturer. (See appended table 5.2)	N/A



Test Laboratuvarları

5.2.2.3	Capacitance limits	(See appended table 5.2)	N/A
5.2.2.4	Single pulse limits.....	Electrical energy source is not a single pulse. (See appended table 5.2)	N/A
5.2.2.5	Limits for repetitive pulses	Not repetitive pulse electrical energy source. (See appended table 5.2)	N/A
5.2.2.6	Ringing signals	EUT does not contain ringing signals. (See Annex H)	N/A
5.2.2.7	Audio signals	No audio signals produced or received by equipment. (See Clause E.1)	N/A
5.3	Protection against electrical energy sources		N/A
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons	The equipment does not have ES2 or ES3 part.	N/A
5.3.1 a)	ES2/ES3 circuits that are not ES2/ES3 mains	Only ES1 energy sources accessible by an ordinary person.	N/A
5.3.1 b)	Skilled persons not unintentional contact ES3 bare conductors	EUT does not contain bare ES3 conductors.	N/A
5.3.2.1	Accessibility to electrical energy sources and safeguards	Only ES1 energy sources could be accessible by an ordinary person.	N/A
	Accessibility to outdoor equipment bare parts	See below;	N/A
5.3.2.2	Contact requirements	All energy sources are class I.	N/A
	Test with test probe from Annex V		—
5.3.2.2 a)	Air gap – electric strength test potential (V)	(See appended table 5.4.9)	N/A
5.3.2.2 b)	Air gap – distance (mm)		N/A
5.3.2.3	Compliance		N/A
5.3.2.4	Terminals for connecting stripped wire		N/A
5.4	Insulation materials and requirements		N/A
5.4.1.2	Properties of insulating material	All energy sources are class I.	N/A
5.4.1.3	Compliance		N/A
	Non-hygroscopic materials		N/A
5.4.1.4	Maximum operating temperature for insulating materials	(See appended table 5.4.1.4, 9.3, B.1.5, B.2.6)	N/A
5.4.1.5	Pollution degrees.....	PD 2.	—
5.4.1.5.2	Test for pollution degree 1 environment and for an insulating compound	PD 2.	N/A



AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

Test Laboratuvarları

5.4.1.5.3	Thermal cycling test	PD 2.	N/A
5.4.1.6	Insulation in transformers with varying dimensions	No transformers with varying dimensions.	N/A
5.4.1.7	Insulation in circuits generating starting pulses	There is no circuit that generating starting pulses.	N/A
5.4.1.8	Determination of working voltage	(See appended table 5.4.1.8)	N/A
5.4.1.9	Insulating surfaces		N/A
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted	No thermoplastic parts which conductive materials are directly mounted.	N/A
5.4.1.10.2	Vicat test	(See appended table 5.4.1.10.2)	N/A
5.4.1.10.3	Ball pressure test	(See appended table 5.4.1.10.3)	N/A
5.4.2	Clearances	All energy sources that entering the equipment is ES1. Not required to check clearances.	N/A
5.4.2.1	General requirements		N/A
	Clearances in circuits connected to AC Mains, Alternative method	(See Annex X)	N/A
5.4.2.2	Procedure 1 for determining clearance		N/A
	Temporary overvoltage		—
5.4.2.3	Procedure 2 for determining clearance		N/A
5.4.2.3.2.2	AC mains transient voltages		—
5.4.2.3.2.3	DC mains transient voltages		—
5.4.2.3.2.4	External circuit transient voltages		—
5.4.2.3.2.5	Transient voltage determined by measurement		—
5.4.2.3.3	Exceptions of determining required withstand voltage		N/A
5.4.2.3.4	Determining clearances using required withstand voltage	(See appended table 5.4.2, 5.4.3)	N/A
5.4.2.4	Determining the adequacy of a clearance using an electric strength test	(See appended table 5.4.2, 5.4.3)	N/A
5.4.2.5	Multiplication factors for clearances and test voltages		—
5.4.2.6	Clearance measurement	(See appended table 5.4.2, 5.4.3)	N/A
5.4.3	Creepage distances	All energy sources that entering the equipment is ES1. Not required to check creepage distances.	N/A
5.4.3.1	General		N/A





AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

Test Laboratuvarları

5.4.3.3	Material group and CTI		—
5.4.3.4	Creepage distances measurement	(See appended table 5.4.2, 5.4.3)	N/A
5.4.4	Solid insulation	Class III equipment.	N/A
5.4.4.1	General requirements		N/A
5.4.4.2	Minimum distance through insulation	Working voltage does not exceed ES1 limits. (See appended table 5.4.4.2)	N/A
5.4.4.3	Insulating compound forming solid insulation	There is no insulating compound that forming solid insulation.	N/A
5.4.4.4	Solid insulation in semiconductor devices	No optocouplers used in EUT.	N/A
5.4.4.5	Insulating compound forming cemented joints	There are no insulating compound forms a cemented joint between two non-conductive parts or between another non-conductive part and itself.	N/A
5.4.4.6	Thin sheet material	No thin sheet material used.	N/A
5.4.4.6.1	General requirements		N/A
5.4.4.6.2	Separable thin sheet material	(See appended table 5.4.9)	N/A
	Number of layers (pcs)		N/A
5.4.4.6.3	Non-separable thin sheet material		N/A
	Number of layers (pcs)		N/A
5.4.4.6.4	Standard test procedure for non-separable thin sheet material	(See appended table 5.4.9)	N/A
5.4.4.6.5	Mandrel test		N/A
5.4.4.7	Solid insulation in wound components	No wound component used in EUT.	N/A
5.4.4.9	Solid insulation at frequencies >30 kHz, E_P , K_R , d , V_{PW} (V)	(See appended table 5.4.4.9)	N/A
	Alternative by electric strength test, tested voltage (V), K_R	(See appended tables 5.4.4.9 and 5.4.9)	N/A
5.4.5	Antenna terminal insulation		N/A
5.4.5.1	General	The equipment does not have antenne terminal.	N/A
5.4.5.2	Voltage surge test		N/A
5.4.5.3	Insulation resistance ($M\Omega$)		N/A
	Electric strength test	(See appended table 5.4.9)	N/A
5.4.6	Insulation of internal wire as part of supplementary safeguard	The equipment supply voltage less than 9 – 24 V_{DC} .	N/A





AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

Test Laboratuvarları

5.4.7	Tests for semiconductor components and for cemented joints	The equipment does not have cemented joints.	N/A
5.4.8	Humidity conditioning		N/A
	Relative humidity (%), temperature (°C), duration (h) : :		—
5.4.9	Electric strength test	(See appended table 5.4.9)	N/A
5.4.10	Safeguards against transient voltages from external circuits	The equipment was tested as a system. It was declared that no external circuits would be connected.	N/A
5.4.10.1	Parts and circuits separated from external circuits		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 : :		N/A
5.4.10.2.3	Steady-state test : :	(See appended table 5.4.9)	N/A
5.4.10.3	Verification for insulation breakdown : :		N/A
5.4.11	Separation between external circuits and earth	The equipment has been tested as a single module only, upon manufacturer request. External circuits have not been tested.	N/A
5.4.11.1	Exceptions to separation between external circuits and earth		N/A
5.4.11.2	Requirements		N/A
	Surge suppressors bridge separation between external circuit and earth		N/A
	Rated operating voltage U_{op} (V) : :		—
	Nominal voltage U_{peak} (V) : :		—
	Max increase due to variation ΔU_{sp} : :		—
	Max increase due to ageing ΔU_{sa} : :		—
5.4.11.3	Test method and compliance : :	(See appended table 5.4.9)	N/A
	Test voltage (V) of additional test : :		—
	Measured current (mA) of additional test : :		N/A
5.4.12	Insulating liquid		N/A
5.4.12.1	General requirements		N/A
5.4.12.2	Electric strength of an insulating liquid : :	(See appended table 5.4.9)	N/A
5.4.12.3	Compatibility of an insulating liquid		N/A
	Thermal classification of IEC 60085 : :		—





AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

Test Laboratuvarları

5.4.12.4	Container for insulating liquid		N/A
5.5	Components as safeguards		N/A
5.5.1	General		N/A
5.5.2	Capacitors and RC units		N/A
5.5.2.1	General requirement		N/A
5.5.2.2	Capacitor discharge after disconnection of a connector :	(See appended table 5.5.2.2)	N/A
5.5.3	Transformers	(See Clause G.5.3)	N/A
5.5.4	Optocouplers	(See Clause 5.4 or Clause G.12)	N/A
5.5.5	Relays	(See Clause 5.4)	N/A
5.5.6	Resistors	(See Clause G.10)	N/A
	Application type of resistors..... :		—
5.5.7	Surge suppressors	(See Clause G.8)	N/A
	GDT..... :		N/A
5.5.8	Insulation between the mains and an external circuit consisting of a coaxial cable..... :		N/A
	Insulation resistance (MΩ)..... :		N/A
	Electric strength test..... :	(See appended table 5.4.9)	N/A
5.5.9	Safeguards for socket-outlets in outdoor equipment		N/A
	RCD rated residual operating current (mA)..... :		—
5.6	Protective conductor		N/A
5.6.2	Requirements for protective conductors	The equipment does not have protective conductor. Class III equipment.	N/A
5.6.2.1	General requirements		N/A
5.6.2.2	Colour of insulation		N/A
5.6.3	Requirements for protective earthing conductors		N/A
	Protective earthing conductor size (mm ²) :		—
	Protective earthing conductor serving as a reinforced safeguard		N/A
	Protective earthing conductor serving as a double safeguard		N/A
5.6.4	Requirements for protective bonding conductors		N/A
5.6.4.1	Protective bonding conductors		N/A
	Protective bonding conductor size (mm ²). :		—
5.6.4.2	Protective current rating (A)..... :		—





AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

Test Laboratuvarları

5.6.5	Terminals for protective conductors		N/A
5.6.5.1	Terminal size for connecting protective earthing conductors (mm)..... :		N/A
	Terminal size for connecting protective bonding conductors (mm)..... :		N/A
	Relevant IEC standard..... :		N/A
5.6.5.2	Corrosion		N/A
5.6.6	Resistance of the protective bonding system		N/A
5.6.6.1	Requirements		N/A
5.6.6.2	Test method..... :	(See appended table 5.6.6)	N/A
5.6.6.3	Resistance (Ω) or voltage drop..... :	(See appended table 5.6.6)	N/A
5.6.7	Reliable connection of a protective earthing conductor		N/A
5.6.8	Functional earthing		N/A
	Conductor size (mm ²)..... :		N/A
	Class II with functional earthing marking..... :		N/A
	Appliance inlet cl & cr (mm)..... :		N/A
5.7	Prospective touch voltage, touch current and protective conductor current		N/A
5.7.2	Measuring devices and networks		N/A
5.7.2.1	Measurement of touch current		N/A
5.7.2.2	Measurement of voltage		N/A
5.7.3	Equipment set-up, supply connections and earth connections		N/A
5.7.4	Unearthed accessible parts..... :	(See appended table 5.7.4)	N/A
5.7.5	Earthed accessible conductive parts..... :	(See appended table 5.7.5)	N/A
5.7.6	Requirements when touch current exceeds ES2 limits		N/A
	Protective conductor current (mA)..... :		N/A
	Instructional Safeguard..... :		N/A
5.7.7	Prospective touch voltage and touch current associated with external circuits		N/A
5.7.7.1	Touch current from coaxial cables		N/A
5.7.7.2	Prospective touch voltage and touch current associated with paired conductor cables		N/A
5.7.8	Summation of touch currents from external circuits		N/A
	a) Equipment connected to an earthed external circuit, current (mA)..... :		N/A
	b) Equipment connected to an unearthed external circuit, current (mA)..... :		N/A





AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

Test Laboratuvarları

5.8	Backfeed safeguard in battery backed up supplies		N/A
	Mains terminal ES	The equipment does not have battery. (See appended table 5.8)	N/A
	Air gap (mm).....	(See appended table 5.4.2, 5.4.3)	

6	ELECTRICALLY- CAUSED FIRE		P
6.2	Classification of power sources and potential ignition sources		P
6.2.2	Power source circuit classifications	An electric circuit is classified PS1, PS2, or PS3 based on the electrical power available to the circuit from the power source. (See appended table 6.2.2)	P
6.2.3	Classification of potential ignition sources	No PIS found.	N/A
6.2.3.1	Arcing PIS	(See appended table 6.2.3.1)	N/A
6.2.3.2	Resistive PIS	All of the equipment is classified PS1. (See appended table 6.2.3.2)	P
6.3	Safeguards against fire under normal operating and abnormal operating conditions		P
6.3.1	No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 °C for unknown materials	There are no part of the equipment that attained to 300 °C. (See appended table 5.4.1.4, 9.3, B.1.5 and B.2.6)	P
	Combustible materials not inside a fire enclosure		N/A
6.4	Safeguards against fire under single fault conditions		P
6.4.1	Safeguard method.....	See below;	—
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits	No supplementary safeguards are needed for protection against PS1. A PS1 is not considered to be capable of providing enough energy to result in materials reaching ignition temperatures.	P
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits		N/A
6.4.3.1	Supplementary safeguards		N/A
6.4.3.2	Single fault conditions	(See appended table B.4)	N/A
	Special conditions for temperature limited by fuse		N/A





AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

Test Laboratuvarları

6.4.4	Control of fire spread in PS1 circuits	No supplementary safeguards are needed for protection against PS1. A PS1 is not considered to be capable of providing enough energy to result in materials reaching ignition temperatures.	P
6.4.5	Control of fire spread in PS2 circuits		N/A
6.4.5.2	Supplementary safeguards		N/A
6.4.6	Control of fire spread in PS3 circuits		N/A
6.4.7	Separation of combustible materials from a PIS		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
6.4.8.2	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		N/A
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier		N/A
6.4.8.3.1	Fire enclosure and fire barrier openings		N/A
6.4.8.3.2	Fire barrier dimensions		N/A
6.4.8.3.3	Top openings and properties		N/A
	Openings dimensions (mm)..... :		N/A
	Flammability tests for the top of a fire enclosure	(See Clause S.2)	N/A
6.4.8.3.4	Bottom openings and properties		N/A
	Openings dimensions (mm)..... :		N/A
	Flammability tests for the bottom of a fire enclosure	(See Clause S.3)	N/A
	Instructional Safeguard :		N/A
6.4.8.3.5	Side openings and properties		N/A
	Openings dimensions (mm)..... :		N/A
6.4.8.3.6	Integrity of a fire enclosure, condition met: a), b) or c) :		N/A
6.4.8.4	Separation of a PIS from a fire enclosure and a fire barrier distance (mm) or flammability rating :		N/A
6.4.9	Flammability of insulating liquid		N/A
	Auto ignition temperature (°C)..... :		N/A
	Flashpoint temperature (°C) :		N/A
6.5	Internal and external wiring	The equipment all part PS1.	N/A





AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

Test Laboratuvarları

6.5.1	General requirements		N/A
6.5.2	Requirements for interconnection to building wiring :		N/A
6.5.3	Internal wiring size (mm ²) for socket-outlets..... :		N/A
6.6	Safeguards against fire due to the connection to additional equipment		N/A

7	INJURY CAUSED BY HAZARDOUS SUBSTANCES		N/A
7.2	Reduction of exposure to hazardous substances		N/A
7.3	Ozone exposure		N/A
7.4	Use of personal safeguards or personal protective equipment (PPE)		N/A
	Personal safeguards and instructions :		—
7.5	Use of instructional safeguards and instructions		N/A
	Instructional safeguard (ISO 7010)..... :		—

8	MECHANICALLY-CAUSED INJURY		P
8.2	Mechanical energy source classifications		P
8.3	Safeguards against mechanical energy sources		P
8.4	Safeguards against parts with sharp edges and corners		P
8.4.1	Requirements	Equipment does not contain any sharp edges and corners	P
	Instructional Safeguard :		N/A
8.4.2	Compliance criteria		N/A
8.5	Safeguards against moving parts		N/A
8.5.1	Requirements	The equipment does not have moving part.	N/A
	Fingers, jewellery, clothing, hair, etc., contact with MS2 or MS3 parts		N/A
	MS2 or MS3 part required to be accessible for the function of the equipment		N/A
	A manually activated stopping device for moving MS3		N/A
	Moving MS3 parts only accessible to skilled person		N/A
8.5.2	Instructional safeguard..... :		N/A
8.5.4	Special categories of equipment containing moving parts		N/A
8.5.4.1	General		N/A
8.5.4.2	Equipment containing work cells with MS3 parts		N/A
8.5.4.2.1	Protection of persons in the work cell		N/A
8.5.4.2.2	Access protection override		N/A





AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

Test Laboratuvarları

8.5.4.2.2.1	Override system		N/A
8.5.4.2.2.2	Visual indicator		N/A
8.5.4.2.3	Emergency stop system		N/A
	Maximum stopping distance from the point of activation (m).....:		N/A
	Space between end point and nearest fixed mechanical part (mm)		N/A
8.5.4.2.4	Endurance requirements		N/A
	Mechanical system subjected to 100 000 cycles of operation		N/A
	- Mechanical function check and visual inspection		N/A
	- Cable assembly.....:		N/A
8.5.4.3	Equipment having electromechanical device for destruction of media		N/A
8.5.4.3.1	Equipment safeguards		N/A
8.5.4.3.2	Instructional safeguards against moving parts.....:		N/A
8.5.4.3.3	Disconnection from the supply		N/A
8.5.4.3.4	Cut type and test force (N).....:		N/A
8.5.4.3.5	Compliance		N/A
8.5.5	High pressure lamps	The equipment does not have high pressure lamp.	N/A
	Explosion test		N/A
8.5.5.3	Glass particles dimensions (mm)		N/A
8.6	Stability of equipment		N/A
8.6.1	Requirements		N/A
	Instructional safeguard for MS2 and MS3 television sets		N/A
8.6.2	Static stability		N/A
8.6.2.2	Static stability test.....:		N/A
8.6.2.3	Downward force test		N/A
8.6.3	Relocation stability		N/A
	Wheels diameter (mm).....:		—
	Tilt test		N/A
8.6.4	Glass slide test		N/A
8.6.5	Horizontal force test		N/A
8.7	Equipment mounted to wall, ceiling or other structure		N/A





AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

Test Laboratuvarları

8.7.1	Requirements		N/A
	Mount means type.....:		N/A
8.7.2	Test methods		N/A
	Test 1, additional downwards force (N).....:		N/A
	Horizontal force to a wall or another structure		N/A
	Test 2, number of attachment points and test force (N):		N/A
	Test 3, nominal diameter (mm) and applied torque (Nm):		N/A
8.8	Handles strength		N/A
8.8.1	General		N/A
8.8.2	Handle strength test		N/A
	Number of handles.....:		—
	Weight applied (kg)		—
8.9	Wheels or casters attachment requirements		N/A
8.9.2	Pull test		N/A
8.10	Carts, stands and similar carriers		N/A
8.10.1	General		N/A
8.10.2	Marking and instructions		N/A
8.10.3	Cart, stand or carrier loading test		N/A
	Loading force applied (N).....:		N/A
8.10.4	Cart, stand or carrier impact test	(See Clause T.6)	N/A
	Loading force applied (N) on each supporting surface:		N/A
8.10.5	Mechanical stability		N/A
	Force applied (N).....:		N/A
8.10.6	Thermoplastic temperature stability	(See Clause T.8)	N/A
8.11	Mounting means for slide-rail mounted equipment (SRME)		N/A
8.11.1	General		N/A
8.11.2	Requirements		N/A
	Instructional Safeguard		N/A
8.11.3	Mechanical strength test		N/A
8.11.3.1	Downward force test, force applied (N)		N/A
8.11.3.2	Lateral push force test		N/A
8.11.3.3	Integrity of slide rail end stops		N/A





AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

Test Laboratuvarları

8.11.4	Compliance criteria		N/A
8.12	Telescoping or rod antennas		N/A
	No sharp edges or points	The equipment does not have telescoping or rod antennas.	N/A
	Button/ball diameter (mm).....:		N/A

9	THERMAL BURN INJURY		P
9.2	Thermal energy source classifications		P
9.3	Touch temperature limits		P
9.3.1	Touch temperatures of accessible parts	(See appended table 5.4.1.4, 9.3, B.1.5, B.2.6)	P
9.3.2	Test method and compliance	The temperature tests are run with the room ambient conditions as defined in B.1.5 and B.2.3, except that the room ambient temperature shall be 25 °C ± 5 °C. The equipment is operated in a manner the manufacturer determines likely to result in elevated thermal conditions of accessible surfaces and parts. Compliance is checked by measuring the steady state temperature of accessible surfaces.	P
9.4	Safeguards against thermal energy sources		N/A
9.5	Requirements for safeguards		N/A
9.5.1	Equipment safeguard	No safeguards are required between a class 1 energy source and an ordinary person.	N/A
9.5.2	Instructional safeguard.....:		N/A
9.6	Requirements for wireless power transmitters		N/A
9.6.1	General	No wireless power transmitter used.	N/A
9.6.2	Specification of the foreign objects		N/A
9.6.3	Test method and compliance criteria	(See appended table 9.6)	N/A



*10	RADIATION	*N/A
*10.2	Radiation energy source classifications	*N/A
*10.2.1	General classification	*N/A
	Lasers	—
	Lamps and lamp systems	—
	Image projectors	—
	X-Ray	—
	Personal music player	—
*10.3	Safeguards against laser radiation	*N/A
	The standard(s) equipment containing laser(s) comply	*N/A
*10.4	Safeguards against optical radiation from lamps and lamp systems (including LED types)	*N/A
*10.4.1	General requirements	*N/A
	Instructional safeguard provided for accessible radiation level needs to exceed	*N/A
	Risk group marking and location	*N/A
	Information for safe operation and installation	*N/A
*10.4.2	Requirements for equipment safeguards	*N/A
	UV radiation exposure	(See Annex C)
*10.4.3	Instructional safeguard	*N/A
*10.5	Safeguards against X-radiation	*N/A
*10.5.1	Requirements	*N/A
	Instructional safeguard for skilled persons	*N/A
*10.5.3	Maximum radiation (pA/kg)	(See appended tables B.3 & B.4)
*10.6	Safeguards against acoustic energy sources	*N/A
*10.6.1	General	*N/A
*10.6.2	Classification	*N/A
	Acoustic output $L_{Aeq,T}$, dB(A)	*N/A
	Unweighted RMS output voltage (mV)	*N/A
	Digital output signal (dBFS)	*N/A

*Deney/Deneyler akreditasyon kapsamı dahilinde değildir.

*The test/tests are not within the scope of accreditation.



AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

Test Laboratuvarları

*10.6.3	Requirements for dose-based systems		*N/A
*10.6.3.1	General requirements		*N/A
*10.6.3.2	Dose-based warning and automatic decrease		*N/A
*10.6.3.3	Exposure-based warning and requirements		*N/A
	30 s integrated exposure level (MEL30)		*N/A
	Warning for MEL ≥ 100 dB(A).....		*N/A
*10.6.4	Measurement methods		*N/A
*10.6.5	Protection of persons		*N/A
	Instructional safeguards		*N/A
*10.6.6	Requirements for listening devices (headphones, earphones, etc.)		*N/A
*10.6.6.1	Corded listening devices with analogue input		*N/A
	Listening device input voltage (mV).....		*N/A
*10.6.6.2	Corded listening devices with digital input		*N/A
	Max. acoustic output $L_{Aeq,T}$, dB(A)		*N/A
*10.6.6.3	Cordless listening devices		*N/A
	Max. acoustic output $L_{Aeq,T}$, dB(A)		*N/A

B	NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS		P
B.1	General		P
B.1.5	Temperature measurement conditions	(See appended table 5.4.1.4, 9.3, B.1.5, B.2.6)	P
B.1.6	Specific output conditions		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 containing an audio amplifiers	The equipment does not have amplifier. (See Annex E)	N/A
B.2.3	Supply voltage and tolerances	9 – 24 V _{DC} .	P

*Deney/Deneyler akreditasyon kapsamı dahilinde değildir.

*The test/tests are not within the scope of accreditation.





AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

Test Laboratuvarları

B.2.5	Input test	(See appended table B.2.5) (See Clause E.3 for audio amplifier) For equipment supplied by the mains, the measured input current or input power under normal operating conditions, but at the rated voltage or at each end of each rated voltage range, is not exceed the rated current or rated power by more than 10 %, short term conditions not being taken into account. For equipment not supplied by the mains, the measured input current or input power is less or equal to the ratings of the equipment.	P
B.2.6.4	Equipment intended for building-in or rack-mounting		N/A
B.3	Simulated abnormal operating conditions		N/A
B.3.1	General	See below;	N/A
B.3.2	Covering of ventilation openings	Equipment does not contain any ventilation openings.	N/A
	Instructional safeguard		N/A
B.3.3	DC mains polarity test		N/A
B.3.4	Setting of voltage selector		N/A
B.3.5	Maximum load at output terminals		N/A
B.3.6	Reverse battery polarity		N/A
B.3.7	Audio amplifier abnormal operating conditions	(See Clause E.3.2) The equipment does not have amplifier.	N/A
B.3.8	Safeguards functional during and after abnormal operating conditions	(See appended table B.3, B.4)	N/A
B.4	Simulated single fault conditions		N/A
B.4.1	General	See below;	N/A
B.4.2	Temperature controlling device	No temperature controlling device.	N/A
B.4.3	Blocked motor test	Equipment does not contain any motors.	N/A

*Deney/Deneyler akreditasyon kapsamı dahilinde değildir.

*The test/tests are not within the scope of accreditation.





AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

Test Laboratuvarları

B.4.4	Functional insulation	No functional insulation.	N/A
B.4.4.1	Short circuit of clearances for functional insulation		N/A
B.4.4.2	Short circuit of creepage distances for functional insulation		N/A
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	No electrodes in tubes and semiconductors.	N/A
B.4.6	Short circuit or disconnection of passive components		N/A
B.4.7	Continuous operation of components		N/A
B.4.8	Compliance criteria during and after single fault conditions..... :	(See appended table B.3, B.4)	N/A
B.4.9	Battery charging and discharging under single fault conditions	(See Annex M)	N/A
*C	UV RADIATION		*N/A
*C.1	Protection of materials in equipment from UV radiation		*N/A
*C.1.2	Requirements		*N/A
*C.1.3	Test method and compliance criteria		*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 test		*N/A
*C.2.4	Xenon-arc light-exposure test		*N/A
D	TEST GENERATORS		N/A
D.1	Impulse test generators		N/A
D.2	Antenna interface test generator		N/A
D.3	Electronic pulse generator		N/A
E	TEST CONDITIONS FOR EQUIPMENT INTENDED TO AMPLIFY AUDIO SIGNALS		N/A
E.1	Electrical energy source classification for audio signals		N/A
	Maximum non-clipped output power (W)..... :		—
	Rated load impedance (Ω)		—
	Open-circuit output voltage (V)..... :		—
	Instructional safeguard		—

*Deney/Deneyler akreditasyon kapsamı dahilinde değildir.

*The test/tests are not within the scope of accreditation.





AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

Test Laboratuvarları

E.2	Audio signals used during test		N/A
E.2.1	Pink noise test signal		N/A
E.2.2	Sine-wave signal		N/A
E.3	Operating conditions of equipment containing an audio amplifier		N/A
E.3.1	Normal operating conditions	(See appended table B.2-5, E.3.4)	N/A
E.3.2	Abnormal operating conditions	(See appended table B.3, B.4)	N/A
E.3.3	Audio equipment temperature measurement conditions.....:		N/A
F	EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS		P
F.1	General		P
	Language	Turkish and English.	—
F.2	Letter symbols and graphical symbols		P
F.2.1	Letter symbols according to IEC 60027-1		P
F.2.2	Graphic symbols according to IEC, ISO or manufacturer specific		P
F.3	Equipment markings		P
F.3.1	Equipment marking locations	The equipment marking is provided and is readily visible in operator access area.	P
F.3.2	Equipment identification markings	See below;	P
F.3.2.1	Manufacturer identification		P
F.3.2.2	Model identification		P
F.3.3	Equipment rating markings	See below;	P
F.3.3.1	Equipment with direct connection to mains		P
F.3.3.2	Equipment without direct connection to mains		N/A
F.3.3.3	Nature of the supply voltage		P
F.3.3.4	Rated voltage.....:		P
F.3.3.5	Rated frequency	DC equipment.	N/A
F.3.3.6	Rated current or rated power.....:		P
F.3.3.7	Equipment with multiple supply connections		N/A
F.3.4	Voltage setting device	The equipment does not have voltage setting device.	N/A
F.3.5	Markings on terminals and operating devices		N/A





AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

Test Laboratuvarları

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
	Instructional safeguards for neutral fuse :		N/A
F.3.5.4	Replacement battery identification marking :	(See Clause M.10)	N/A
F.3.5.5	Neutral conductor terminal		N/A
F.3.5.6	Terminal marking location	Equipment installation is carried out by the authorized service.	N/A
F.3.6	Equipment markings related to equipment classification	Class III equipment.	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	Protective bonding conductor terminals :		N/A
F.3.6.2	Equipment class marking :		N/A
F.3.6.3	Functional earthing terminal marking :		N/A
F.3.7	Equipment IP rating marking :		N/A
F.3.8	External power supply unit output marking :		N/A
F.3.9	Durability, legibility and permanence of markings	See below;	P
F.3.10	Test for permanence of markings	Marking is durable and legible. The test conducted by rubbing the marking by hand without appreciable force for 15 s with a piece of cloth soaked with water and at a different place or on a different sample for 15 s with a piece of cloth soaked with the petroleum spirit specified in F.3.10.3.	P
F.4	Instructions		P
	– Information prior to installation and initial use	See user manual.	P
	– Equipment for use in locations where children not likely to be present		N/A
	– Instructions for installation and interconnection	See user manual.	P
	– Equipment intended for use only in restricted access area		N/A
	– Equipment intended to be fastened in place		N/A
	– Instructions for audio equipment terminals		N/A
	– Protective earthing used as a safeguard	No protective earthing used.	N/A
	– Protective conductor current exceeding ES2 limits	No protective conductor.	N/A





AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

Test Laboratuvarları

	– Graphic symbols used on equipment	No graphic symbol used on equipment.	N/A
	– Permanently connected equipment not provided with all-pole mains switch	Not a permanently connected equipment.	N/A
	– Replaceable components or modules providing safeguard function	No instruction required. There is no replaceable component or module used as a safeguard.	N/A
	– Equipment containing insulating liquid	Equipment does not contain insulating liquid.	N/A
	– Installation instructions for outdoor equipment		N/A
F.5	Instructional safeguards		N/A
G	COMPONENTS		N/A
G.1	Switches		N/A
G.1.1	General		N/A
G.1.2	Ratings, endurance, spacing, maximum load		N/A
G.1.3	Test method and compliance criteria		N/A
G.2	Relays		N/A
G.2.1	Requirements and compliance criteria		N/A
G.2.2	Overload test		N/A
G.2.3	Relay controlling connectors supplying power to other equipment		N/A
G.2.4	Test method and compliance criteria		N/A
G.3	Protective devices		N/A
G.3.1	Thermal cut-offs		N/A
	Thermal cut-outs separately approved according to IEC 60730-1 with conditions indicated in a) & b)		N/A
	Thermal cut-outs tested as part of the equipment as indicated in c)		N/A
G.3.1.2	Test method and compliance criteria		N/A
G.3.2	Thermal links		N/A
G.3.2.1	a) Thermal links tested separately according to IEC 60691 with specifics		N/A
	b) Thermal links tested as part of the equipment		N/A
G.3.2.2	Test method and compliance criteria		N/A
G.3.3	PTC thermistors		N/A
G.3.4	Overcurrent protection devices		N/A
G.3.5	Safeguards components not mentioned in G.3.1 to G.3.4		N/A





AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

Test Laboratuvarları

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.3, B.4)	N/A
G.4	Connectors		N/A
G.4.1	Spacings	All ES1 part.	N/A
G.4.2	Mains connectors configuration		N/A
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		N/A
G.5.1.2	Protection against mechanical stress		N/A
G.5.2	Endurance test		N/A
G.5.2.1	General test requirements		N/A
G.5.2.2	Heat run test		N/A
	Test time (days per cycle)		—
	Test temperature (°C)		—
G.5.2.3	Wound components supplied from the mains		N/A
G.5.2.4	Compliance criteria		N/A
G.5.3	Transformers		N/A
G.5.3.1	General		N/A
	Compliance method		N/A
G.5.3.2	Insulation		N/A
	Protection from displacement of windings		—
G.5.3.3	Transformer overload tests		N/A
G.5.3.3.1	Test conditions		N/A
	Position		N/A
	Method of protection		N/A
G.5.3.3.2	Winding temperatures		N/A
G.5.3.3.3	Winding temperatures - alternative test method		N/A
G.5.3.4	Transformers using FIW		N/A
G.5.3.4.1	General		N/A
	FIW wire nominal diameter		—
G.5.3.4.2	Transformers with basic insulation only		N/A
G.5.3.4.3	Transformers with double insulation or reinforced insulation		N/A





AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

Test Laboratuvarları

G.5.3.4.4	Transformers with FIW wound on metal or ferrite core		N/A
G.5.3.4.5	Thermal cycling test and compliance		N/A
G.5.3.4.6	Partial discharge test		N/A
G.5.4	Motors		N/A
G.5.4.1	General requirements		N/A
G.5.4.2	Motor overload 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)		—
	Electric strength test.....:	(See appended table 5.4.9)	N/A
G.5.4.5	Running overload test for DC motors		N/A
G.5.4.5.2	Tested in the unit		N/A
	Electric strength test.....:	(See appended table 5.4.9)	N/A
G.5.4.5.3	Alternative method		N/A
	Electric strength test.....:	(See appended table 5.4.9)	N/A
G.5.4.6	Locked-rotor overload test for DC motors		N/A
G.5.4.6.2	Tested in the unit		N/A
	Maximum Temperature (°C)		N/A
	Electric strength test.....:	(See appended table 5.4.9)	N/A
G.5.4.6.3	Alternative method		N/A
	Electric strength test.....:	(See appended table 5.4.9)	N/A
G.5.4.7	Motors with capacitors		N/A
G.5.4.8	Three-phase motors		N/A
G.5.4.9	Series motors		N/A
	Operating voltage (V)		—
G.6	Wire Insulation		N/A
G.6.1	General		N/A
G.6.2	Enamelled winding wire insulation		N/A
G.7	Mains power supply cords and interconnection cables		N/A
G.7.1	General requirements		N/A
	Type		—
G.7.2	Cross sectional area (mm ² or AWG)		N/A
G.7.3	Cord anchorages and strain relief		N/A
G.7.3.2	Cord strain relief		N/A





AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

Test Laboratuvarları

G.7.3.2.1	Requirements		N/A
	Strain relief test force (N)..... :		N/A
G.7.3.2.2	Strain relief mechanism failure		N/A
G.7.3.2.3	Cord sheath or jacket position, distance (mm) :		N/A
G.7.3.2.4	Strain relief and cord anchorage material		N/A
G.7.4	Cord Entry	ES1 and PS1 equipment.	N/A
G.7.5	Non-detachable cord bend protection		N/A
G.7.5.1	Requirements		N/A
G.7.5.2	Test method and compliance criteria		N/A
	Overall diameter or minor overall dimension, D (mm) :		—
	Radius of curvature after test (mm) :		—
G.7.6	Supply wiring space		N/A
G.7.6.1	General requirements		N/A
G.7.6.2	Stranded wire		N/A
G.7.6.2.1	Requirements		N/A
G.7.6.2.2	Test with 8 mm strand		N/A
G.8	Varistors		N/A
G.8.1	General requirements		N/A
G.8.2	Safeguards against fire		N/A
G.8.2.1	General		N/A
G.8.2.2	Varistor overload test		N/A
G.8.2.3	Temporary overvoltage test		N/A
G.9	Integrated circuit (IC) current limiters		N/A
G.9.1	Requirements		N/A
	IC limiter output current (max. 5A)..... :		—
	Manufacturers' defined drift :		—
G.9.2	Test Program		N/A
G.9.3	Compliance criteria		N/A
G.10	Resistors		N/A
G.10.1	General		N/A
G.10.2	Conditioning		N/A
G.10.3	Resistor test		N/A
	Changes of resistance (%) :		N/A





AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

Test Laboratuvarları

	Measured current with the lowest resistance value :		N/A
G.10.4	Voltage surge test		N/A
	Changes of resistance (%) :		N/A
G.10.5	Impulse test		N/A
	Changes of resistance (%) :		N/A
G.10.6	Overload test		N/A
	Changes of resistance (%) :		N/A
G.11	Capacitors and RC units		N/A
G.11.1	General requirements		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		N/A
	Optocouplers comply with IEC 60747-5-5 with specifics		N/A
	Type test voltage $V_{ini,a}$:		—
	Routine test voltage, $V_{ini,b}$:		—
G.13	Printed boards		N/A
G.13.1	General requirements	ES1 and PS 1 equipment.	N/A
G.13.2	Uncoated printed boards		N/A
G.13.3	Coated printed boards		N/A
G.13.4	Insulation between conductors on the same inner surface		N/A
G.13.5	Insulation between conductors on different surfaces		N/A
	Distance through insulation :		N/A
	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	Test method and compliance criteria		N/A
G.14	Coating on components terminals		N/A
G.14.1	Requirements :	(See Clause G.13)	N/A
G.15	Pressurized liquid filled components or LFC assemblies		N/A
G.15.1	Requirements		N/A
G.15.2	Test methods and compliance criteria for self-contained LFC		N/A
G.15.2.1	Hydrostatic pressure test, applied test pressure :		N/A
G.15.2.2	Creep resistance test		N/A





AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

Test Laboratuvarları

G.15.2.3	Tubing and fittings compatibility test, the change of tensile strength (%)..... :		N/A
G.15.2.4	Vibration test		N/A
G.15.2.5	Thermal cycling test, test temperature (°C)..... :		N/A
G.15.2.6	Force test		N/A
G.15.2.7	Compliance criteria		N/A
G.15.3	Test methods and compliance for a modular LFC		N/A
G.15.3.2	Hydrostatic pressure test, applied test pressure :		N/A
G.15.3.3	Creep resistance test		N/A
G.15.3.4	Tubing and fittings compatibility test, the change of tensile strength (%)..... :		N/A
G.15.3.5	Thermal cycle test, test temperature (°C)..... :		N/A
G.15.3.6	Force test		N/A
G.15.3.7	Compliance criteria		N/A
G.16	IC including capacitor discharge function (ICX)		N/A
G.16.1	Condition for fault tested is not required		N/A
	ICX with associated circuitry tested in equipment		N/A
	ICX tested separately		N/A
G.16.2	Tests		N/A
	Smallest capacitance and smallest resistance specified by ICX manufacturer for impulse test :		—
	Mains voltage that impulses to be superimposed on :		—
	Largest capacitance and smallest resistance for ICX tested by itself for 10000 cycles test :		—
G.16.3	Capacitor discharge test..... :	(See appended table 5.5.2.2)	N/A
H	CRITERIA FOR TELEPHONE RINGING SIGNALS		N/A
H.1	General		N/A
H.2	Method A		N/A
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 condition current (mA): :		—
H.3.2	Tripping device and monitoring voltage		N/A





AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

Test Laboratuvarları

H.3.2.1	Conditions for use of a tripping device or a monitoring voltage		N/A
H.3.2.2	Tripping device		N/A
H.3.2.3	Monitoring voltage (V)		N/A
*J	INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION		*N/A
*J.1	General		*N/A
	Winding wire insulation		—
	Solid round winding wire, diameter (mm)		*N/A
	Solid square and rectangular (flatwise bending) winding wire, cross-sectional area (mm ²)		*N/A
*J.2/*J.3	Tests and Manufacturing	(See separate test report)	—
K	SAFETY INTERLOCKS		N/A
K.1	General requirements		N/A
	Instructional safeguard		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
K.5.1	Under single fault condition		N/A
K.6	Mechanically operated safety interlocks		N/A
K.6.1	Endurance requirement		N/A
K.7	Interlock circuit isolation		N/A
K.7.1	Separation distance for contact gaps & interlock circuit elements		N/A
	In circuit connected to mains, separation distance for contact gaps (mm)		N/A
	In circuit isolated from mains, separation distance for contact gaps (mm)		N/A
	Electric strength test before and after the test of K.7.2	(See appended table 5.4.9)	N/A
K.7.2	Overload test, Current (A)		N/A
K.7.3	Endurance test		N/A
K.7.4	Electric strength test	(See appended table 5.4.9)	N/A

*Deney/Deneyler akreditasyon kapsamı dahilinde değildir.

*The test/tests are not within the scope of accreditation.





AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

Test Laboratuvarları

L	DISCONNECT DEVICES		N/A
L.1	General requirements	ES 1 equipment.	N/A
L.2	Permanently connected equipment		N/A
	Instructions for permanently connected equipment		N/A
L.3	Parts that remain energized		N/A
L.4	Single-phase equipment		N/A
	Instructions for single pole disconnect device		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
	Instructions for pluggable equipment		—
L.8	Multiple power sources		N/A
	Instructional safeguard		N/A
M	EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS		N/A
M.1	General requirements		N/A
M.2	Safety of batteries and their cells		N/A
M.2.1	Batteries and their cells comply with relevant IEC standards	The manufacturer stated that it did not supply the battery. The user installs the battery himself.	N/A
M.3	Protection circuits for batteries provided within the equipment		N/A
M.3.1	Requirements		N/A
M.3.2	Test method		N/A
	Overcharging of a rechargeable battery		N/A
	Excessive discharging		N/A
	Unintentional charging of a non-rechargeable battery		N/A
	Reverse charging of a rechargeable battery		N/A
M.3.3	Compliance criteria	(See appended table M.3)	N/A
M.4	Additional safeguards for equipment containing a secondary lithium battery		N/A
M.4.1	General		N/A
	IEC 62133-2 batteries used for sub-system power powering application		N/A
M.4.2	Charging safeguards		N/A
M.4.2.1	Requirements		N/A
M.4.2.2	Test		N/A
M.4.2.2.1	General		N/A





AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

Test Laboratuvarları

M.4.2.2.2	Abnormal operating conditions		N/A
M.4.2.2.3	Single fault conditions		N/A
M.4.2.3	Compliance criteria	(See appended table M.4.2)	N/A
M.4.3	Fire enclosure		N/A
M.4.4	Drop test of equipment containing a secondary lithium battery		N/A
M.4.4.2	Preparation and procedure for the drop test		N/A
M.4.4.3	Drop, Voltage on reference and dropped batteries (V); voltage difference during 24 h period (%):		N/A
M.4.4.4	Check of the charge/discharge function		N/A
M.4.4.5	Charge / discharge cycle test		N/A
M.4.4.6	Compliance criteria		N/A
M.5	Risk of burn due to short-circuit during carrying		N/A
M.5.1	Requirement		N/A
M.5.2	Test method and compliance criteria		N/A
M.6	Safeguards against short-circuits		N/A
M.6.1	External and internal faults		N/A
M.6.2	Compliance criteria		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
	Calculated hydrogen generation rate		N/A
M.7.2	Test method and compliance criteria		N/A
	Minimum air flow rate, Q (m ³ /h)		N/A
M.7.3	Ventilation tests		N/A
M.7.3.1	General		N/A
M.7.3.2	Ventilation test – alternative 1		N/A
	Hydrogen gas concentration (%)		N/A
M.7.3.3	Ventilation test – alternative 2		N/A
	Obtained hydrogen generation rate		N/A
M.7.3.4	Ventilation test – alternative 3		N/A
	Hydrogen gas concentration (%)		N/A
M.7.4	Marking		N/A
M.8	Protection against internal ignition from external spark sources of rechargeable batteries with aqueous electrolyte		N/A
M.8.1	General		N/A





AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

Test Laboratuvarları

M.8.2	Test method		N/A
M.8.2.1	General		N/A
M.8.2.2	Estimation of hypothetical volume V_z (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		N/A
	Instructional safeguard		N/A
N	ELECTROCHEMICAL POTENTIALS		N/A
	Material(s) used		—
O	MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES		N/A
	Value of X (mm)..... :	Class III equipment.	—
P	SAFEGUARDS AGAINST CONDUCTIVE OBJECTS		N/A
P.1	General		N/A
P.2	Safeguards against entry or consequences of entry of a foreign object		N/A
P.2.1	General		N/A
	Location and Dimensions (mm)		—
P.2.2	Safeguard requirements		N/A
	The ES3 and PS3 keep-out volume in Figure P.4 not applicable to transportable equipment		N/A
	Transportable equipment with metalized plastic parts		N/A
P.2.3	Consequence of entry test..... :		N/A
P.3	Safeguards against spillage of internal liquids		N/A
P.3.1	General		N/A
P.3.2	Determination of spillage consequences		N/A
P.3.3	Spillage safeguards		N/A
P.3.4	Compliance criteria		N/A
P.4	Metalized coatings and adhesives securing parts		N/A
P.4.1	General		N/A
P.4.2	Tests		N/A
	Conditioning, T_c (°C)		—
	Duration (weeks)..... :		—





AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

Test Laboratuvarları

Q	CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING	N/A
Q.1	Limited power sources	N/A
Q.1.1	Requirements	N/A
	a) Inherently limited output	N/A
	b) Impedance limited output	N/A
	c) Regulating network limited output	N/A
	d) Overcurrent protective device limited output	N/A
	e) IC current limiter complying with G.9	N/A
Q.1.2	Test method and compliance criteria..... :	(See appended table Q.1)
	Current rating of overcurrent protective device (A) :	N/A
Q.2	Test for external circuits – paired conductor cable	N/A
	Maximum output current (A)	N/A
	Current limiting method	—
*R	LIMITED SHORT CIRCUIT TEST	*N/A
*R.1	General	*N/A
*R.2	Test setup	*N/A
	Overcurrent protective device for test..... :	—
*R.3	Test method	*N/A
	Cord/cable used for test	—
*R.4	Compliance criteria	*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	*N/A
	Samples, material	—
	Wall thickness (mm)	—
	Conditioning (°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

*Deney/Deneyler akreditasyon kapsamı dahilinde değildir.

*The test/tests are not within the scope of accreditation.





AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

Test Laboratuvarları

*S.2	Flammability test for fire enclosure and fire barrier integrity		*N/A
	Samples, material		—
	Wall thickness (mm)		—
	Conditioning (°C)		—
	- Material did not show any additional holes for combustible materials		*N/A
	- Cheesecloth did not ignite for top openings		*N/A
*S.3	Flammability test for the bottom of a fire enclosure		*N/A
*S.3.1	Mounting of samples		*N/A
*S.3.2	Test method and compliance criteria		*N/A
	Mounting of samples		—
	Wall thickness (mm)		—
	Cheesecloth did not ignite		*N/A
*S.4	Flammability classification of materials		*N/A
*S.5	Flammability test for fire enclosure materials of equipment with a steady state power exceeding 4 000 W		*N/A
	Samples, material		—
	Wall thickness (mm)		—
	Conditioning (°C)		—
*S.6	Grille covering material, cloth, and reticulated foam		*N/A
	Samples, material		—
	Measured distance from the centre of the fuel tablet (mm).....		*N/A
T	MECHANICAL STRENGTH TESTS		N/A
T.1	General		N/A
T.2	Steady force test, 10 N	(See appended table T.2, T.3, T.4, T.5)	N/A
T.3	Steady force test, 30 N	(See appended table T.2, T.3, T.4, T.5)	N/A
T.4	Steady force test, 100 N	(See appended table T.2, T.3, T.4, T.5)	N/A
T.5	Steady force test, 250 N	(See appended table T.2, T.3, T.4, T.5)	N/A

*Deney/Deneyler akreditasyon kapsamı dahilinde değildir.

*The test/tests are not within the scope of accreditation.





AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

Test Laboratuvarları

T.6	Enclosure impact test	(See appended table T.6, T.9)	N/A
	Fall test		N/A
	Swing test		N/A
T.7	Drop test	(See appended table T.7)	N/A
T.8	Stress relief test	(See appended table T.8)	N/A
T.9	Glass Impact Test	(See appended table T.6, T.9)	N/A
T.10	Glass fragmentation test		N/A
	Number of particles counted		N/A
T.11	Test for telescoping or rod antennas		
	Torque value (Nm)		N/A
*U	MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION		*N/A
*U.1	General		*N/A
	Instructional safeguard		*N/A
*U.2	Test method and compliance for non-intrinsically protected CRTs		*N/A
*U.3	Protective screen		*N/A
V	DETERMINATION OF ACCESSIBLE PARTS		N/A
V.1	Accessible parts of equipment		N/A
V.1.1	General	All energy source that are entering the EUT is ES1.	N/A
V.1.2	Surfaces and openings tested with jointed test probes		N/A
V.1.3	Openings tested with straight unjointed test probes		N/A
V.1.4	Plugs, jacks, connectors tested with blunt probe		N/A
V.1.5	Slot openings tested with wedge probe		N/A
V.1.6	Terminals tested with rigid test wire		N/A
V.2	Accessible part criterion		N/A
X	ALTERNATIVE METHOD FOR DETERMINING CLEARANCES FOR INSULATION IN CIRCUITS CONNECTED TO AN AC MAINS NOT EXCEEDING 420 V PEAK (300 V RMS)		N/A
	Clearance	(See appended table X)	N/A

*Deney/Deneyler akreditasyon kapsamı dahilinde değildir.

*The test/tests are not within the scope of accreditation.





AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

Test Laboratuvarları

Y	CONSTRUCTION REQUIREMENTS FOR OUTDOOR ENCLOSURES		N/A
Y.1	General	The equipment is not outdoor use.	N/A
Y.2	Resistance to UV radiation		N/A
Y.3	Resistance to corrosion		N/A
Y.3.1	Metallic parts of outdoor enclosures are resistant to effects of water-borne contaminants by		N/A
Y.3.2	Test apparatus		N/A
Y.3.3	Water – saturated sulphur dioxide atmosphere		N/A
Y.3.4	Test procedure		N/A
Y.3.5	Compliance criteria		N/A
Y.4	Gaskets		N/A
Y.4.1	General		N/A
Y.4.2	Gasket tests		N/A
Y.4.3	Tensile strength and elongation tests, changes of tensile strength and elongation		N/A
	Alternative test methods		N/A
Y.4.4	Compression test		N/A
Y.4.5	Oil resistance, change of swell / shrink (%)		N/A
Y.4.6	Securing means	(See Clause P.4)	N/A
Y.5	Protection of equipment within an outdoor enclosure		N/A
Y.5.1	General		N/A
Y.5.2	Protection from moisture		N/A
	Relevant tests of IEC 60529 or Y.5.3		N/A
Y.5.3	Water spray test		N/A
Y.5.4	Protection from plants and vermin		N/A
Y.5.5	Protection from excessive dust		N/A
Y.5.5.1	General		N/A
	Relevant tests of IEC 60529 or Y.5.5.2 or Y.5.5.3 ..		N/A
Y.5.5.2	IP5X equipment		N/A
Y.5.5.3	IP6X equipment		N/A
Y.6	Mechanical strength of enclosures		N/A
Y.6.1	General		N/A
Y.6.2	Impact test	(See appended table T.6, T.9)	N/A



5.2	TABLE: Classification of electrical energy sources						P
Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters				ES Class
			U (V)	I (mA)	Type ¹⁾	Additional Info ²⁾	
9 V _{DC}	Supply	N/A/S	9 V _{DC}	1000	SS	DC Equipment	ES1
24 V _{DC}	Supply	N/A/S	24 V _{DC}	1000	SS	DC Equipment	ES1
Supplementary information: Equipment supply is 9 – 24 V _{DC} . All parts are supplied with this supply voltage.							
1) Type: Steady state (SS), Capacitance (CP), Single pulse (SP), Repetitive pulses (RP), etc.							
2) Additional Info: Frequency, Pulse duration, Pulse off time, Capacitance value, etc.							

5.4.1.8	TABLE: Working voltage measurement					N/A
Location		Peak voltage (V)	RMS voltage (V)	Frequency (Hz)	Comments	
Supplementary information: All energy sources are ES1.						

5.4.1.10.2	TABLE: Vicat softening temperature of thermoplastics				N/A
Method.....:			ISO 306 / B50		—
Object/ Part No./Material	Manufacturer/trademark		Thickness (mm)	T softening (°C)	
Supplementary information:					

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

Test Laboratuvarları

5.4.2, 5.4.3	TABLE: Minimum Clearances/Creepage distance							N/A
Clearance (cl) and creepage distance (cr) at/of/between:	U_p (V)	U_{rms} (V)	Freq ¹⁾ (Hz)	Required cl (mm)	cl (mm)	E.S. ²⁾ (V)	Required cr (mm)	cr (mm)
Supplementary information: Class III equipment.								
1) Only for frequency above 30 kHz								
2) Complete Electric Strength voltage (E.S. (V) when 5.4.2.4 applied)								

5.4.4.2	TABLE: Minimum distance through insulation				N/A
Distance through insulation (DTI) at/of	Peak voltage (V)	Insulation	Required DTI (mm)	Measured DTI (mm)	
Supplementary information: Class III equipment.					

5.4.4.9	TABLE: Solid insulation at frequencies >30 kHz					N/A
Insulation material	E_p	Frequency (kHz)	K_R	Thickness d (mm)	Insulation	V_{PW} (Vpk)
Supplementary information: Class III equipment.						

5.4.9	TABLE: Electric strength tests			N/A
Test voltage applied between:		Voltage shape (Surge, Impulse, AC, DC, etc.)	Test voltage (V)	Breakdown Yes / No
Supplementary information: Class III equipment.				



AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

Test Laboratuvarları

5.5.2.2	TABLE: Stored discharge on capacitors					N/A
Location	Supply voltage (V)	Operating and fault condition ¹⁾	Switch position	Measured voltage (Vpk)	ES Class	
Supplementary information: The equipment does not have plug contacts.						
X-capacitors installed for testing:						
[] bleeding resistor rating:						
[] ICX:						
1) Normal operating condition (e.g., normal operation), SC= short circuit, OC= open circuit						

5.6.6	TABLE: Resistance of protective conductors and terminations				N/A
Location	Test current (A)	Duration (min)	Voltage drop (V)	Resistance (Ω)	
Supplementary information: Class III equipment.					

5.7.4	TABLE: Unearthed accessible parts					N/A
Location	Operating and fault conditions	Supply Voltage (V)	Parameters			ES class
			Voltage (V _{rms} or V _{pk})	Current (A _{rms} or A _{pk})	Freq. (Hz)	
Supplementary information:						
Abbreviation: SC= short circuit; OC= open circuit						

5.7.5	TABLE: Earthed accessible conductive part				N/A
Supply voltage (V).....:					—
Phase(s)		[] Single Phase; [] Three Phase: [] Delta [] Wye			
Power Distribution System		[] TN [] TT [] IT			
Location		Fault Condition No in IEC 60990 clause 6.2.2	Touch current (mA)	Comment	
Supplementary Information: Class III equipment.					





AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

Test Laboratuvarları

5.8	TABLE: Backfeed safeguard in battery backed up supplies					N/A
Location	Supply voltage (V)	Operating and fault condition	Time (s)	Open-circuit voltage (V)	Touch current (A)	ES Class
Supplementary information: No such battery.						
Abbreviation: SC= short circuit, OC= open circuit						

6.2.2	TABLE: Power source circuit classifications					P
Location	Operating and fault condition	Voltage (V)	Current (A)	Max. Power ¹⁾ (W)	Time (S)	PS class
Supply	N/A/S	9 V _{DC}	0.15	1.35	-	PS1
Supply	N/A/S	24 V _{DC}	0.06	1.44	-	PS1
Supplementary information: It was tested with max and min values of declared supply voltage.						
Abbreviation: SC= short circuit; OC= open circuit						
1) Measured after 3 s for PS1 and measured after 5 s for PS2 and PS3.						

6.2.3.1	TABLE: Determination of Arcing PIS				N/A
Location	Open circuit voltage after 3 s (V _{pk})	Measured r.m.s current (A)	Calculated value	Arcing PIS? Yes / No	
Supplementary information: ES1 equipment.					

6.2.3.2	TABLE: Determination of resistive PIS			N/A
Location	Operating and fault condition	Dissipate power (W)	Resistive PIS? Yes / No	
Supplementary information: ES1 equipment.				
Abbreviation: SC= short circuit; OC= open circuit				

8.5.5	TABLE: High pressure lamp				N/A
Lamp manufacturer	Lamp type	Explosion method	Longest axis of glass particle (mm)	Particle found beyond 1 m Yes / No	
Supplementary information: The equipment does not have high pressure lamp.					



9.6	TABLE: Temperature measurements for wireless power transmitters								N/A
Supply voltage (V)								—	
Max. transmitting power (W).....								—	
Part A ¹⁾									
Foreign objects	w/o receiver and direct contact		with receiver and direct contact		with receiver and at distance of 2 mm		with receiver and at distance of 5 mm		
	Object (°C)	Ambient (°C)	Object (°C)	Ambient (°C)	Object (°C)	Ambient (°C)	Object (°C)	Ambient (°C)	
Steel disc									
Aluminium ring									
Aluminium foil									
Measurement temperature T of part/at:	w/o receiver and direct contact		with receiver and direct contact		with receiver and at distance of 2 mm		with receiver and at distance of 5 mm		
	T (°C)	Ambient (°C)	T (°C)	Ambient (°C)	T (°C)	Ambient (°C)	T (°C)	Ambient (°C)	
Part B ²⁾									
Foreign objects	w/o receiver and direct contact		with receiver and direct contact		with receiver and at distance of 2 mm		with receiver and at distance of 5 mm		
	Object (°C)	Ambient (°C)	Object (°C)	Ambient (°C)	Object (°C)	Ambient (°C)	Object (°C)	Ambient (°C)	
Steel disc									
Aluminium ring									
Aluminium foil									
Measurement temperature T of part/at:	w/o receiver and direct contact		with receiver and direct contact		with receiver and at distance of 2 mm		with receiver and at distance of 5 mm		
	T (°C)	Ambient (°C)	T (°C)	Ambient (°C)	T (°C)	Ambient (°C)	T (°C)	Ambient (°C)	
Supplementary information: The equipment does not have wireless power transmitters.									
1) The test is performed by powering up the transmitter and then placing each of the foreign objects specified in 9.6.2 in direct contact with the transmitter.									
2) The test is performed by first placing each of the foreign objects specified in 9.6.2 in direct contact with the transmitter and then powering up transmitter.									

Test Laboratuvarları

5.4.1.4, 9.3, B.1.5, B.2.6		TABLE: Temperature measurements						P
Supply voltage (V)			9 V _{DC}		24 V _{DC}		—	
Ambient temperature during test T_{amb} (°C)			22.0		22.8		—	
Maximum measured temperature T of part/at:			T (°C)				Allowed T_{max} (°C)	
Enclosure (Front)			28.1		30.9		77	
System (QR Code Reader)			29.2		32.6		Information	
System (Card Reader)			28.5		30.0			
PCB Card			32.4		35.5		Information	
Relay			22.8		24.5		105	
PCB Card			34.2		39.3		Information	
Terminal			22.4		24.7		77	
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: The tests were carried out with the device provided by the company. See the test photos for photos of the setup. Test was performed in stand-by position.								

B.2.5.		TABLE: Input test						P
U (V)	Hz	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status
9 V _{DC}	DC	0.15	1	1.35	-	-	-	Comply
24 V _{DC}	DC	0.06	1	1.44	-	-	-	Comply
Supplementary information: The tests were carried out with the device provided by the company. See the test photos for photos of the setup. Test was performed in stand-by position.								



AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

Test Laboratuvarları

B.2.5, E.3.1		TABLE: Input test for equipment containing audio amplifiers										N/A	
Operation Condition:		Signal type		Frequency (Hz)		Output loads (Ω)		Load setup					
A1		Sine wave input		1000				All channels driven, (maximum) non-clipped output power					
A2		Peak response frequency						All channels driven, (maximum) non-clipped output power					
B1		Sine wave input		1000				All channels driven, 1/8 non-clipped output power					
B2		Peak response frequency						All channels driven, 1/8 non-clipped output power					
C		Band-limited pink noise signal		N/A				All channels driven, 1/8 non-clipped output power					
D													
Input									Amplifier Output				
Cond.	U (V)	Hz	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Ch.	U (V)	P (W)	Load (Ω)	
Supplementary information: The equipment does not have audio amplifier.													

B.3, B.4		TABLE: Abnormal operating and fault condition tests						N/A
Ambient temperature T _{amb} (°C)							—	
Power source for EUT: Manufacturer, model/type, outputrating ..							—	
Component No.	Condition	Supply voltage (V)	Test time	Fuse no.	Fuse current (A)	Observation		
Supplementary information: See clause B.3 and B.4.								





AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

Test Laboratuvarları

M.3	TABLE: Protection circuits for batteries provided within the equipment						N/A
Is it possible to install the battery in a reverse polarity position?							—
Equipment Specification	Charging						
	Voltage (V)				Current (A)		
Manufacturer/type	Battery specification						
	Non-rechargeable batteries			Rechargeable batteries			
	Discharging current (A)	Unintentional charging current (A)	Charging		Discharging current (A)	Reverse charging current (A)	
			Voltage (V)	Current (A)			
Note: The tests of M.3.2 are applicable only when above appropriate data is not available.							
Specified battery temperature (°C)							
Component No.	Fault condition	Charge/ discharge mode	Test time	Temp. (°C)	Current (A)	Voltage (V)	Observation
Supplementary information:							
Abbreviation: SC= short circuit; OC= open circuit NL= no chemical leakage; NS= no spillage of liquid; NE= no explosion; NF= no emission of flame or expulsion of molten metal.							

M.4.2	TABLE: Charging safeguards for equipment containing a secondary lithium battery						N/A
Maximum specified charging voltage (V)..... :							—
Maximum specified charging current (A)							—
Highest specified charging temperature (°C)							
Lowest specified charging temperature (°C)							
Battery manufacturer/type	Operating and fault condition	Measurement			Observation		
		Charging voltage (V)	Charging current (A)	Temp. (°C)			
Supplementary information:							
Abbreviation: SC= short circuit; OC= open circuit; MSCV= maximum specified charging voltage; MSCC= maximum specified charging current; HSCT= highest specified charging temperature; LSCT= lowest specified charging temperature							





AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

Test Laboratuvarları

Q.1	TABLE: Circuits intended for interconnection with building wiring (LPS)						N/A
Output Circuit	Condition	U_{oc} (V)	Time (s)	I_{sc} (A)		S (VA)	
				Meas.	Limit	Meas.	Limit
Supplementary Information:							

T.2, T.3, T.4, T.5	TABLE: Steady force test						N/A
Location/Part	Material	Thickness (mm)	Probe	Force (N)	Test Duration (s)	Observation	
Supplementary information: All energy source ES 1.							

T.6, T.9	TABLE: Impact test					N/A
Location/Part	Material	Thickness (mm)	Height (mm)	Observation		
Supplementary information: All energy source ES 1.						

T.7	TABLE: Drop test					N/A
Location/Part	Material	Thickness (mm)	Height (mm)	Observation		
Supplementary information: All energy source ES 1.						





AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

Test Laboratuvarları

T.8	TABLE: Stress relief test					N/A
Location/Part	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation	
Supplementary information: All energy source ES 1.						

X	TABLE: Alternative method for determining minimum clearances distances				N/A
Clearance distanced between:	Peak of working voltage (V)	Required cl (mm)	Measured cl (mm)		
Supplementary information: Class III equipment.					

4.1.2	TABLE: Critical components information					N/A
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾	
Supplementary information: See documantation of client.						
¹⁾ Provided evidence ensures the agreed level of compliance. See OD-2039.						

10. Deney ve Ölçüm Bilgileri:

Test and Measuring Arrangement

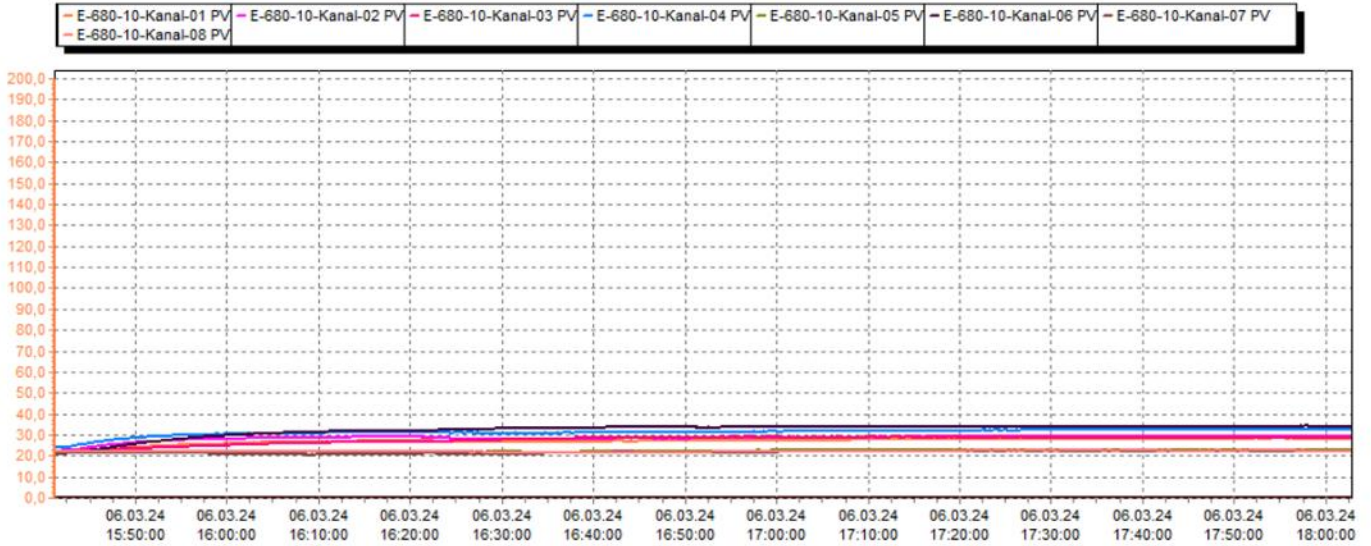
Cihaz Device	İmalatçı Manufacturer	Seri No. / Kod Serial No / Code	Sertifika No Certificate No	Kalibrasyon Bitiş Tarihi Calibration Due Date
Humidity & Temp. Recorder	CEM	LD222	2336849	July/2024
Data Logger	ELIMKO	LD304	3070001	June/2024
Multimeter	FLUKE	LD378	2304058	July/2024
Oscilloscope	HANTEK	LD374	2304621	August/2024
Digital Scale	TEM STAR TERAZİ	LD308	2349272	September/2024
DC Power Supply	TWINTX	LD446	2400058	January/2025



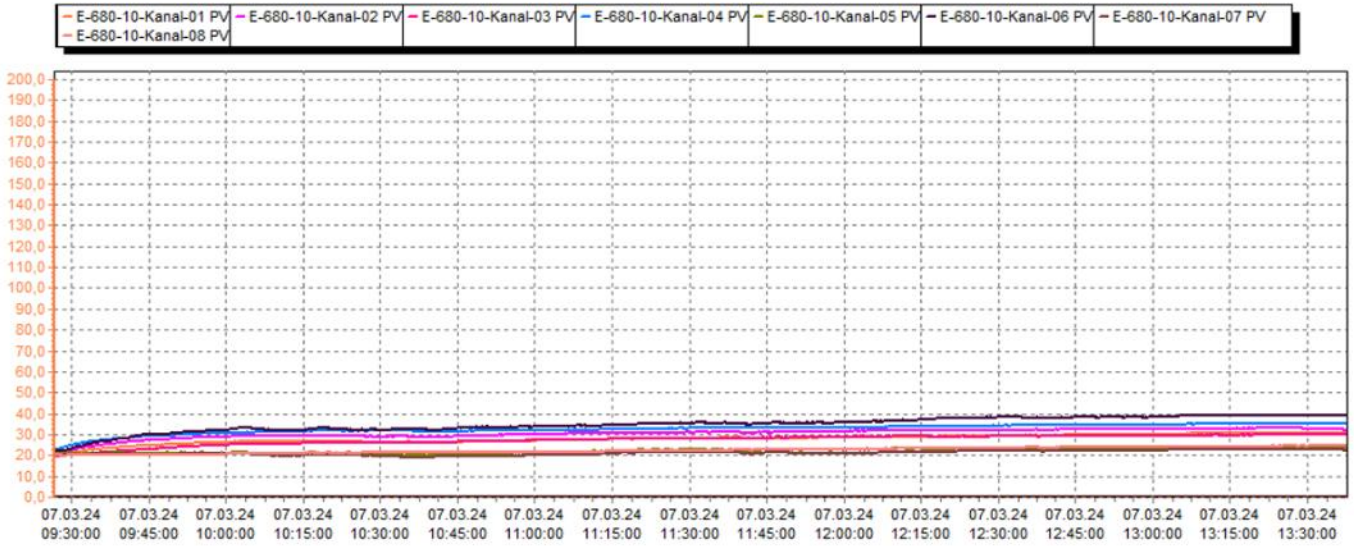
11. Deney Osilogramları:

Test Oscillograms

9 V_{DC} Temperature Rise Measurement

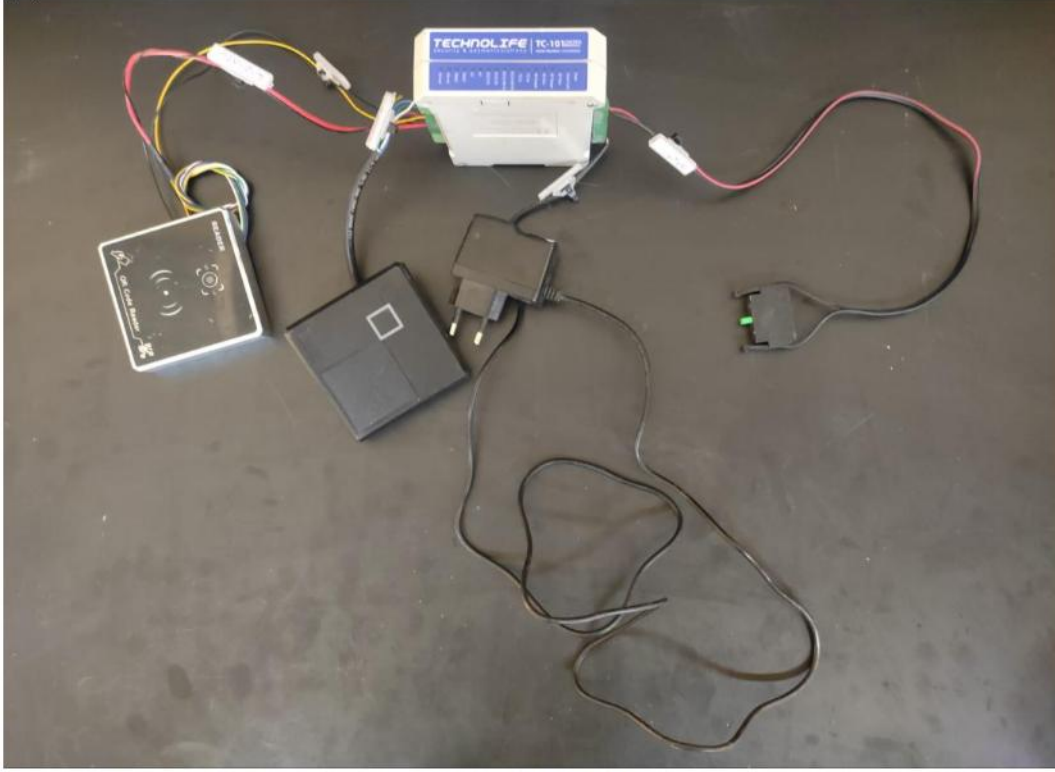


24 V_{DC} Temperature Rise Measurement



12. Deney Fotoğrafları:

Test Photographs



Photograph 1: System



Photograph 2: General View

AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests



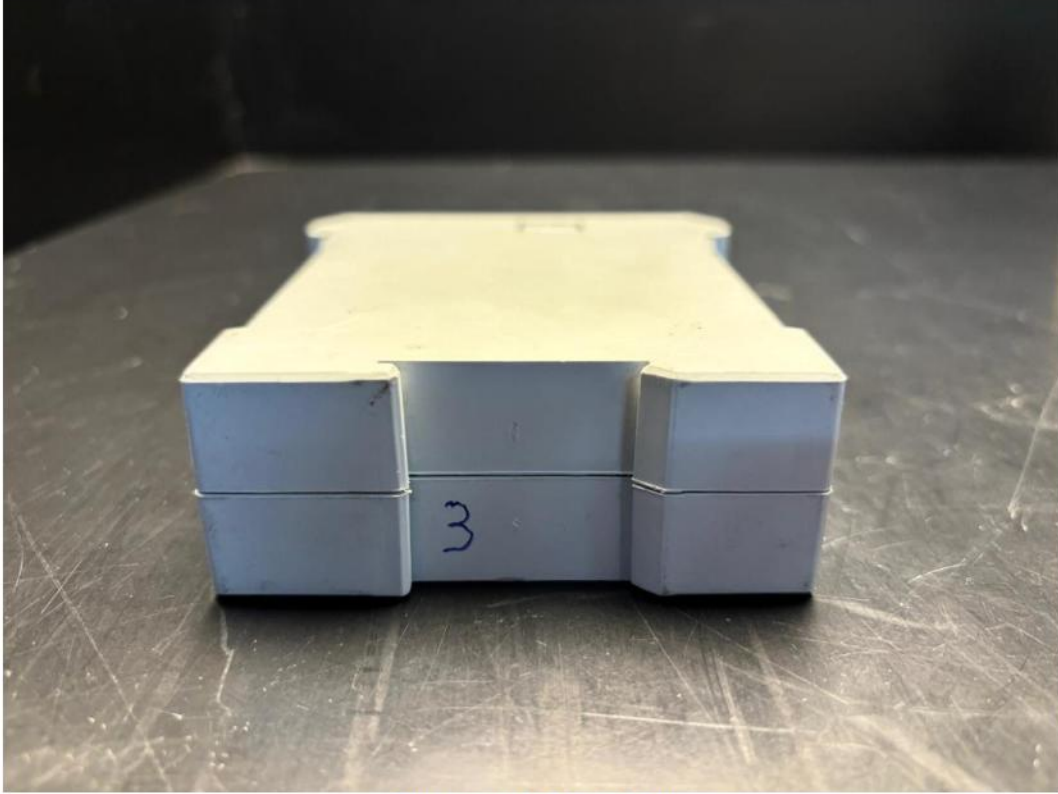
Photograph 3: Terminal



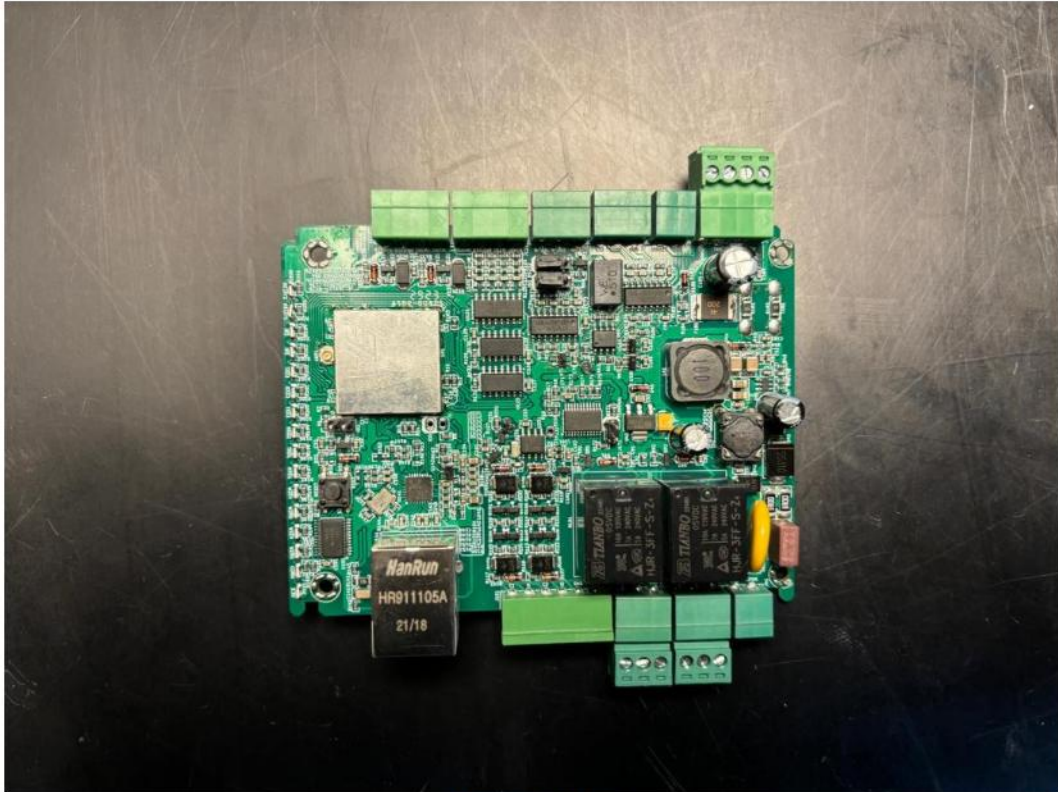
Photograph 4: General View

AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests



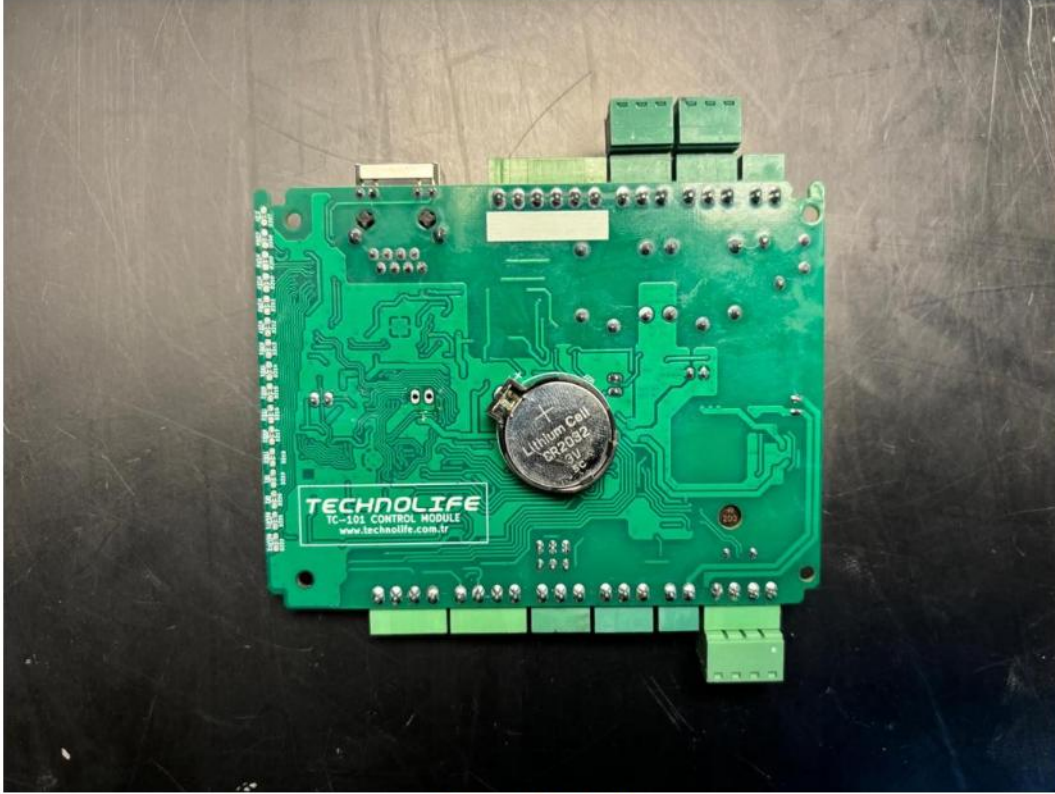
Photograph 5: General View



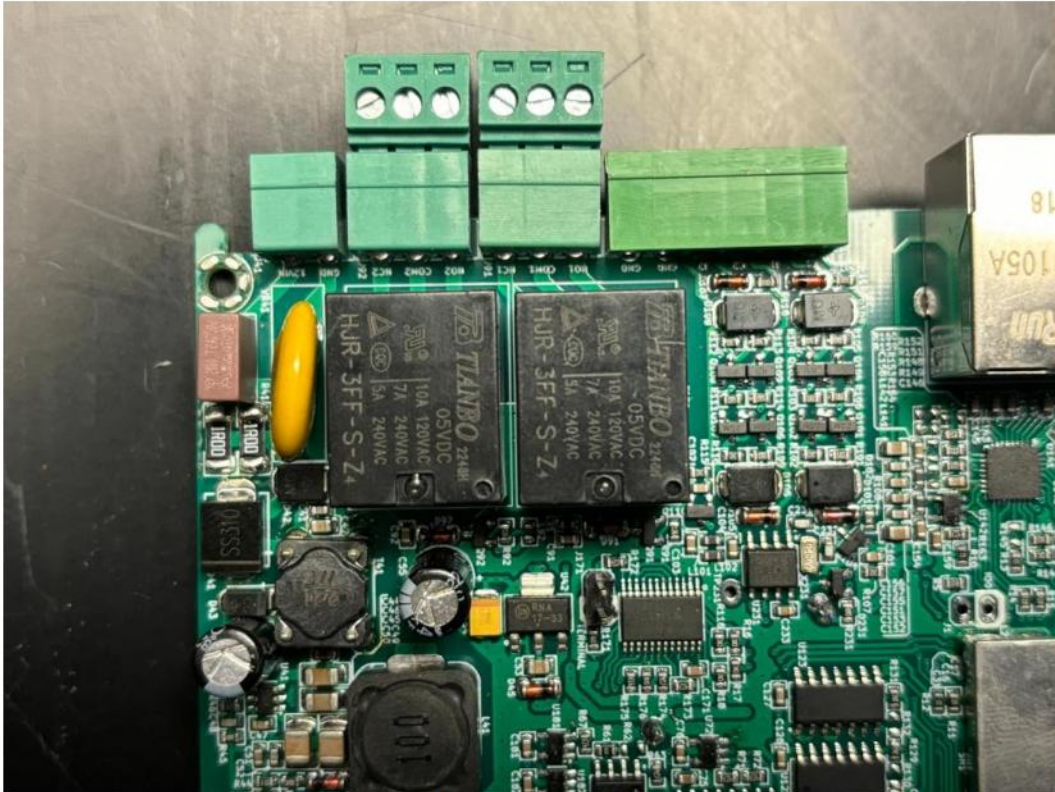
Photograph 6: PCB

AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests



Photograph 7: PCB



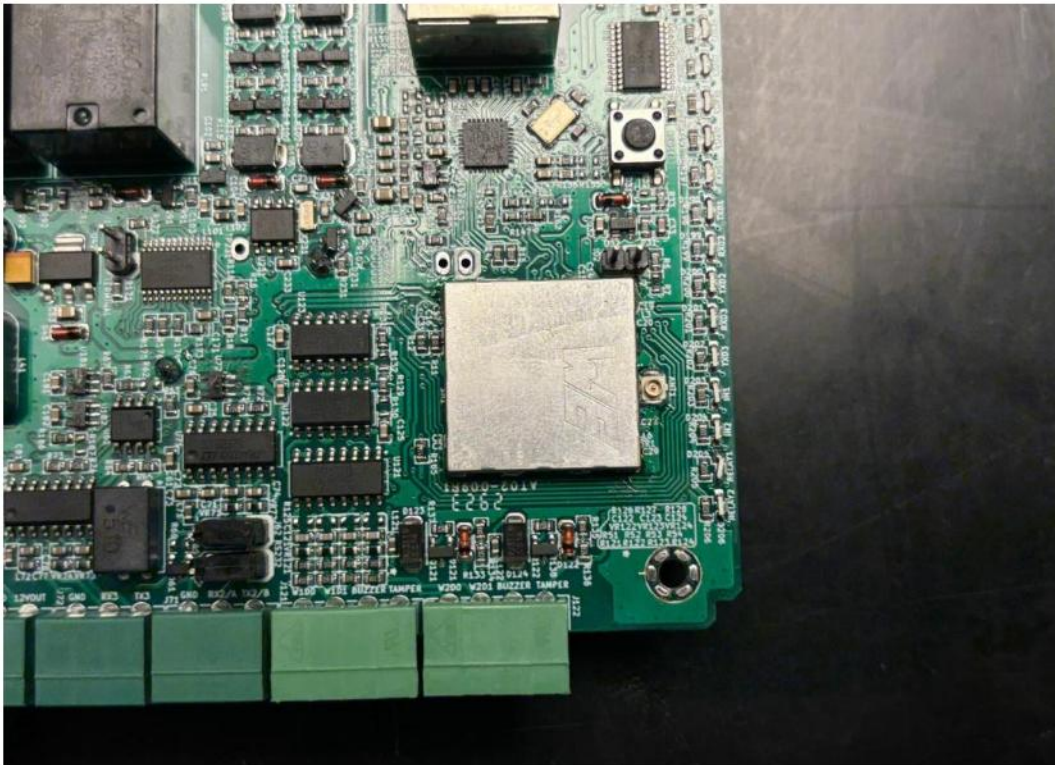
Photograph 8: Relay

AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests



Photograph 9: Component



Photograph 10: PCB



Test Laboratuvarları

AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

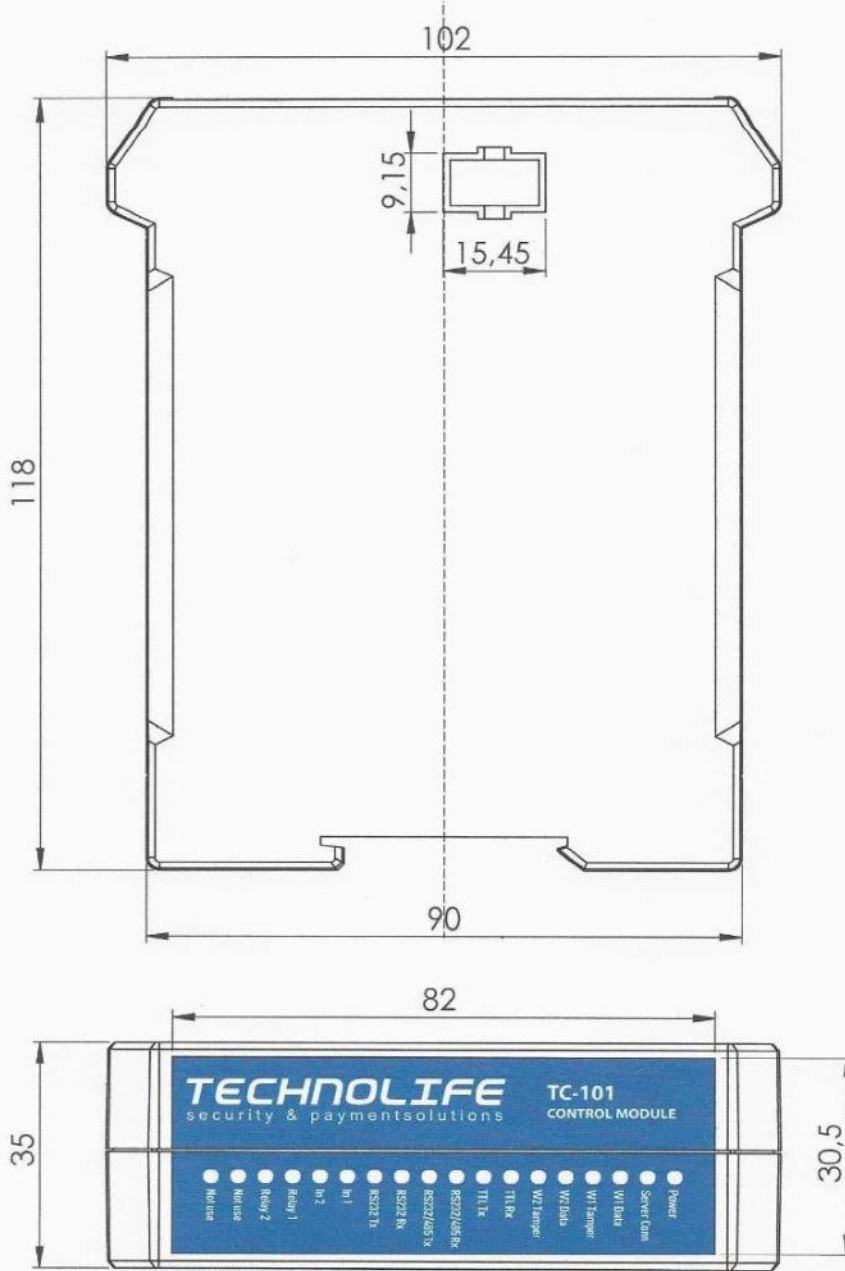
Audio/Video, Information And Communication Technology Equipment Tests

13. Firma Dokümanları:

Documentation of Client

TECHNOLIFE
security & paymentsolutions

TECHNOLIFE BİLİŞİM SİST.SAN.TİC.LTD.ŞTİ.
KOZYATAĞI V.D. 833 047 9753
TİCARET SİCİL 761781



www.technolife.com.tr

TECHNOLIFE BİLİŞİM SİSTEMLERİ
ANONİM ŞİRKETİ
Atatürk Mah. Eğincah Sok. No:11
Ataşehir - İST. TİC. SİCİL NO: 271105
KOZYATAĞI V.D. 833 047 9753



AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

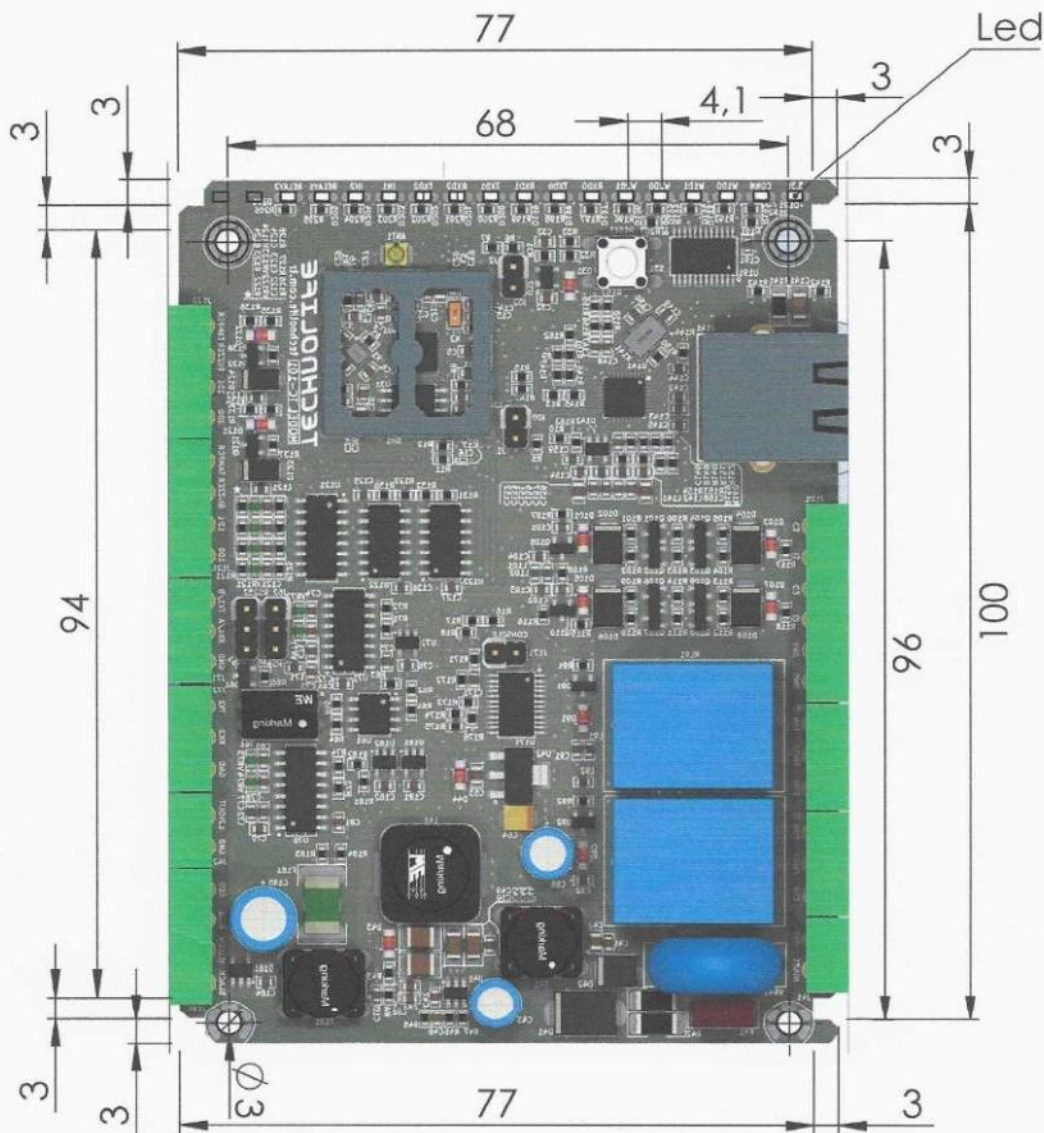
Audio/Video, Information And Communication Technology Equipment Tests

TECHNOLIFE
security & payments solutions

TECHNOLIFE BİLİŞİM SİST.SAN.TİC.LTD.ŞTİ.

KOZYATAĞI V.D. 833 047 9753

TİCARET SİCİL 761781



www.technolife.com.tr

TECHNOLIFE BİLGİSİM SİSTEMLERİ
SANAYİ TİCARET LİMİTED ŞİRKETİ
Atatürk Mah. Erzincan Sok. No:11
Ataşehir -İST. Tel:0812 451 10 55
Kozvataş Y.D. : 835 647 974



Test Laboratuvarları

AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

SolutionPartner



ABS AF312

Injection Molding

Description

Flame Retardant

Application

Electric/Electronic Applications(TV, Monitor Housing)
IT/OA device

Properties	Test Condition	Test Method	Unit	Typical Value
Physical				
Specific Gravity		ASTM D792	-	1.18
Molding Shrinkage (Flow), 3.2mm		ASTM D955	%	0.4~0.7
Melt Flow Rate	220 °C/10kg	ASTM D1238	g/10min	52
Mechanical				
Tensile Strength, 3.2mm		ASTM D638		
@ Yield	50mm/min		kg/cm ²	440
Tensile Elongation, 3.2mm		ASTM D638		
@ Yield	50mm/min		%	5
@ Break	50mm/min		%	20
Tensile Modulus, 3.2mm	1mm/min	ASTM D638	kg/cm ²	22,000
Flexural Strength, 6.4mm	15mm/min	ASTM D790	kg/cm ²	720
Flexural Modulus, 6.4mm	15mm/min	ASTM D790	kg/cm ²	26,000
IZOD Impact Strength, 6.4mm (Notched)	23 °C	ASTM D256	kg-cm/cm	25
	-30 °C		kg-cm/cm	8
IZOD Impact Strength, 3.2mm (Notched)	23 °C	ASTM D256	kg-cm/cm	25
	-30 °C		kg-cm/cm	8
Rockwell Hardness	R-Scale	ASTM D785	-	104
Thermal				
Heat Deflection Temperature, 6.4mm (Unannealed)	18.6kg	ASTM D648	°C	76
	4.6kg		°C	84
Vicat Softening Temperature	5kg, 50 °C/h	ASTM D1525	°C	84
Flammability		UL94		
1.5mm			class	V-0
2.0mm			class	V-0,5VB
2.5mm			class	V-0,5VB
3.0mm			class	V-0,5VB
Relative Temperature Index		UL 746B		
Electrical			°C	85
Mechanical with Impact			°C	75
Mechanical without Impact			°C	75

Note) Typical values are only for material selection purpose, and variation within normal tolerances are for various colors.

Values given should not be interpreted as specification and not be used for part or tool design.

All properties, except melt flow rate are measured on injection molded specimens and after 48 hours storage at 23°C, 50% relative humidity.

Updated : 9-Nov-09

The information contained herein, including, but not limited to, data, statements and typical values, are given in good faith. LG Chem makes no warranty or guarantee, expressed or implied, (i) that the result described herein will be obtained under end - use conditions, or (ii) as to the effectiveness or safety of any design incorporating LG Chem materials, products, recommendations or advice. Further, any information contained herein shall not be construed as a part of legally binding offer. Especially, the typical values should be regarded as reference values only and not as binding minimum values. Each user bear full responsibility for making its own determination as to the suitability of LG Chem's materials, products, recommendations, or advice for its own particular use. Each user must identify and perform all tests and analyses necessary to assure that its finished parts incorporating LG Chem material or products will be safe and suitable for use under end - use conditions. The data contained herein can be changed without notice as a result of the quality improvement of the products.





AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

Test Laboratuvarları

TECHNOLIFE
security & payments solutions

TECHNOLIFE BİLİŞİM SİSTEMLERİ SAN. TİC. LTD. ŞTİ.
KOZYATAĞI Y.D. 8330479753
www.technolife.com.tr

Critical	EMC Related	Reference	Qty	Value	Footprint	Datasheet	Digitkey	Manufacturer	PartNumber	Power	Tolerance
Yes	ANT1		1	Conn_RF	Celebi SM0402C	https://www.we-online.com/catalog/datasheet/85392005011.pdf	732-65610111001CT-ND	Würth	8.36101E+11	-	-
Yes	BAT231		1	Battery_3V	Celebi N.A.	https://www.electroniccomponents.com/public/image/download/CR2032.pdf	IP108-ND	EEEMB	CR2032-EEEMB	0.21Ah	-
	C1		1	3.3pF/50V	Celebi SM0402C	https://www.we-online.com/catalog/datasheet/85392005011.pdf	732-13236-1-ND	Würth	8.65302E+11	-	0.1pF
	C12, C13, C14, C15, C23, C232		6	12pF/50V	Celebi SM0603C	https://www.yageo.com/ChartDownload/pdf/CO0603FRNPO8B120	311-3885-1-ND	Yageo	CO0603FRNPO8B120	-	1%
	C141		1	1nF/200V	Celebi SM1206C	http://webib.samsung.com/mic/mico-ec-data-sheet.do?partNumber=CL31B102KJHNN	1276-3073-1-ND	Samsung	CL31B102KJHNN	-	10%
	C148, C150		2	22pF/50V	Celebi SM0603C	https://www.yageo.com/ChartDownload/pdf/CO0603FRNPO8B120	311-3885-1-ND	Yageo	CO0603FRNPO8B120	-	1%
	C185		1	470uF/25V	Celebi cap-radial-D8 L11.5 P5mm	http://www.kohln.com/chart/catalog.asp?titleName=KLH-025V471MF120-T1A5.0	1188-1548-1-ND	Kohln	KLH-025V471MF120-T1A5.0	0.72A	20%
	C2		1	4.7pF/50V	Celebi SM0402C	https://www.we-online.com/catalog/datasheet/85392005012.pdf	732-13237-1-ND	Würth	8.65302E+11	-	0.1pF
	C152, C156, C21, C25, C28, C33		6	10uF/16V	Celebi SM0805C	http://webib.samsung.com/mic/mico-ec-data-sheet.do?partNumber=CL21B108KQNNN	1276-2872-1-ND	Samsung	CL21B108KQNNN	-	10%
	C10, C101, C102, C103, C104, C125, C126, C127, C142, C143, C144, C145, C146, C147, C148, C151, C154, C155, C158, C159, C161, C171, C181, C182, C183, C186, C191, C200, C233, C24, C27, C3, C31, C32, C4, C44, C47, C5, C51, C61, C76, C91, C92		43	100nF/50V	Celebi SM0603C	http://webib.samsung.com/mic/mico-ec-data-sheet.do?partNumber=CL10B104KBNNN	1276-1000-1-ND	Samsung	CL10B104KBNNN	-	10%
	C42		1	470nF/50V	Celebi SM0805C	http://webib.samsung.com/mic/mico-ec-data-sheet.do?partNumber=CL21B108KQNNN	1276-1039-1-ND	Samsung	CL21B108KQNNN	-	10%
	C43, C95		2	47uF/50V	Celebi cap-radial-D8 S L11 P2.5mm	http://www.kohln.com/chart/catalog.asp?titleName=KRM-050V470ME11C12.5	463-1886-ND	Kohln	KRM-050V470ME11C12.5	0.12A	20%
	C45, C46		2	4.7uF/50V	Celebi SM1206C	http://webib.samsung.com/mic/mico-ec-data-sheet.do?partNumber=CL31B175KBNNN	1276-2789-1-ND	Samsung	CL31B175KBNNN	-	10%
	C48		1	75pF/50V	Celebi SM0603C	https://www.yageo.com/ChartDownload/pdf/CO0603FRNPO8B120	13-CC0603FRNPO8B120-ND	Yageo	CO0603FRNPO8B120	-	1%
	C49, C90		2	22uF/16V	Celebi SM1210C	http://webib.samsung.com/mic/mico-ec-data-sheet.do?partNumber=CL32B28KQNNN	1276-1855-1-ND	Samsung	CL32B28KQNNN	-	10%
	C54		1	10uF/16V	Celebi SMD-B-3528	https://www.kemet.com/spsheet/7461B10K16AT	369-3708-1-ND	Kemet	7461B10K16AT	-	10%
	C6		1	10uF/50V	Celebi SM0603C	http://webib.samsung.com/mic/mico-ec-data-sheet.do?partNumber=CL10B104KBNNN	1276-1039-1-ND	Samsung	CL10B104KBNNN	-	10%
	C7		1	3.3pF/50V	Celebi SM0603C	http://webib.samsung.com/mic/mico-ec-data-sheet.do?partNumber=CL10B104KBNNN	1276-1758-1-ND	Samsung	CL10B104KBNNN	-	10%
	C71, C72, C73, C74, C75, C77, C78, C79, C80, C81		10	220nF/50V	Celebi SM0603C	http://webib.samsung.com/mic/mico-ec-data-sheet.do?partNumber=CL10B104KBNNN	1276-CL10B224KBNNNCTR-ND	Samsung	CL10B224KBNNN	-	10%
	C11, C22, C33, C8		4	1uF/16V	Celebi SM0603C	http://webib.samsung.com/mic/mico-ec-data-sheet.do?partNumber=CL10B104KBNNN	1276-1019-1-ND	Samsung	CL10B104KBNNN	-	10%
	C121, C122, C123, C124, C153, C157, C18, C184, C23, C28, C29, C41, C52, C9		14	10uF/50V	Celebi SM0603C	http://webib.samsung.com/mic/mico-ec-data-sheet.do?partNumber=CL10C100BBNNN	1276-1027-1-ND	Samsung	CL10C100BBNNN	-	5%
	D123, D124		2	SS14	Celebi DO-214AC	https://www.vishay.com/docs/88745/ss14.pdf	SS14-E361TGCT-ND	Vishay	SS14-E361TGCT	-	1%
Yes	D181		1	TVS_5V	Celebi 50T23-5L	https://www.ve-online.com/catalog/datasheet/824011.pdf	732-4465-1-ND	Würth	824011	-	1%
	D191		1	Diode-LED_Red	Celebi SMD5628A_Red	https://www.infocorelectronics.com/computer/download/DS-22-2000-137/LTSI-S220KRC.pdf	160-1468-1-ND	Liteon	LTSI-S220KRC	-	1%





AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

Test Laboratuvarları

TECHNOLIFE
security & paymentsolutions

TECHNOLIFE BİLİŞİM SİSTEMLERİ SAN. TİC. LTD. ŞTİ.
KOZ/ATAĞI V.D. 8330479753
www.technolife.com.tr

Critical	Elit Related	Reference	Qty	Value	Footprint	Datasheet	Digikey	Manufacturer	PartNumber	Power	Tolerance
		D192 D163 D165 D167 D168 D201 D203 D204	8	Diode-LED_Green	Celebi led-SM1605RA_Green	https://www.datasheetarchive.com/ftp_upload/22-5000-D163-D165-D167-D168-D201-D203-D204.pdf	160-1408-1-ND	Liteon	LTST-S220KGKT	0.075W	-
		D194 D166 D168 D200 D202 D205 D206	7	Diode-LED_Yellow	Celebi led-SM1605RA_Yellow	https://www.datasheetarchive.com/ftp_upload/22-5000-D166-D168-D200-D202-D205-D206.pdf	160-1470-1-ND	Liteon	LTST-S220KSKT	0.075W	-
		D231	1	BAV170	Celebi SOT723-3	https://www.parjit.com.tw/upload/datasheet/BAV170_SERIES.pdf	3157-BAV170_R1_00001CT-ND	Parjit	BAV170_R1_00001	0.2A	-
		D101 D103 D105 D107 D121 D122 D182 D31 D41 D45 D46 D47	12	LL4148	Celebi SOD80	https://www.parjit.com.tw/upload/datasheet/LL4148.pdf	LL4148SCT-ND	Parjit	LL4148_R2_10001	0.2A	-
		D41	1	SS34	Celebi DO-214AB	http://www.fairchildsemi.com/specifications/specifications-SS34-SS34.pdf	SS34-ET	Hottech	SS34-HT	3A	-
Yes	Yes	D102 D104 D106 D108 D42	5	SM128CA	Celebi DO-214AA	https://www.parjit.com.tw/upload/datasheet/SM128CA_SERIES.pdf	3157-F6SMB128CA_R1_00001CT-ND	Parjit	P6SMB128CA_R1_00001	600W	-
Yes	Yes	D43	1	SMA128A	Celebi DO-214AC		3157-PASMA128AS_R1_00001CT-ND	Parjit	PASMA128AS_R1_00001	400W	-
Yes	Yes	D81	1	SM712	Celebi SOT23-3	https://www.liteluse.com/~media/electronics/datasheet/etsnvs_dode_arraya/liteluse_vs_dode_array_sm712_datasheet.pdf	F9490CT-ND	Liteluse	SM712-02HTG	600W	-
		E81 E82	2	Jumper	Celebi N/A	http://www.ksele.com/admin/product_upload/20200507162555_KLS1-203A.pdf	1652-169-ND	KLS	KL51-203A-O-R-6.0	-	-
Yes	Yes	F181	1	Fuse_2A	Celebi SM2020F	https://www.fuzitec.com/upload/download/App%20FSMD%202020%20R1%20Series%20%20Biver_B6%20SD.pdf	1507-1748-1-ND	Fuzitec	FSMD203-24-2920-R	100A	-
Yes	Yes	F41	1	Fuse_2A	Celebi fuse-box-W8_4_T4_H6_2_P5 mm	http://www.reomax.net/upload/datasheet/microMTS.pdf	1507-1668-1-ND	Reomax	MTS1200A	35A	-
		J1 J171 J2	3	Conn_01x02	Celebi si-2P	http://router.comnifty.com/catalog/upload/file/pdf/DS1021.pdf	1WMS0014-02-ND	Comnifty	DS1021-1X3SF11-B	3A	-
Yes	Yes	J101	1	Conn_01x06	Celebi con-15EDGRC-3.5-08P	https://www.degson.com/index.php?n=download&fileId=4216951&name=%272mls27C%27&lang=en	732-2773-ND	Gaeson	15EDGRC-3.5-08P-14-00SH	8A	-
Yes	Yes	J121 J122 J181	3	Conn_01x04	Celebi con-15EDGRC-3.5-04P	https://www.degson.com/index.php?n=download&fileId=4216951&name=%272mls27C%27&lang=en	732-2771-ND	Gaeson	15EDGRC-3.5-04P-14-00SH	8A	-
Yes	Yes	J141	1	HR911105A	Celebi eth-HR911105A	http://www.hanun.com/public/upload/download/2020091110c11b569b6b3d6f1e8949249c01.pdf	-	Hanun	HR911105A	-	-
		J231	1	CR2032_Holder	Celebi bat-DS1062-24	http://router.comnifty.com/catalog/upload/file/pdf/DS1092-24.pdf	BS-7-ND	Comnifty	DS1092-04-BSP	-	-
Yes	Yes	J41 J42	2	Conn_01x02	Celebi con-15EDGRC-3.5-02P	https://www.degson.com/index.php?n=download&fileId=4216951&name=%272mls27C%27&lang=en	732-2769-ND	Gaeson	15EDGRC-3.5-02P-14-00SH	8A	-
		J61 J62	2	Conn_01x03	Celebi si-3P	http://router.comnifty.com/catalog/upload/file/pdf/DS1021.pdf	1WMS0014-03-ND	Comnifty	DS1021-1X3SF11-B	3A	-
Yes	Yes	J71 J72 J91 J92	4	Conn_01x03	Celebi con-15EDGRC-3.5-03P	https://www.degson.com/index.php?n=download&fileId=4216951&name=%272mls27C%27&lang=en	732-2770-ND	Gaeson	15EDGRC-3.5-03P-14-00SH	8A	-
		L1	1	1.8H	Celebi SM0402L	https://www.wel-online.com/catalog/datasheet/7447840018G.pdf	732-7447840018GCT-ND	Würth	7447840018G	0.3A	0.1H
Yes	Yes	L101 L102 L121 L122 L141 L142 L12 L13 L15 L6 L7 L11 L72 L91 L9	14	Bead_300R	Celebi SM0603L	https://www.wel-online.com/catalog/datasheet/742792641.pdf	732-1592-1-ND	Würth	742792641	2A	25%
		L4	1	2H1	Celebi SM0603L	https://www.wel-online.com/catalog/datasheet/744781020A.pdf	732-744781020ACT-ND	Würth	744781020A	0.7A	0.2H
Yes	Yes	L41	1	10uH	Celebi inductor-WJE-PD_12x12_H4.5mm	https://www.coremaster.com/bw/templates/att/Shieldcod%20SMID%20Power%20Inductors%20for%20SRI1204.pdf	732-1190-1-ND	Core_Master	SRI1204-100W	53A	20%
Yes	Yes	M1	1	Shield_Cover	Celebi N/A	https://www.wel-online.com/catalog/datasheet/796033200S.pdf	732-11536-1-ND	Würth	90033200S	TECHNOLIFE	-

Atatürk Mah. Emincan Sok. No: 10
Ataşehir - 34742 12 451 10 35
Konya'daki V.D. : 833 047 9753





AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

Test Laboratuvarları

TECHNOLIFE
security & paymentsolutions

TECHNOLIFE BİLİŞİM SİSTEMLERİ SAN. TİC. LTD. ŞTİ.
KOZYATAGI Y.D. 8330479753
www.technolife.com.tr

Critical	EMC Related	Reference	Qty	Value	Footprint	Datasheet	Digkey	Manufacturer	Partnumber	Power	Tolerance
Yes		P101	1	15EDGK-3.5-06P	Celebi N.A.	https://lenovo.lenovo.com/uploadfile/2022/03/13/1001000035/15EDGK-3.5-06P-1Y-00A(H)-I.pdf	1732-2755-ND	Gaosong	15EDGK-3.5-06P-14-00SH	8K	—
Yes		P121, P122, P181	3	15EDGK-3.5-04P	Celebi N.A.	https://lenovo.lenovo.com/uploadfile/2022/03/13/1001000035/15EDGK-3.5-04P-1Y-00A(H)-I.pdf	1732-2753-ND	Gaosong	15EDGK-3.5-04P-14-00SH	8K	—
Yes		P41, P42	2	15EDGK-3.5-02P	Celebi N.A.	https://lenovo.lenovo.com/uploadfile/2022/03/13/1001000035/15EDGK-3.5-02P-1Y-00A(H)-I.pdf	1732-2751-ND	Gaosong	15EDGK-3.5-02P-14-00SH	8K	—
Yes		P71, P72, P91, P92	4	15EDGK-3.5-03P	Celebi N.A.	https://lenovo.lenovo.com/uploadfile/2022/03/13/1001000035/15EDGK-3.5-03P-1Y-00A(H)-I.pdf	1732-2752-ND	Gaosong	15EDGK-3.5-03P-14-00SH	8K	—
		Q101, Q102, Q106, Q107	4	MMBT456L	Celebi SOT23-3	https://www.onsemi.com/pdf/datasheet/mmbl456l.pdf	MMBT456L, T1G08CT-ND	Onsemi	MMBT456L, T1G	0.5A	—
		Q103, Q104, Q105, Q108, Q109, Q110, Q121, Q122	8	MMBT406L	Celebi SOT23-3	https://www.onsemi.com/pdf/datasheet/mmbl406l.pdf	MMBT406L, T1G08CT-ND	Onsemi	MMBT406L, T1G	0.5A	—
		Q41, Q42	2	BC617	Celebi SOT23-3	https://assets.nexperia.com/documents/data-sheet/BC617_SER.pdf	1727-2919-1-ND	Nexperia	BC617-4B215	0.5A	—
		R1	1	20k	Celebi SMD0603	https://www.yageo.com/upload/media/product/products/eachdatasheet/rchipPyu-RC_Group_51_RoHS_L_12.pdf	311-20, 0K-HRCT-ND	Yageo	RC0603FR-0720KL	1/10W	1%
		R101, R103, R106, R109, R111, R114	6	56R	Celebi SMD0603	https://www.yageo.com/upload/media/product/products/eachdatasheet/rchipPyu-RC_Group_51_RoHS_L_12.pdf	311-56, 0H-RCT-ND	Yageo	RC0603FR-0756L	1/10W	1%
		R117, R118	2	200k	Celebi SMD0603	https://www.yageo.com/upload/media/product/products/eachdatasheet/rchipPyu-RC_Group_51_RoHS_L_12.pdf	311-200K, HRCCT-ND	Yageo	RC0603FR-07200KL	1/10W	1%
		R14, R148, R149, R15, R150	5	22R	Celebi SMD0603	https://www.yageo.com/upload/media/product/products/eachdatasheet/rchipPyu-RC_Group_51_RoHS_L_12.pdf	311-22, 0H-RCT-ND	Yageo	RC0603FR-0722RL	1/10W	1%
		R141	1	10Meg	Celebi SMD1206	https://www.yageo.com/upload/media/product/products/eachdatasheet/rchipPyu-RC_Group_51_RoHS_L_12.pdf	311-10, 0M-FRCT-ND	Yageo	RC1206FR-0710ML	1/4W	1%
		R144	1	2k49	Celebi SMD0603	https://www.yageo.com/upload/media/product/products/eachdatasheet/rchipPyu-RC_Group_51_RoHS_L_12.pdf	311-2, 49K-HRCT-ND	Yageo	RC0603FR-072K49L	1/10W	1%
		R102, R104, R105, R107, R108, R110, R112, R113, R115, R116, R125, R131, R146, R147, R16, R17, R18, R64, R65	19	10k	Celebi SMD0603	https://www.yageo.com/upload/media/product/products/eachdatasheet/rchipPyu-RC_Group_51_RoHS_L_12.pdf	311-10, 0K-HRCT-ND	Yageo	RC0603FR-0710KL	1/10W	1%
		R181, R182	2	0R	Celebi SMD1206	https://www.yageo.com/upload/media/product/products/eachdatasheet/rchipPyu-RC_Group_51_RoHS_L_12.pdf	311-0, 0R-RCT-ND	Yageo	RC1206JR-070RL	1/4W	Jumper
		R191, R192, R193, R194, R195, R196, R197, R198, R199, R200, R201, R202, R203, R204, R205, R206	16	2k7	Celebi SMD0603	https://www.yageo.com/upload/media/product/products/eachdatasheet/rchipPyu-RC_Group_51_RoHS_L_12.pdf	311-2, 794-HRCT-ND	Yageo	RC0603FR-072K7L	1/10W	1%
		R2	1	499R	Celebi SMD0603	https://www.yageo.com/upload/media/product/products/eachdatasheet/rchipPyu-RC_Group_51_RoHS_L_12.pdf	311-499, HRCCT-ND	Yageo	RC0603FR-07499RL	1/10W	1%
		R10, R11, R12, R13, R186, R3, R61, R9	8	0R	Celebi SMD0603	https://www.yageo.com/upload/media/product/products/eachdatasheet/rchipPyu-RC_Group_51_RoHS_L_12.pdf	311-0, 0R-RCT-ND	Yageo	RC0603JR-070RL	1/10W	Jumper
		R31, R46, R51, R52, R53, R54	5	100k	Celebi SMD0603	https://www.yageo.com/upload/media/product/products/eachdatasheet/rchipPyu-RC_Group_51_RoHS_L_12.pdf	311-100K, HRCCT-ND	Yageo	RC0603FR-07100KL	1/10W	1%
		R183, R184, R221, R33	4	100R	Celebi SMD0603	https://www.yageo.com/upload/media/product/products/eachdatasheet/rchipPyu-RC_Group_51_RoHS_L_12.pdf	311-100H, HRCCT-ND	Yageo	RC0603FR-07100KL	1/10W	1%

TECHNO LIFE
BİLİŞİM SİSTEMLERİ SAN. TİC. LTD. ŞTİ.
Atatürk Mah. Elazığ San. Bölgesi
Ataşehir-15117 Elazığ 461-4654
Kozyatagı Y.D. 8330479753





AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

Test Laboratuvarları

TECHNOLIFE BİLİŞİM SİSTEMLERİ SAN. TİC. LTD. ŞTİ.
KOZYATAĞI V.D. 8330479753
www.technolife.com.tr

TECHNOLIFE
security & payments solutions

Critical	EMC Related	Reference	Qty	Value	Footprint	Datasheet	Digikey	Manufacturer	PartNumber	Power	Tolerance
		R4	1	10M Ω	Celebi SM0603	https://www.yageo.com/upload/media/product/products/earch/datasheet/rch/p/yu-rc_group_51_rohs_l_12.pdf	311-10.0MHRCT-ND	Yageo	RC0603FR-0710ML	110W	1%
		R41,R42	2	1R	Celebi SM2C10	http://www.royalohm.com/assets/pdf/products/and/3.pdf	RPC2010T1R0MCT-ND	Royal_Ohm	AS1034K001JT4E	34W	10%
		R43	1	511k	Celebi SM0603	https://www.yageo.com/upload/media/product/products/earch/datasheet/rch/p/yu-rc_group_51_rohs_l_12.pdf	311-511KHRCT-ND	Yageo	RC0603FR-07511KL	110W	1%
		R44	1	105k	Celebi SM0603	https://www.yageo.com/upload/media/product/products/earch/datasheet/rch/p/yu-rc_group_51_rohs_l_12.pdf	311-105KHRCT-ND	Yageo	RC0603FR-0705KL	110W	1%
		R45	1	499 Ω	Celebi SM0603	https://www.yageo.com/upload/media/product/products/earch/datasheet/rch/p/yu-rc_group_51_rohs_l_12.pdf	311-49.9HRCT-ND	Yageo	RC0603FR-0749R9L	110W	1%
		R47	1	13K Ω	Celebi SM0603	https://www.yageo.com/upload/media/product/products/earch/datasheet/rch/p/yu-rc_group_51_rohs_l_12.pdf	311-13.3KHRCT-ND	Yageo	RC0603FR-0713K3L	110W	1%
		R121,R122,R123,R124,R133,R134,R142,R143,R171,R176,R186	12	1k	Celebi SM0603	https://www.yageo.com/upload/media/product/products/earch/datasheet/rch/p/yu-rc_group_51_rohs_l_12.pdf	311-1.00KHRCT-ND	Yageo	RC0603FR-071KL	110W	1%
		R134,R136,R183,R172,R173,R174,R175,R185,R188,R207,R303,R57,R71,R72,R73,R74	16	47k	Celebi SM0603	https://www.yageo.com/upload/media/product/products/earch/datasheet/rch/p/yu-rc_group_51_rohs_l_12.pdf	311-47.0KHRCT-ND	Yageo	RC0603FR-0747KL	110W	1%
		R137,R138,R151,R155,R158,R31,R62	7	4k7	Celebi SM0603	https://www.yageo.com/upload/media/product/products/earch/datasheet/rch/p/yu-rc_group_51_rohs_l_12.pdf	311-4.7KHRCT-ND	Yageo	RC0603FR-074K7L	110W	1%
Yes		RL91,RL92	2	Relay-1FormC	Celebi relay-JS1	https://ep-pin.ru/industrial/palasonic.com/files_stream/mainfileversion/193105	JS1-B-5V-FT	Parasonic	JS1-B-5V-FT	9A/30VDC	-
		S31	1	Tact_SW_4pin	Celebi switch-WE-WIS-TASV-6x6-H4.3mm	http://router.comfy.group/datasheet/upload/file/pdf/031042-03.pdf	732-7024-1-ND	Comfil	DS1042-03-1-KKR-250-10	0.05A	-
	Yes	SH1	1	Shield	Celebi shield-38103055	https://www.we-online.com/catalog/datasheet/261032055.pdf	732-11540-1-ND	Würth	61032055	-	-
		T41	1	CIM_Choke_470uH	Celebi tr-smd-WE-SL2	https://www.we-online.com/catalog/datasheet/744272471.pdf	732-744272471CT-ND	Würth	744272471	15A	40%
	Yes	T61	1	CIM_Choke_51uH	Celebi tr-smd-WE-SL2	https://www.we-online.com/catalog/datasheet/744272471.pdf	732-1481-1-ND	Würth	744227	1A	-
Yes		U1	1	ESP32-D0WD	Celebi C0F148_5x5_P0_38_E3.5mm	https://www.espressif.com/files/default/files/document/also/es32_datasheet_en.pdf	1804-ESP32-D0WD-V3CT-ND	Espressif	ESP32-D0WD-V3	-	-
		U121	1	74HC4500	Celebi SOT16_4x10.5_P1.27mm	https://www.onsemi.com/pdf/datasheet/74HC4500.pdf	1727-2806-ND	Nexperia	74HC4500-652	-	-
		U122,U123	2	74HC00	Celebi SOT14_4x9_P1.27mm	https://assets.nexperia.com/documents/data-sheet/74HC00.pdf	1727-3774-ND	Nexperia	74HC00-652	-	-
Yes		U141	1	RTL8201F	Celebi QFN32_5x5_P0_5_E3mm	https://www.semiconductors.com/Source/10REAL/TEK-RTL8201F-VB-CG.pdf	296-11605-1-ND	Realtek	RTL8201F-VB-CG	-	-
		U142	1	74LVC1G126	Celebi SOT23-5L	https://www.ti.com/lit/ds/ty/74lvc1g126.pdf	296-25129-1-ND	Texas_Instruments	SN74LVC1G126BVR	0.05A	-
		U171,U191	2	TC1A9535PW	Celebi TSSOP24_4.5x8_P0.65mm	https://www.ti.com/lit/ds/ty/74lvc1g126.pdf	296-11605-1-ND	Texas_Instruments	CA9535PWVR	0.025A	-
		U181,U182	2	74LVC1G17	Celebi SOT23-5L	https://www.ti.com/lit/ds/ty/74lvc1g17.pdf	296-11605-1-ND	Texas_Instruments	SN74LVC1G17BVR	0.05A	-
Yes		U231	1	PCF8563T	Celebi SOT14_4x5_P1.27mm	https://www.nxp.com/docs/data-sheet/PCF8563.pdf	568-6553-1-ND	NXP	PCF8563T5-516	-	-
		U31	1	W25Q128.V	Celebi SOT14_5.2x5.2_P1.7mm	https://www.winbond.com/resources/files/W25Q128.V%20Rev%2009232021%20plus.pdf	W25Q128.VS1Q-ND	Winbond	W25Q128.VS1Q	-	-
		U32	1	CAT8111_2.93V	Celebi SOT14-4	https://www.onsemi.com/pdf/datasheet/cat8111-d.pdf	CA18111S-B1G1T3C1-ND	Onsemi	CA18111S-B1G1T3C1-ND	-	-

TECHNO LIFE
SAR LARCA 1011
55





AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

Test Laboratuvarları

TECHNOLIFE
security & payments solutions

TECHNOLIFE BİLİŞİM SİSTEMLERİ SAN.TİC.LTD.ŞTİ.
KOZYATAĞI V.D. 8330479753
www.technolife.com.tr

Critical	EMC Related	Reference	Qty	Value	Footprint	Datasheet	Digitley	Manufacturer	PartNumber	Power	Tolerance
Yes		U41	1	TPS54302	Celebi SOT23-6L	https://www.ti.com/lit/ids/tylin014/tps54302.pdf	296-46231-1-ND	Texas Instruments	TPS54302DDCR	3A	-
		U42	1	NCP1117	Celebi SOT23	https://www.onsemi.com/pdf/datasheet/nop1117-d.pdf	NCP1117ST33T3G	Onsemi	NCP1117ST33T3G	1A	1%
		U61	1	MAX485	Celebi SO8_4x10.5_P1.27mm	http://www.hickore.co.kr/Catalog/Interface/MAX485.pdf	MAX485ESA-TCT-ND	HTC	MAX485ED-HTC	-	-
		U71,U78	2	ST3233	Celebi SO16_4x10.5_P1.27mm	https://www.st.com/resource/en/datasheet/st3233b.pdf	487-6533-1-ND	ST	ST3232BDR	-	-
		U72	1	74LVC1G28	Celebi SOT23-5L	https://www.ti.com/lit/ids/tylin014/74lvc1g08.pdf	296-11801-1-ND	Texas Instruments	SN74LVC1G08DBVR	0.35A	-
Yes		VR121,VR122,VR123,VR124	4	TVS_BV	Celebi SM0603V	https://www.onsemi.com/data/datasheet/82350050101.pdf	732-13296-1-ND	Wurth	82356050101	15kV	-
Yes		VR41	1	Varistor_25VAC	Celebi vr disc-D17_T5_H20_P7.5mm	https://www.onsemi.com/data/datasheet/82350050101.pdf	732-13274-1-ND	Wurth	820542501	11A	-
Yes		VR71,VR72,VR73,VR74	4	TVS_12V	Celebi SM0603V	https://www.onsemi.com/data/datasheet/82356120100.pdf	732-13298-1-ND	Wurth	82356120100	15kV	-
Yes		X1	1	40VHz	Celebi xtal-2.5x2.0mm_4pin	https://www.raltron.com/web/products/specs/CRYSTAL/CXPR2520-40-100-10-F-1010-EXT-1R.pdf	2151-R2520-40-000-10-F-1010-EXT-TRCT-ND	Raltron	R2520-40-100-10-F-1010-EXT-TR	-	10ppm
Yes		X141	1	25VHz	Celebi xtal-5x3.2mm_4pin	https://www.raltron.com/web/products/specs/CRYSTAL/A11303-25-000-18-F-1030-EXT-1R_Rev_D.PDF	2151-H1303-25-000-18-F-1030-EXT-TRCT-ND	Raltron	H1303-25-000-18-F-1030-EXT-TR	-	10ppm
Yes		X2,X231	2	32.768kHz	Celebi xtal-3.2x1.5mm	https://www.ei.co.jp/eng/ctrlz/files/2013/03/SC-32S_Leaflet_20151217.pdf	728-SC32S-8PF-20PPMCT-ND	Silico	SC32S-8PF20PPM	-	20ppm

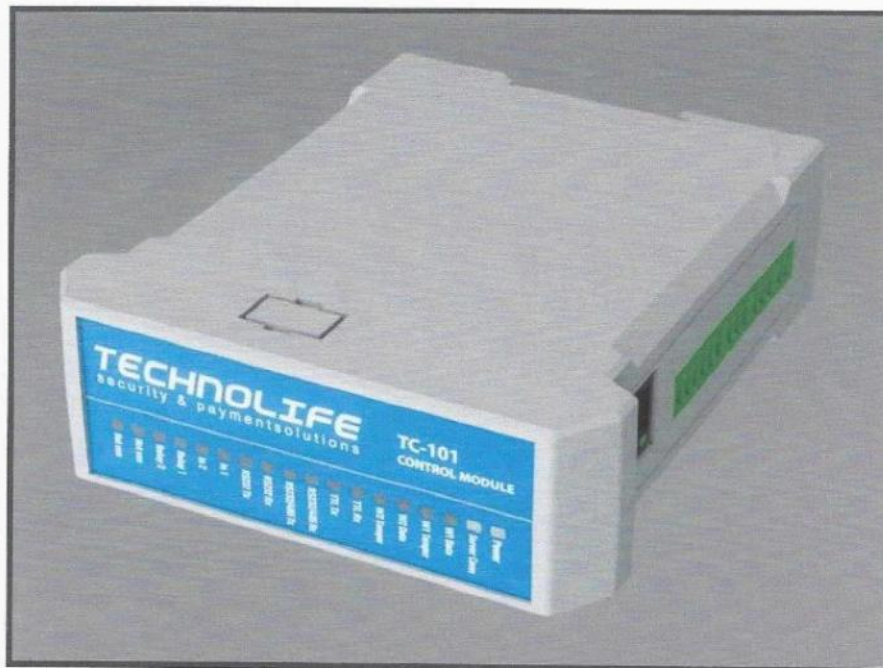
TECHNO LIFE
BİLİŞİM SİSTEMLERİ SAN. TİC. LTD. ŞTİ.
AKATLAR MAH. FRINÇALI SAK. No:11
Araçehir - İST. 34472
KOZYATAĞI V.D. 833 041 9753



TC-101

NETWORK BAĞLANTILI KONTROL PANELİ

Donanım Kurulumu ve Kullanım Kılavuzu



TEKNOLOJİ VE İŞLETİM SİSTEMLERİ
SANAYİ VE TİCARET LİMİTED ŞİRKETİ
Atatürk Men. Enzincin Sok. No: 22
Ataşehir - İST. Tel: 0212 451 10 55
Kozvataşı V.D. : 833 047 9753

www.technolife.com.tr



Test Laboratuvarları

AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

TECHNOLIFE
security & paymentsolutions

TECHNOLIFE BİLİŞİM SİST.SAN.TİC.LTD.ŞTİ.
KOZYATAĞI V.D. 833 047 9753
TİCARET SİCİL 761781

KRİTİK KOMPONENT LİSTESİ

Adet Numb er	Bileşen adı Component name	Marka Brand	Model Type	Teknik özellikler Technicality	Standard ve Onay Belgesi Standart and Approval Document
1	10uH	Core_Master	SRI1204-100M	10uh inductor 5.8 A 12X12	TAPE AND REEL ROHS
1	Battery_3V	EEMB	CR2032-EEMB	3V BATTERY LITHIUM 210 MAH	ISO9001
1	ESP32-D0WD	Espressif	ESP32-D0WD-V3	RF TRANSCIEVER IC	https://www.espressif.com/en/support/documents/certificates
1	Fuse_2A	Fuzetec	FSMD200-24- 2920-R	RESETTABLE FUSE -40 +85 C	TAPE AND REEL ROHS
2	Conn_01x02	Gaosong	15EDGK-3.5- 02P-14-00SH	CONNECTOR 3.5 MM 8A -40 +85C 2P FEMALE	ROHS BRASS
4	Conn_01x03	Gaosong	15EDGK-3.5- 03P-14-00SH	CONNECTOR 3.5 MM 8A -40 +85C 3P FEMALE	ROHS BRASS
3	Conn_01x04	Gaosong	15EDGK-3.5- 04P-14-00SH	CONNECTOR 3.5 MM 8A -40 +85C 4P FEMALE	ROHS, BRASS
1	Conn_01x06	Gaosong	15EDGK-3.5- 06P-14-00SH	CONNECTOR 3.5 MM 8A -40 +85C 6P FEMALE	ROHS ,BRASS
2	Conn_01x02	Gaosong	15EDGRC-3.5- 02P-14-00SH	CONNECTOR 3.5MM 8A 2P MALE -40+85C	ROHS ,BRASS
4	Conn_01x03	Gaosong	15EDGRC-3.5- 03P-14-00SH	CONNECTOR 3.5MM 8A 3P MALE -40+85C	ROHS, BRASS
3	Conn_01x04	Gaosong	15EDGRC-3.5- 04P-14-00SH	CONNECTOR 3.5MM 8A 4P MALE -40+85C	ROHS ,BRASS
1	Conn_01x06	Gaosong	15EDGRC-3.5- 06P-14-00SH	CONNECTOR 3.5MM 8A 6P MALE -40+85C	ROHS,BRASS
1	Eth_HR911105A	Hanrun	HR911105A	MODULAR JACK 8P8C (RJ45 ETHERNET)	0 C +70C ROHS
1	PCF8563T	NXP	PCF8563T/5-518	RTC IC CLOCK AND CALENDER	-40 +85 C ROHS TAPE AND REEL
2	Relay-1FormC	Panasonic	JS1-B-5V-FT	RELAY POWER 10A 5V DC 250V AC 1C PCB TYPE	TUV ,ROHS,VDE

www.technolife.com.tr

TECHNOLIFE BİLİŞİM SİSTEMLERİ
SANAYİ VE TİCARET LİMİTED ŞİRKETİ
Atatürk Mah. Erzurum Sok. No:11
Ataşehir / İST. Tel:0812 451 10 55
Kozyatağı V.D. : 833 047 9753





Test Laboratuvarları

AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

TECHNOLIFE
security & paymentsolutions

TECHNOLIFE BİLİŞİM SİST.SAN.TİC.LTD.ŞTİ.
KOZYATAĞI V.D. 833 047 9753
TİCARET SİCİL 761781

Adet Numb er	Bileşen adı Component name	Marka Brand	Model Type	Teknik özellikler Technicality	Standard ve Onay Belgesi Standart and Approval Document
1	25MHz	Raltron	H130B-25.000- 18-F-1030-EXT- TR	25MHZ CRYSTAL -40 +85C	ROHS TAPE AND REEL
1	40MHz	Raltron	R2520-40.000- 10-F-1010-EXT- TR	40 MHZ CRYSTAL -40 +85 C	ROHS TAPE AND REEL
1	RTL8201F	Realtek	RTL8201F-VB-CG	ETHERNET IC	
1	Fuse_2A	Reomax	MTS1200A	FUSE 2A 250V	-55 +125 C ROHS
2	32.768kHz	Seiko	SC325- 9PF20PPM	CRYSTAL	ROHS
1	TP554302	Texas Instruments	TP554302DDCR	IC -STEP DOWN CONVERTER VOLTAGE REGULATOR 3A	4.5V -28V ROHS TAPE AND REEL
1	Conn_RF	Würth	636101111001	RF CONNECTOR	ROHS

TECHNO LIFE BİLİŞİM SİSTEMLERİ
SANAYİ TİCARET LİMİTED ŞİRKETİ
Atatürk Mah. Erzincan Sok. No: 11
Atayehir - İST. Tel: 0212 451 10 55
Kozyatağı V.D. : 833 047 9753

www.technolife.com.tr





Test Laboratuvarları

AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

TIBO
ELECTRONICS

T810S-P001E

PCB 继电器

HJR-3FF

- 10A switching capability
- Small footprint
- Sealed type available
- Class B/F available
- Conform to RoHS,ELV directive



■ ORDERING CODE 订购代码

HJR-3FF — S — H F (TBF-1) / 12VDC / IT						
1	2	3	4	5	6	7
1. Relay Model 继电器型号	2. S 密封或塑封	3. 触点转换形式	4. Temperature Range 环境温度	5. Insulated Level 绝缘等级	6. Coil Nominal Voltage 线圈额定电压	7. GWIT 灼热丝
			F: UL/TUV 105°C VDE 85°C	TBF-1: Class F 级 Nil: 标准	3,5,6,9,12,18,24,48VDC	IT: 750°C (at 2 s) Nil: 标准
	H: Form A Z: Form C		Nil: UL/TUV 85°C VDE 70°C			

■ COIL DATA 线圈参数 (at 20°C)

Nominal Voltage额定电压(VDC)	3	5	6	9	12	18	24	48	0.36W
Coil Resistance线圈阻值 (Ω ±10%)	25	69	100	225	400	900	1600	6400	
Rated Current额定电流(mA)	120	71.4	60	40	30	20	15	7.5	
Max Operate Voltage 最大吸合电压(VDC)	2.25	3.75	4.5	6.75	9	13.5	18	36	
Min Release Voltage最小释放电压(VDC)	0.15	0.25	0.3	0.45	0.6	0.9	1.2	2.4	
Max Applicable Voltage 最大过载电压	70℃时额定电压的130%，23℃时额定电压的170%								

■ CONTACT DATA 触点参数

Contact Form 触点形式	1H/1Z	
Contact Material 触点材料	Silver Alloy	
Load 负载	Resistive load(COS Φ =1)	
Contact Ratings 触点负载	1H: 10A 240VAC 12A 120VAC	1Z: 7A 240VAC 10A 120VAC
Minimum load 最小负载	100mA 5VDC	
Max Switching Voltage 最大转换电压	250VAC/30VDC	
Max Switching Current 最大转换电流	15A	
Max Switching Power 最大转换功率	2770VA/240W	
Contact Resistance 接触电阻	100m Ω Max at 6VDC 1A	
Life Expectancy 寿命	Electrical 电气寿命: 100,000 Operations(at 30 Operations/minute) Mechanical 机械寿命: 10,000,000 Operations(at 3000 Operations/minute)	





Test Laboratuvarları

AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

Certificate IATF 0430153

Certificate ID14/02855

The management system of

SGS

PT. Panasonic Gobel Energy Indonesia

Kawasan Industri Gobel, Jl. Teuku Umar Km.44, Telaga Asih, Cikarang Barat, Bekasi, Jawa Barat, 17530, Indonesia

has been assessed and certified as meeting the requirements of

IATF 16949:2016

Edition 1

For the following Scope
Design and Manufacture of Lithium Batteries

EXCLUSIONS : None

3 Year certification is valid from 15 October 2021 until 14 October 2024 and remains valid subject to satisfactory surveillance audits.

Version no. 7, Current version updated 14 October 2022

Authorised by
Gatot Hartanto
Veto Power Authority

Contracted Office : SGS United Kingdom Ltd, Station Road, Oldbury, B69 4LN, UK.

Email : Neil.Hall@sgs.com



This document is an authentic electronic certificate for Client business purposes use only. Printed version of the electronic certificate are permitted and will be considered as a copy. This document is issued by the Company subject to SGS General Conditions of certification services available on [Terms and Conditions](#) | SGS. Attention is drawn to the limitation of liability, indemnification and jurisdictional clauses contained therein. This document is copyright protected and any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful.



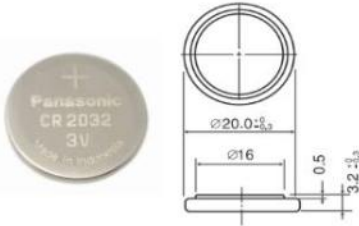
Page 1 / 2



Panasonic ENERGY

CR2032

CR Coin-type Lithium Battery



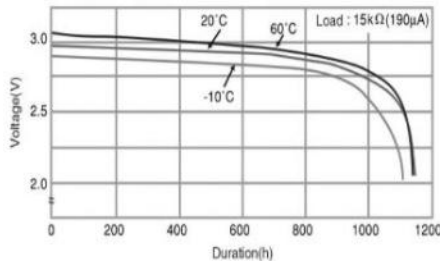
Features & Benefits

- Offers high-rate pulse discharge
- Available in a range of compact sizes and capacities, from thin-type to high-capacity models
- Excellent low-temperature performance enhanced by manganese-dioxide positive pole

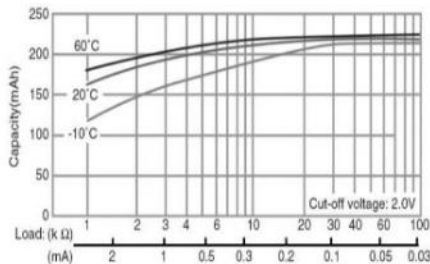
Applications

Remote keyless entry, Card remote controls, memory backup, security price tags, smart transmitter tags and others.

Discharge temperature characteristics



Capacity vs. load resistance



Specifications

Nominal voltage		3V
Nominal capacity		225mAh
Continuous drain		0.2mA
Dimensions* 1	Diameter(Max.)	20.0mm
	Height(Max.)	3.2mm
Weight*1		Approx. 2.8g
Operating temperature*2		-30°C to +85°C

*1 Without tabs.

*2 Please consult Panasonic when anticipating usage in operating temperatures of 70°C or above.

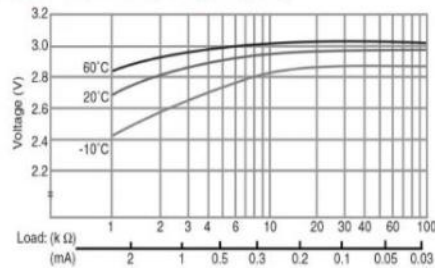
Terminal types

Please see the documents for the terminal and lead wire settings.

- [Line up of tab terminal types\(by shape\)](#)

- [Line up of tab terminal types\(by product number\)](#)

Operating voltage vs. load resistance (voltage at 50% discharge depth)



Panasonic Energy Co., Ltd.

<https://industry.panasonic.eu/products/energy-building/batteries/battery-cells/primary-batteries/lithium-batteries>

As of April, 2022, Panasonic offers batteries with tabs or lead wires. This data in this document is for descriptive purposes only and is not intended to make or imply any guarantee or warranty. The contents of this product information are subject to change without notice.





Test Laboratuvarları

AUDIO/VIDEO, BİLGİ VE İLETİŞİM TEKNOLOJİLERİ DONANIMI DENEYLERİ

Audio/Video, Information And Communication Technology Equipment Tests

TECHNOLIFE
security & paymentsolutions

TECHNOLIFE BİLİŞİM SİST.SAN.TİC.LTD.ŞTİ.
KOZYATAĞI V.D. 833 047 9753
TİCARET SİCİL 761781

AYNİYAT BEYANI

IDENTITY DECLARATION

Ürün
Product

Network Bağlantılı Kontrol Paneli
Networked Control Panels

Onayı talep edilen Marka / Model
Brand / Model whose approval is requested

Technolife TC-101
Technolife TC-101W
Technolife TC-101WB
Technolife TC-101P
Technolife TC-101C

Daha önce deneyi yapılan ve onaylanan Marka / Model
Brand / Model that has been tested and approved before

?

Belge ve Marka/işaretleme kullanma hakkı için başvuruda bulunduğumuz ürünün bütün teknik özelliklerinin (örneğin Elektriksel/Mekanik Güvenlik Esasları, yapı, özellikler, bileşenler vb) daha önce deneyi yapılan ürünle aynı olduğunu beyan ederiz. Beyanımızı destekleyen dokümanlar ekte verilmiştir.

We declare that the product for which we apply for the certificate is identical in all technical respects (e.g. Electrical/Mechanical Safety Aspects , construction, properties, and components etc.) to the tested specimen for which the initial test report was issued. Supporting documents for this declaration are in attached.

Üretici Kuruluşun Adı/adresi
Applicant's name and address

TECHNOLIFE BİLİŞİM SİSTEMLERİ SAN.TİC.LTD.ŞTİ

Yer ve Tarih
Place and date

İSTANBUL/TURKİYE
02 EKİM 2023

Başvuru Sahibinin Adı
Applicant's name

TECHNOLIFE BİLİŞİM SİSTEMLERİ SAN.TİC.LTD.ŞTİ.

Başvuru sahibini hukuken bağlayıcı imza
Legally binding signature of applicant

HARUN GÜMÜŞDOĞRAYAN

Kaşe imza

TECHNOLIFE BİLİŞİM SİSTEMLERİ
SANAYİ TİCARET LİMİTED SİRKETİ
Atatürk Mah. Erdincan Sok. No: 11
Ataşehir - İST. Tel: 0212 451 10 55
KOZYATAĞI V.D. : 833 047 9753

E-Posta
E-mail

harun.gumusdograyan@technolife.com.tr

Telefon No
Telephone no.

+90 212 451 10 55
+90 532 468 46 42

www.technolife.com.tr

