Advanced Safety Products

Technology Corp

CE

TEST REPORT

Quality • Reliability • Professionalism

A S P

ADVANCED SAFETY PRODUCT
ASP TECHNOLOGY CORP

No.439, Jhen Cian St., Shulin City, Taipei Hsien, Taiwan 238, R.O.C.
TEL:886-2-86841136, FAX:886-2-86841142, E-mail: asplab@so-net.net.tw, asp.twn@gmail.com

Table of Contents

ADVANCED SAFETY PRODUCT
ASP TECHNOLOGY CORP

No.439, Jhen Cian St., Shulin City, Taipei Hsien, Taiwan 238, R.O.C.
TEL:886-2-86841136, FAX:886-2-86841142, E-mail: ASPlab@so-net.net.tw, ASP.twn@gmail.com

致產品行銷歐洲之客戶 (CE Marking)

A. 自 1995 年 1 月 1 日起，銷歐之機械產品必需符合歐盟 MD 指令之後才能上市。
B. 自 1996 年 1 月 1 日起，銷歐產品必需符合歐盟 EMC 指令之後才能上市。
C. 自 1997 年 1 月 1 日起，銷歐產品必須同時符合 EMC 指令和低電壓指令 (LVD-Safety) 之後才能上市。
D. 自 2006 年 7 月 1 日起，銷歐產品必需符合歐盟 RoHS 指令之後才能上市。

技術檔案在行銷前必須準備齊全，以備歐聯國家機構隨時抽查，其內容至少包含：

1. Declaration of Conformity (DoC) Form — 必須由歐洲分公司或進口商簽名負責 (見附件樣本)。
2. EMC 測試報告、LVD-Safety 測試報告及 MD 評估報告 — 可由實驗室核發或透過認證機構。
3. 原始之設計圖稿及規格書(如：線路圖、方塊圖、PCB Layout 圖、User's Manual 和 Service Manual 等)
4. 敘述製造時之生產檢查程序，以確保 EMC、LVD-Safety 及 MD 特性之維持。
5. 任何會影響到 EMC、LVD-Safety 及 MD 的變更敘述和必要之測試記錄。

附註：* 產品上要貼上歐聯指令要求之 Label 標示。
* DoC 簽名負責之廠商，有責任確保銷售之產品在 EMC、LVD-Safety 及 MD 方面仍符合規定。
* 以上文件必需一份置於 DoC 簽名負責人手中備查。

安品科技有限公司
ASP TECHNOLOGY CORP
www.asp-lab.com.tw
No.439, Jhen Cian St., Shulin City, Taipei Hsien, Taiwan 238, R.O.C.
TEL:886-2-86841136, FAX:886-2-86841142, E-mail: ASPlab@so-net.net.tw, ASP.Twn@gmail.com

案件通知單

謹致: 亦電企業有限公司 陳世偉 先生 公司電話: (02)22186903 公司傳真: (02)22182804	日期: 98 年 11 月 16 日 聯繫: 鄭庭宇 #16

承蒙 台端賜教，不勝感激。僅將案件相關問題列舉於後，請 台端過目後惠賜尊見。

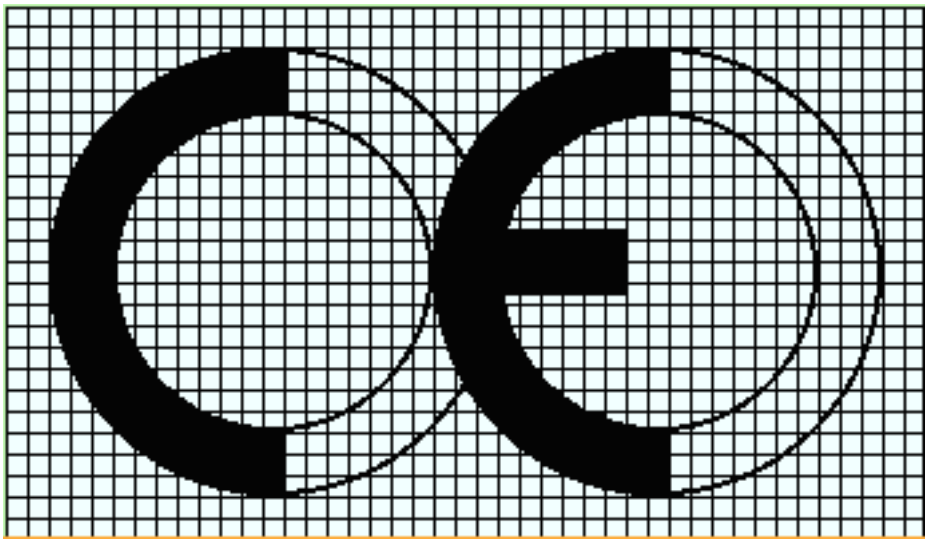
品名,型號	申請內容	備註
Toggle Switch Series, SN-1201(S), SN-1211(S), SN-1122(S), SN-1221(S), SN-1321(S), SN-1322(S)	CE LVD	

1. 在與貴司確認後，標籤上之型號應加註"-"，以符合測試報告。

2. 於產品外部或標籤上，應加印 CE logo，煩請參閱附件。

案件工程師	主管	客戶代表

CE 標誌



CE Marking 要求之 CE 字樣必需依照規定樣式依照比例製作，其最小高度不得小於 5mm，此 CE 字樣各認証機構認為最好同時出現在產品標籤和包裝箱外面。

A S P

ADVANCED SAFETY PRODUCT
ASP TECHNOLOGY CORP

No.439, Jhen Cian St., Shulin City, Taipei Hsien, Taiwan 238, R.O.C.
TEL:886-2-86841136, FAX:886-2-86841142, E-mail: asplab@so-net.net.tw, asp.twn@gmail.com

A.
CERTIFICATE OR DECLARATION OF CONFORMITY (IF ANY)

ADVANCED SAFETY PRODUCT
ASP TECHNOLOGY CORP

No.439, Jhen Cian St., Shulin City, Taipei Hsien, Taiwan 238, R.O.C.
TEL:886-2-86841136, FAX:886-2-86841142, E-mail: ASPlab@so-net.net.tw, ASP.twn@gmail.com

VERIFICATION OF CONFORMITY

We Hereby Certify that
ASP Reference: 9101210

The following mentioned Products have been test in typical configuration by ASP.

Product Type:

TOGGLE SWITCH SERIES

Model Name:

SN-1021, SN-1121, SN-1122, SN-1221, SN-1321, SN-1322, SN-1021S, SN-1121S, SN-1122S, SN-1221S, SN-1321S, SN-1322S

Applicant:

E-TEN ELECTRONIC CO., LTD.
5F, NO. 10, LANE 130, MIN-CHUAN RD., XINDIAN CITY,
TAIPEI, TAIWAN 23141

Is in compliance to the European Council Directive 2006/95/EC.

This is to certify on the basis of the tests undertaken. The submitted samples of the above item is considered to comply with:

EN 61058-1: 2002 + A2: 2008

CE

Based on the description of the LVD (2006/95/EC) directive, manufacturer or his authorized representative within EC shall affix the CE marking to the products if he ensure the products complies with the relevant standards and draw s up a declaration of conformity.

Signed for and on behalf of ASP Technology Corp.

Kevin Ku/ Manager.
ASP Technology Corp.

Advanced Safety Products Lab. ASP

Nov 19, 2009
Date.

The technical report issued by ASP will support you affix the CE marking.

EC DECLARATION OF CONFORMITY
- LOW VOLTAGE DIRECTIVE -

We herewith declares that the following designated product

TOGGLE SWITCH SERIES

SN-1021, SN-1121, SN-1122, SN-1221, SN-1321, SN-1322, SN-1021S, SN-1121S, SN-1122S, SN-1221S, SN-1321S, SN-1322S

(Product identification)

Complies with the requirement of the European Community Directive 2006/95/EC. This declaration applies to all specimens manufactured in accordance with the attached manufacturing drawings that form parts of this declaration.

Assessment of compliance of the product with the requirements relating to the Low Voltage Directive (LVD) was based on the following standards:

EN 61058-1: 2002 + A2: 2008

(Identification of regulations / standards)

This declaration is the responsibility of the manufacturer / importer

E-TEN ELECTRONIC., LTD.
5F, NO. 10, LANE 130, MIN-CHUAN RD., XINDIAN CITY, TAIPEI, TAIWAN 23141

(Name / Address)

CE

MANUFACTURER / IMPORTER

_____

(Date)

_____

(Surname, forename)
(Company Stamp)

Toggle Switch

上下開關

型號說明 Model Designation：

SN – 1221 – 1 – S – C

型式 Type	銘牌 Legend Plate	自動復歸 Spring Return	防雨套 Rainproof Cap

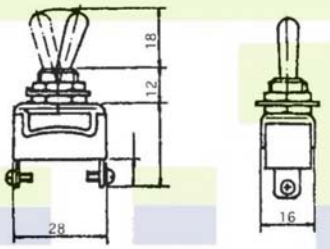
特性 Specification				
單極 Single Pole	SN-1021	ON	---	OFF
	SN-1121	ON	---	ON
	SN-1122	ON	OFF	ON
雙極 Double Pole	SN-1221	ON	---	OFF
	SN-1321	ON	---	ON
	SN-1322	ON	OFF	ON

附件Accessory：0.3mm鋁合金銘牌Aluminum Legend Plate

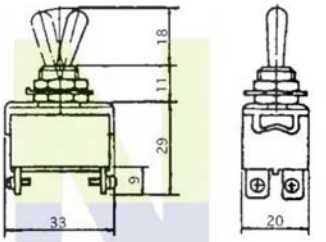
1	2	3
		

接點容量 Contact Capacity	AC250V/ 15A	
接觸電阻 Contact Resistance	10mΩ 以下（初期值） Below 10mΩ(Initial)	
絕緣電阻 Insulation Resistance	DC500V 之下，100mΩ 以上 Over 100mΩ under DC500V	
耐電壓 Dielectric Strength	AC1000V 一分鐘 AC1000V for 1 minute	
壽命 Service Life	機械 Mechanical	50,000 次/ 50,000 times
	電氣 Electric	30,000 次/ 30,000 times

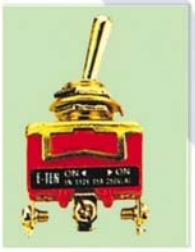
- **SN-1021** Φ12mm

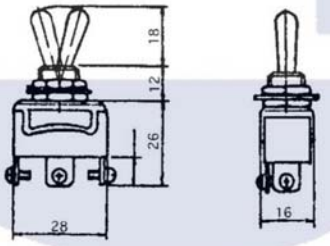


- **SN-1221** Φ12mm

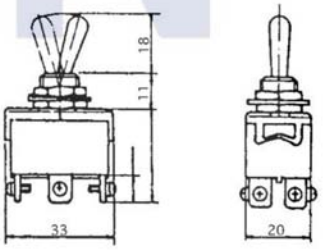


- **SN-1121** Φ12mm

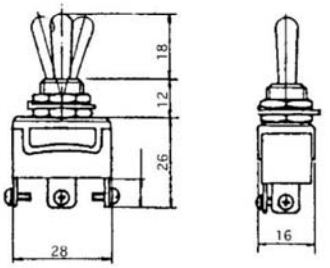




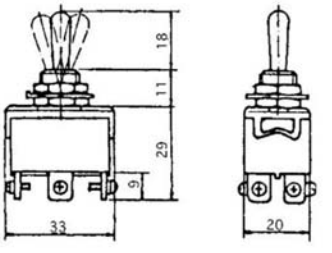
- **SN-1321** Φ12mm



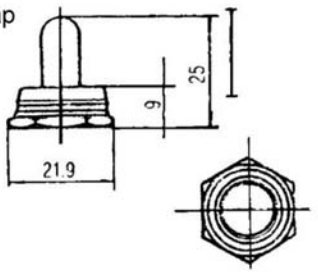
- **SN-1122** Φ12mm



- **SN-1322** Φ12mm



- **SN-C** 防雨套Rainproof Cap



以上產品分為 Products listed above are distinguished as：

SN-□：非自動復歸（螺絲）Non-spring return （Screw Type）

SN-□-S：自動復歸（螺絲）Spring return （Screw Type）

SN-□-T：端子式（焊接）Terminal （Soldering Type）

A S P

ADVANCED SAFETY PRODUCT
ASP TECHNOLOGY CORP

No.439, Jhen Cian St., Shulin City, Taipei Hsien, Taiwan 238, R.O.C.
TEL:886-2-86841136, FAX:886-2-86841142, E-mail: asplab@so-net.net.tw, asp.twn@gmail.com

B.
TEST REPORT

IEC/EN 61058-1
Switches for appliances

Report Reference No.....:	9101210
Date of issue.....:	2009.11.19
Total number of pages.....:	24
Applicant's name.....:	E-TEN Electronic Co., Ltd.
Address.....:	5F, No. 10, Lane 130, Min-Chuan Rd., Xindian City, Taipei, Taiwan 23141
Test specification:	
Standard .....:	EN 61058-1:2002 + A2:2008
Test procedure .....:	LVD report
Non-standard test method……..:	N/A
Test item description ..... :	Toggle Switch Series
Trade Mark .....:	E-TEN
Manufacturer .....:	E-TEN Electronic Co., Ltd. 5F, No. 10, Lane 130, Min-Chuan Rd., Xindian City, Taipei, Taiwan 23141
Model/Type reference.....:	SN-1321S
Ratings.....:	AC 250V, 15A

Tested by (name + signature) .....: Eric Cheng

Approved by (+ signature).....: Kevin Ku

Summary of testing:	
Tests performed (name of test and test clause):	**Testing location:** ASP TECHNOLOGY CORPORATION. No.439, Jhen Cian St., Shulin City, Taipei Hsien, Taiwan 238, R.O.C.
Summary of compliance with National Differences: **N/A**	
Copy of marking plate:	

CE

E-TEN Electronic Co., Ltd.

Product Type: Toggle Switch Series
Model: SN-1321S

Input: AC 250V, 15A

Test item particulars	:
Classification of installation and use	:Class I appliance.
Supply Connection	:--
.....	:--
.....	:--
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	:Nov 11, 2009
Date (s) of performance of tests	:Nov 12, 2009 ~ Nov 16, 2009

General remarks:

"(see remark #)" refers to a remark appended to the report.

"(see appended table)" refers to a table appended to the report.

Throughout this report a comma is used as the decimal separator.

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 testing laboratory.

General product information:

Model SN-1021, SN-1121, SN-1122, SN-1221, SN-1321, SN-1322, SN-1021S, SN-1121S, SN-1122S, SN-1221S, SN-1322S are identical to model SN-1321S except with different amount for connector pole and return mode.

Clause	Requirement - Test	Result - Remark	Verdict
8	MARKING AND DOCUMENTATION		P
8.1	Information provided by marking (Ma) or by documentation (Do)		P
	Switch with Common Type Reference (C.T.) or switch with Unique Type Reference (U.T.)..... :	C.T. / U.T.	P
8.1.1	Switch identification:		P
	- Ma: manufacturer's name or trademark..... :		P
	- Ma: type reference ..... :		P
8.1.2	Switch environment/mounting:		P
	- Do: degree of protection ..... :	IP20	N/A
	- Do: degree of protection against electric shock ..... :		P
	- Do: method of mounting ..... :	By electrician.	P
8.1.3	Temperature:		P
	- Ma (C.T.), Do (U.T.): ambient temperature limits..... :	25 degree C	P
8.1.4	Electrical load:		P
	- Ma (C.T.), Do (U.T.): rated voltage or rated voltage range (V)..... :	250Vac	P
	- Ma (C.T.), Do (U.T.): nature of supply..... :		P
	- Ma (C.T.), Do (U.T.): rated frequency (Hz) ..... :		N/A
	- Ma (C.T.), Do (U.T.): rated current: Ir; Im; Ic; Il (A) ..... :	15A	P
	- Do (U.T.): relevant details for declared specific loads ..... :		P
	- Ma/Do (C.T.), Do (U.T.): for switches for more than one circuit, the current (A) applicable to each circuit and to each terminal..... :		P
8.1.5	Terminals/conductors:		P
	- Ma: all terminals identified ..... :		P
	- Ma: terminals for earthing conductors, earth symbol ..... :		N/A
	- Do: information for terminal for prepared conductors or the use of a special tool..... :		N/A
	- Do: method of connection and disconnection for screwless terminals ..... :		P
	- Do: type of conductor to be connected to the terminal..... :		P
	- Do: suitability for interconnection of two or more conductors ..... :		N/A

Clause	Requirement - Test	Result - Remark	Verdict
	- Do: type of solder terminal ..... :		N/A
	- Do: suitability for connection of unprepared supply conductors ..... :		N/A
	- Do: suitability for connection of prepared supply conductors ..... :		N/A
	- Do: cord switch non-rewirable documented.... :		N/A
	- Do: cord switch suitability only for flat cords ... :		N/A
8.1.6	Operating cycles/sequence:		N/A
	- Ma (C.T.), Do (U.T.): number of operating cycles ..... :		N/A
	- Do: operating sequence for switch with more than one circuit ..... :		N/A
8.1.7	Signal indicator:		N/A
	- Ma: max. power of tungsten filament lamps (W) ..... :		N/A
	- Do: function of the illuminated indicator ..... :		N/A
8.1.8	Circuit disconnection:		P
	- Ma (C.T.), Do (U.T.): micro-disconnection ..... :		P
8.1.9	Insulating material:		P
	- Do: proof tracking index, PTI ..... :		P
8.1.10	Switch category:		P
	- Do: category of appliance ..... :		P
	- Do: category or type of luminaire according to IEC 60598-1 ..... :		P
8.4	Information about rated current and rated voltage ..... :	250Vac, 15A	P
8.5	Information about rated ambient temperature... :		N/A
8.6	Symbol for Class II not used ..... :		P
8.7	Information about rated operating cycles ..... :		N/A
8.8	Required marking shall preferably be on the body of the switch		P
	Not on screws, removable washers or other parts removable during installation of the switch		P

8.9	Marking shall be legible and durable:		P
	- water		P
	- hexane		P

Clause	Requirement - Test	Result - Remark	Verdict
8.10	Enclosed switches, direction of actuation shall be clearly indicated, "O" ..... :		P
8.10.1	Cord switches for luminaires, no OFF marking		P
9	PROTECTION AGAINST ELECTRIC SHOCK		P
9.1	Live parts not accessible when switches fixed and connected (except lamps with caps)		P
	Switches for Class II, metal parts not accessible if separated from live parts by basic insulation only		P
	Compliance is checked by inspection and with the standard test finger (IEC 60529)		P
	Lacquer, enamel, paper, cotton or similar not used for protection against contact with live parts (if soften in heat)		P
9.2	Actuating member shall be fixed adequately (if soften in heat)		P
9.3	Accessible parts of actuating members shall be of insulating material or accessible metal parts separated from live parts by double or reinforced insulation		P
9.4	Capacitors shall not be connected to unearthed metal parts		P
	Metal casing of capacitors shall be separated by supplementary insulation from accessible unearthed metal parts		P
9.10.1	Non-rewirable cord switches tested as delivered		P
10	PROVISION FOR EARTHING		P
10.1	Switches for Class II appliances shall have no provision for earthing the switch		N/A
	Terminals for earthing continuity only if separated from live parts by basic insulation or supplementary insulation for accessible parts		N/A
10.2	Earthing terminals and terminations shall not be connected electrically to neutral terminal		N/A
10.4	Connection of earthing terminal or termination shall be of low resistance; current (A): 1,5 times the rated current but not less then 25A; resistance not exceeding 50mΩ ..... :		N/A

Clause	Requirement - Test	Result - Remark	Verdict
10.5	Earthing terminals shall be of a size at least equal to corresponding current-carrying terminal; terminal size ..... :		N/A
	No loosening without a tool		N/A
	Clamping means locked against accidental loosening		N/A
10.6	Thread-cutting and thread-forming screws, at least two screws are used for each connection		N/A
10.7	No risk of corrosion between earthing terminal and the copper of the earthing conductor or any other metal		N/A
10.8	Body of an earthing terminal: brass or other metal no less resistant to corrosion		N/A
10.9	If the body is part of a frame or enclosure of aluminium alloy, precautions to prevent corrosion with copper		N/A
11	TERMINALS AND TERMINATIONS		P
11.1.1	Terminals for unprepared copper conductors and not requiring the use of a special purpose tool		P
11.1.1.1.1	Terminals shall be such that connection is made by screws, nuts, springs or other equally effective means		P
	No special purpose tool for connection or disconnection necessary		P
11.1.1.1.2	Terminals shall be fixed so that they do not work loose when the clamping means are tightened or loosened		P
	Floating terminals are permitted if they do not impair the correct operation		P
	Compliance: 10 times fastening and loosening; max. cross-sectional area (mm^2); torque (Nm) . :		P
11.1.1.1.3	Conductors cannot slip out from terminals while being connected or while the switch is being operated as intended:		N/A
	- max. cross-sectional area (mm^2)..... :		N/A
	- min. cross-sectional area (mm^2)..... :		N/A
	- number of conductors..... :		N/A
	- torque (Nm)..... :		N/A
	- after the test, conductor shall not have escaped from gap between the clamping means and retaining device		N/A

Clause	Requirement - Test	Result - Remark	Verdict
11.1.1.1.4	Terminals for flexible conductor located so that there is no risk of contact between live parts and accessible metal parts		N/A
	For Class II, between live parts and metal parts separated by supplementary insulation only from accessible metal parts		N/A
	Furthermore, no risk of short-circuiting those terminals electrically connected together by switch action		N/A
11.1.1.1.5	Terminals clamp the conductor without undue damage to the conductors		P
11.1.1.1.6	Insertion of the conductor is prevented by a stop, if further insertion may reduce creepage distances and/or clearance or influence the mechanism of the switch		N/A
11.1.1.2	Screw-type terminals for unprepared copper conductors		N/A
	Screw-type terminal ..... :		N/A
11.1.1.2.1	Terminals shall allow the connection of conductors:		N/A
	flexible: cross-sectional area (mm²): required; measured..... :		N/A
11.1.1.2.2	Terminals clamp the conductor reliably and between metal surfaces:		N/A
	- size ..... :		N/A
	- min. cross-sectional area (mm²)..... :		N/A
	- max. cross-sectional area (mm²)..... :		N/A
	- torque (Nm) ..... :		N/A
	- pull (N) for 1 min..... :		N/A
	- during the test, the conductor shall not move noticeably in the terminal		N/A
11.1.1.2.3	Screws and nuts for clamping the conductors shall not serve to fix any other parts		P
11.1.1.3	Screwless terminals for unprepared copper conductors		P
11.1.1.3.1	Screwless terminal shall allow the connection of conductor up to and including 1,5 mm² for flexible conductors; size (mm²) ..... :		P
	It shall be obvious how the insertion and disconnection are intended		N/A
	Disconnection of a conductor shall require an operation, other than a pull at the conductor		N/A
	Disconnection manually with or without the help of a tool		N/A

Clause	Requirement - Test	Result - Remark	Verdict
	Opening for the use of a tool clearly distinguishable from the opening for the conductor		N/A
11.1.1.3.2	Screwless terminals withstand mechanical stress occurring in normal use		N/A
	Conductor clamped reliably and between metal surfaces (if the current does not exceed 0,2)		N/A
	Flexible: five insertions and disconnections		N/A
	Size ..... :		N/A
	Number of conductors..... :		N/A
	Pull (N) for 1 min ..... :		N/A
	During the test, the conductor shall not come out of the terminal		N/A
	After the test, terminals and clamping means have not worked loose		N/A
11.1.1.3.3	Screwless terminals for interconnection of more than one conductor:		N/A
	- after insertion, operation of one clamping means is independent of the other		N/A
	- during the disconnection, conductors can be disconnected either simultaneously or separately		N/A
11.1.1.3.4	Screwless terminals withstand thermal stress occurring in normal use (this test is carried out for switch with number of operating cycles < 10 000 or when the clamping means forms part of the conductive path through the switch):		N/A
	- ambient temperature (°C) ..... :		N/A
	- rated current (A) ..... :		N/A
	- after the 192 Test cycles (duration 1), the temperature rise does not exceed 55..... :		N/A
11.1.1.4	Insulation piercing terminals for insulated unprepared copper conductors		N/A
	Requirements and tests under consideration		N/A
11.1.2	Terminals for unprepared copper conductor and/or requiring the use of a special purpose tool (not for rewirable cord switches)		P
11.1.2.1.1	Terminals shall allow the connection is made as declared (checked during the tests of clauses 16 and 19)		P
11.1.2.1.2	Terminals shall allow connection of conductors as declared; cross-sectional areas (mm^2): required; measured..... :		P
11.1.2.1.3	Connection reliably between metal surfaces, without undue damage to the conductor (checked during the tests of clauses 16 and 19)		P

Clause	Requirement - Test	Result - Remark	Verdict
11.1.2.1.4	Insertion of the conductor limited by a stop, if further insertion may reduce creepage distance and/or clearance or influence the mechanism of the switch		N/A
11.1.2.2	Screw-type terminals for prepared copper conductors		N/A
	No further specific requirements		N/A
11.1.2.3	Screwless terminals for prepared copper conductors		N/A
11.1.2.3.1	Terminals clamp the conductor between metal surfaces (except terminals for current ≤ 0,2)		N/A
11.1.2.3.2	Screwless terminals withstand thermal stress occurring in normal use (checked by test according to 11.1.1.3.4)		N/A
11.1.2.4	Tabs of flat quick-connect terminations		N/A
11.1.2.4.1	Tabs forming part of a switch comply with the dimensions according to fig. 7:		N/A
	- nominal size (mm)..... :		N/A
	- A (mm): required (max.); measured ..... :		N/A
	- B (mm): required (min.); measured ..... :		N/A
	- C (mm): required (+0,04/-0,03); measured ..... :		N/A
	- D (mm): required (± 0,1); measured..... :		N/A
	- E (mm): required (max.); measured ..... :		N/A
	- F (mm): required (max.); measured ..... :		N/A
	- G (mm): required (min.); measured..... :		N/A
	- H2 (mm): required (min.); measured..... :		N/A
	- I (mm): required (max. diameter); measured .. :		N/A
	Tabs with different dimensions are permitted to prevent any mating with female of fig. 8 and prescribed in IEC 760		N/A
11.1.2.4.2	Tabs may have an optional detent for latching (area EF, fig. 7)		N/A
11.1.2.4.3	Provision for non-reversible connections located in area EF		N/A
11.1.2.4.4	Material and plating of tabs shall be appropriate to the max. temperature:		N/A
	- max. temperature of tab (°C) ..... :		N/A
	- material and plating..... :		N/A
11.1.2.4.5	Tabs allow application withdrawal of female without damage to the switch:		N/A
	- tab size ..... :		N/A
	- push (N)..... :		N/A

Clause	Requirement - Test	Result - Remark	Verdict
	- pull (N) ..... :		N/A
	- no displacement or damage occurs		N/A
11.1.2.4.6	Tabs allow connection of the appropriate uninsulated female connectors (during the check no strain or distortion occurs to any of the tabs or adjacent parts)		N/A
11.1.2.5	Insulation piercing terminals for prepared insulated copper conductors		N/A
	Requirements and tests are under consideration		N/A
11.1.2.6	Solder terminals		P
11.1.2.6.1	Solder terminals shall have sufficient solderability, tests according to IEC 68-2-20, test Ta:		P
	- test method 1 (solder bath at 235 °C)		P
	- test method 2 (soldering iron at 350 °C)		N/A
	- soldering iron size		N/A
	- final measurement: temperature rise according to Cl. 16		N/A
11.1.2.6.2	Solder terminals shall have sufficient resistance to soldering heat:		P
	- type 1: checked during the tests of 11.1.2.6.1, after the tests the terminals shall not have worked loose or displaced in a manner impairing further use		P
	- type 2: tests according to IEC 68-2-20, test Tb: test method 1A (solder bath at 260 °C) test method 2 (soldering iron 350 °C) soldering iron size		P
	After the tests the terminals shall not have worked loose or displaced in a manner impairing further use		N/A
11.1.2.6.3	Solder terminals (see 7.2.12) provided with means for mechanically securing the conductor:		N/A
	- hole for hooking-in the conductors; or		N/A
	- edges shaped for wrapping-around; or		N/A
	- clamping means		N/A
11.1.3	Additional requirements for terminals for supply connection and the connection of external cords		N/A
11.1.3.1	Terminal located near its corresponding terminal of different polarity, and to the earthing terminal		N/A
	According to IEC 335-1 type of attachment ..... :		N/A

Clause	Requirement - Test	Result - Remark	Verdict
12	CONSTRUCTION		P
12.1	Constructional requirements relating to protection against electric shock		P
12.1.1	Basic and supplementary insulation tested separately when double insulation is employed		P
12.1.2	No reduction of creepage and clearance distances as a result of wear (see Cl. 20)		P
	If any conductive part becomes loose and moves out of position, creepage and clearance distances are not reduced to less than 50% (see Cl. 20)		P
12.1.3	Integrated conductors rigid, fixed or insulated so that creepage and clearance distances are not reduced (see Cl. 20)		P
12.1.3.1	Solder terminals according to 7.2.13, additional provision must be provided		P
12.2	Constructional requirements relating to safety during mounting and normal operation of the switch		P
12.2.1	Covers, cover plates, removable actuators and the like displaced or removed only by use of a tool		N/A
	Fixings for a cover or cover plate do not serve to fix any other parts except actuating member		N/A
	Not possible to mount removable parts such that indication of switch positions does not correspond with the actual switch position		N/A
12.2.2	Fixing screws of covers or cover plates captive		N/A
12.2.3	When the actuating member is removed switch not damaged (checked by tests of 18.4)		P
12.2.4	Pull-cord insulated from live parts		P
	Possibility to fit or to replace without removing parts causing accessibility to live parts		P
12.2.5	Illuminated indicator incorporated in a switch provides the correct indication as declared; marked voltage (V) ..... :	No illuminated indicator	N/A
12.3	Constructional requirements relating to the mounting of switches and to the attachment of cords:		P
12.3.1	Method of mounting of switches does not adversely affect compliance with this standard		P
12.3.1.1	Switch cannot rotate or be displaced, cannot be removed from an appliance without the aid of a tool		P

Clause	Requirement - Test	Result - Remark	Verdict
	If the removal of a part is necessary during the normal use, requirements of clauses 9, 15 and 20 are satisfied before and after the removal		P
12.3.10.1	Cord anchorages, conductors relieved from strain and twisting, sheath of the cord protected from abrasion and kept in position		N/A
12.3.10.2	Clear how relief from strain and twisting is effected		N/A
12.3.10.3	Makeshift method not used		N/A
12.3.10.4	Cord anchorages shall be of insulating material or if of metal, insulated from accessible metal parts and insulating surfaces by supplementary insulation		N/A
12.3.10.5	Cord anchorages of rewirable cord switches do not fall out when the cover is removed		N/A
12.3.10.6	Cord anchorages so designed that:		N/A
	- cord is not fixed by penetration of its insulation		N/A
	- cord cannot touch clamping screws of the cord anchorage (if accessible)		N/A
	- cord is not clamped by a screw (if of metal)		N/A
	Rewirable switches		N/A
	- at least one part securely fixed to the switch		N/A
	- replacement of the cord does not use a special tool		N/A
	- suitable for different types of cords		N/A
12.3.10.7	Rewirable switches: replacement of cord easy; compliance checked by pull and torque tests		N/A
	Non-rewirable:		N/A
	- type of cord..... :		--
	- nominal cross-sectional area (mm^2)..... :		--
	Rewirable:		N/A
	- round cord: nominal cross-sectional area (mm^2) ..... :		--
	- flat cord: nominal cross-sectional area (mm^2). :		--
	Clamping screws of cord anchorage:		N/A
	- insulating type; torque (2/3): torque (Nm) ..... :		N/A
	- metal type; torque (2/3): torque (Nm)..... :		N/A
	Pull test: pull 100 times at 60s		N/A
	Torque test: torque (Nm) for 1 min ..... :	0,15 m / 0,25 m	N/A

Clause	Requirement - Test	Result - Remark	Verdict
	During the test, cord not damaged		N/A
	After the test, displacement ≤ 2 mm ..... :		N/A
	no strain at the connection		N/A
	creepage distances and clearances not reduced		N/A
	no break in the electrical connections (non-rewirable switch)		N/A
12.3.10.8	Non-rewirable switches: cord complying with HD 21 or HD 22..... :	HD 21 / HD 22	N/A
12.3.10.9	Screws do not serve to fix any other component, unless		N/A
	switch is rendered inoperable or manifestly incomplete		N/A
	Component cannot be removed without a tool		N/A
12.3.10.10	Cords are capable of withstanding the bending		N/A
	Inlet or bushing no sharp edges		N/A
	Cord-guard not integral with the cord, except		N/A
	switches classified according to 7.2.3		N/A
	Flexing test (5000 flexings, weight: 1 g):		N/A
	- rated current (A) ..... :		--
	- type of cord; cross-sectional area (mm²)..... :		--
	- type of cord; cross-sectional area (mm²)..... :		--
	During the test:		N/A
	- no interruption of the test current		N/A
	- no short-circuit between conductors		N/A
	After the test, no damage		N/A
12.3.10.11	Rewirable switches: adequate space for external conductors		N/A
	Possibility to check correct connection		N/A
12.3.11.12	Rewirable single-pole switch: additional terminal(s) for non-switched conductor(s)		N/A
	Terminals allow the connection of both incoming and outgoing ends		N/A
12.3.10.13	Non-rewirable switches shall have soldered, welded or crimped terminations..... :		N/A

Clause	Requirement - Test	Result - Remark	Verdict
12.3.10.14	Prewired switch: current rating of the cord compatible with the current of table 102; rated current (A); nominal cross-sectional area (mm^2): required; measured ..... :		N/A
12.3.10.15	Rewirable switches provided for earthing continuity: ample space for slack protective earth conductor		N/A
	Test: protective earth conductor led to its terminals and cut off 8 m longer than necessary; possibility to house the loop freely without squeezing or pressing the core		N/A
12.3.10.16	Switches with means for suspension shall have adequate mechanical strength		N/A
	Test (barrier): cylindrical steel rod pushed with a force of 75N for 10s; the rod shall not pierce the barrier		N/A
	Pull test: pull 60s for 10N to supply flexible cord; during the test, means for suspension shall not break, or		N/A
	if broken live parts shall not become accessible to test finger		N/A
12.3.10.17	Pull test with a round head screw: pull 50s for 10N ; during the test, means for suspension shall not break, or		N/A
	if broken live parts shall not become accessible to test finger		N/A
13	MECHANISM		P
13.1	For d.c. switches, speed of contacts independent of the speed of actuating except switches $\leq$ 28V or $\leq$ 0,1A		P
13.2	Moving contacts rest only in ON and OFF position (intermediate position permitted)		P
	ON position if contact pressure is sufficient (checked by tests of Cl. 16)		P
	OFF position if separation of the contact is adequate, checked by tests of clauses 15 and 20		P
	Intermediate position checked by test of Cl. 15 for OFF position		P
13.3	Rest position, automatic return to one of them after release (except only one rest position)		P

Clause	Requirement - Test	Result - Remark	Verdict
13.4	Cord operated switch after actuating, parts of mechanism are in position to allow the next cycle of actuation; pull 45° vertically downwards, or		N/A
	70N at 45° to the vertical		N/A
13.5	Multi-pole switch, all poles make and break simultaneously		P
	Neutral makes before and breaks after the other poles		P
14	PROTECTION AGAINST INGRESS OF SOLID OBJECTS, DUST AND WATER AND PROTECTION AGAINST HUMID CONDITIONS		P
14.1	Protection against ingress of solid objects: degree of protection ..... :		P
14.2	Protection against ingress of dust: IP number, first numeral; no deposit of dust inside (IP6x) ... :	IP2X	P
14.3	Protection against harmful ingress of water: IP number, second numeral ..... :	IPX0	P
	- temperature (°C): 70°C, (T + 30) °C or..... :		N/A
	- glands: torque (Nm) ..... :		N/A
	- fixing screws for enclosures: torque (Nm)..... :		N/A
	- after test switch withstands electric test specified in 15.3		P
	No trace of water or reduction of creepage and clearance distances (see Cl. 20)		P
14.4	Protection against humid conditions:		P
	- duration: 48hrs for IPx0, 168hrs for other switches..... :	48hrs	P
	- switch does not show any damage		P
15	INSULATION RESISTANCE AND DIELECTRIC STRENGTH		P
15.2	Insulation resistance (500Vdc for 1 min):		P
	- operational insulation: ≥ 2 Ω..... :		P
	- basic insulation: ≥ 2 Ω..... :		P
	- supplementary insulation: ≥ 5 Ω..... :		N/A
	- reinforced insulation: ≥ 7 Ω..... :		P
15.3	Dielectric strength:		P
	- rated voltage (V)..... :	250Vac	P

Clause	Requirement - Test	Result - Remark	Verdict
	- functional insulation, test voltage (V) ..... :		N/A
	- basic insulation, test voltage (V) ..... :	1500Vac	P
	- supplementary insulation, test voltage (V) ..... :	1500Vac	P
	- reinforced insulation, test voltage (V) ..... :	3000Vac	P
	- across full disconnection, test voltage (V) ..... :	1500Vac	P
	- across micro-disconnection, test voltage (V) .. :	500Vac	P
	No flashover or breakdown shall occur		P
16	HEATING		P
16.2	Contacts and terminals:		P
	- ambient temperature of actuating member .... :	<55°C	P
	- ambient temperature of other parts:	<55°C	P
	- rated current (A) ..... :	15A	P
	- rated voltage (V) ..... :	250Vac	P
	- test current, 1,06 times max. rated current (A) :	15.9A	P
	- test voltage (V) ..... :	250Vac	P
	- cross-sectional area (mm²) ..... :		--
	- terminals, torque (Nm) ..... :		--
	Temperature rise at the terminals not exceeding 45° (supplementary test: samples 4, 5, 6) ..... :	1) 2) 3) 4) 5) 6)	P

16.3	Other parts of switches do not attain excessive temperatures during the normal use:		P
	- test current (A): 1.06 times max. rated current :	15.9A	P
	- ambient temperature ..... :	25°C	P
	Other heating sources: max. declared power (W) ..... :	3969W	P
	Test voltage (V) ..... :	250Vac	P
	Temperature rise of rubber or polyvinyl chloride insulation of non-detachable cables and cords:		P
	- without T-marking ≤ 75 °C ..... :		P
	- with T-marking ≤ T °C ..... :		N/A
	Temperature rise of cord sheaths used as supplementary insulation ≤ 60 °C ..... :		P

Clause	Requirement - Test	Result - Remark	Verdict
	Temperature rise of rubber, other than synthetic, used for gasket or other parts:		P
	- when used as supplementary insulation or as reinforced insulation ≤ 65 °C..... :		P
	- in other cases ≤ 75 °C ..... :		P
	Temperature rise of material used as insulation other than that specified for wires:		P
	- thermosetting materials ..... :		P
	- thermoplastic materials..... :		P
	Temperature rise of outer surface of capacitors:		P
	- with marking of maximum operating temperature (T) ≤ (T - 10) °C ..... :		P
	- without marking of maximum operating temperature, small ceramic capacitors for radio and television interference suppression ≤ 75 °C:		P
	- without marking of maximum operating temperature, other capacitors ≤ 45 °C ..... :		P
	Temperature rise of all accessible surfaces except those of actuating members or handles ≤ 85 °C..... :		P
	Temperature rise of accessible surfaces of actuating members or handles which are held for short periods only:		P
	- of metal ≤ 60 °C ..... :		P
	- of porcelain or vitreous material ≤ 70 °C ..... :		P
	- of moulded material or rubber ≤ 85 °C ..... :		P

17	ENDURANCE		P
	Rated voltage (V) ..... :	250Vac	P
	Rated current (A)..... :	15A	P
	Ambient temperature ..... :	30°C	P
	Operations per min..... :	30 per min	P
	Type of circuit ..... :		P
17.2.4	Increased voltage test at accelerated speed:		P
	- test voltage (V): 1,15 n..... :	287.5Vac	P
	- test current, making (A)..... :		P
	- test current, breaking (A) ..... :		P
	- number of cycles: 100; time constant (ms) ..... :		P

Clause	Requirement - Test	Result - Remark	Verdict
	- samples 1, 2, 3..... :	1) 2) 3)	P
	- supplementary test: samples 4, 5, 6..... :	4) 5) 6)	P
17.2.5	Test at low speed:		P
	- test voltage (V) ..... :	287.5Vac	P
	- test current, making (A)..... :		P
	- test current, breaking (A) ..... :		P
	- number of cycles: 100; time constant (ms) ..... :		P
	- samples 1, 2, 3..... :	1) 2) 3)	P
	- supplementary test: samples 4, 5, 6..... :	4) 5) 6)	P
17.2.6	Test at high speed (only for switches with more than one pole):		P
	- test voltage (V) ..... :	287.5Vac	P
	- test current, making (A)..... :		P
	- test current, breaking (A) ..... :		P
	- number of cycles: 100; time constant (ms) ..... :		P
	- samples 1, 2, 3..... :	1) 2) 3)	P
	- supplementary test: samples 4, 5, 6..... :	4) 5) 6)	P
17.2.7	Test at accelerated speed:		P
	- test voltage (V) ..... :	287.5Vac	P
	- test current, making (A)..... :		P
	- test current, breaking (A) ..... :		P
	- number of cycles; time constant (ms) ..... :		P
	- samples 1, 2, 3..... :	1) 2) 3)	P
	- supplementary test: samples 4, 5, 6..... :	4) 5) 6)	P
17.3	After all tests, switch is deemed to comply if:		P

Clause	Requirement - Test	Result - Remark	Verdict
	- all actions function as declared		P
	- temperature rise at the terminals does not exceed 55 degree C (supplementary test: samples 4, 5, 6)..... :	1) 2) 3) 4) 5) 6)	P
	- reduced (75%) dielectric strength requirement is met, test voltage (V) ..... :		P
	- no fault between live parts and earth metal, accessible metal part, or actuating member has occurred		P
18	MECHANICAL STRENGTH		P
18.1	Switches have adequate mechanical strength		P
18.1.1	Accessible parts of actuating members have adequate mechanical strength or adequate protection if the actuating member is broken. Checked by tests of 18.2, 18.3, 18.4 as appropriate		P
18.2	Impact test, three blows of:		P
	- 0,5 m for all accessible surfaces	No damage.	P
	- 1,0 m for foot-actuated switches		N/A
	Foot-operated switches, in addition, subjected to a force of 750N for 1 min		N/A
	After the tests, switches comply with the requirements of clauses 9, 13, 15 and 20		P
	Insulating lining, barriers have not worked loose		P
	Possibility to remove and to replace detachable and other external parts		P
18.3	Cord-operated switches: no damage after pull test; pull (N), normal direction for 1 min; pull (N), 45° from normal direction for 1 min ..... :		N/A
18.4	Actuating member:		N/A
	- pull test to try to pull off: pull (N) for 1 min ..... :	15 / 30	N/A
	- push test: 30N for 1 min for all actuating members		N/A
	After the tests specimen shows no damage		N/A
	Pull and push of 30N applied to the actuating means if without actuating member		N/A
18.10.1	Tumbling barrel:		N/A

Clause	Requirement - Test	Result - Remark	Verdict
	- rewirable: cord type; cross-sectional area (mm^2) ..... :		N/A
	- non-rewirable as delivered		N/A
	- number of falls..... :	1000 / 500 / 100	N/A
	- during the test: connection shall not become loose		N/A
	- after the test, no damage		N/A
18.10.2	Compression test: 3 compressions in three different positions; force of 250N increased to 750N and maintained for 1 min; after the test, no damage	No damage.	P
19	SCREWS, CURRENT-CARRYING PARTS AND CONNECTIONS		P
19.1	General requirements for electrical connections: contact pressure is not transmitted through insulating material other than ceramic or like, unless there is sufficient resiliency (not applicable for connections with current ≤ 20 A)		P
19.2	Screwed connections		P
19.2.1	Screwed connections, electrical or other withstand mechanical stresses		P
19.2.2	Screws transmitting contact pressure in engagement with a metal thread		P
	Screws not of soft metal or metal liable to creep, such as zinc or aluminium		P
19.2.3	Screws operated during the mounting of switches not of the thread-cutting type		P
19.2.4	Thread-forming screws not used for connection of current-carrying parts (unless they use a suitable means of locking)		P
	Thread-cutting screws not used for electrical connection of current-carrying parts (unless they generate ISO hread or equivalent)		P
	Provisionally SI, BA and UN are equivalent to ISO hread		P
	Screws or nuts tightened and loosened:		P
	- 10 times for screws in engagement with a thread of insulating material		N/A
	- 5 times for all other cases		P
	Nuts concentric with the button: tightened and loosened 5 times:		P
	- 0,8 m if insulating material		P

Clause	Requirement - Test	Result - Remark	Verdict
	- 1,8 m if metal		P
	Terminal screws: diameter (mm); torque (Nm) . :	3.9mm, 1.2Nm	P
	Assembly screws: diameter (mm); torque (Nm) :	4.87mm, 2.0Nm	P
	Cord anchorages: diameter (mm); torque (Nm) :		N/A
	Other screws: diameter (mm); torque (Nm) ..... :	3.88mm, 1.2Nm	P
	During the test, terminals do not work loose and no damage		P
19.2.5	Screwed glands:..... :	metal / insulating	N/A
	Diameter metal rod (mm); torque (Nm) ..... :		N/A
	After the test, the glands and the enclosure show no damage		N/A
19.2.6	Correct introduction of the screws into the screw holes ensured		N/A
19.2.7	Screws and rivets locked against loosening		N/A
19.2.8	Screws and nuts for clamping the conductors have ISO hread or equivalent		N/A
	Provisionally SI, BA, UN are comparable to ISO		N/A
	Checked by tests of 19.2		N/A
19.3	Current-carrying parts, material of current-carrying parts and earthing parts shall be:		P
	- copper, or		P
	- 58% copper for parts worked cold, or		P
	- 50% for other parts		P
	- stainless steel, or		P
	- steel with coating of zinc (ISO 2081)		P
	- steel with coating of nickel and chromium (ISO 1456)		P
	- steel with coating of tin (ISO 2093)		P
	Parts subjected to arcs not of steel with an electroplated coating		P
19.10.1	Insulating material screws: diameter (mm); torque (Nm) ..... :		--
	Insulating material screws: diameter (mm); torque (Nm) ..... :		--
19.10.2	Not possible to replace screws of insulating material with metal screws (if impair safety)		P
20	CLEARANCES, CREEPAGE DISTANCES AND DISTANCES THROUGH INSULATION		P

Clause	Requirement - Test	Result - Remark	Verdict
	Clearances and creepage distances		N/A
	Distance through insulation:		N/A
	- basic insulation, ≥ 1,0 mm ..... :		P
	- reinforced insulation, ≥ 2.0 mm ..... :		N/A
	- supplementary insulation, ≥ 1,0 mm..... :		P
21	RESISTANCE TO HEAT, FIRE AND TRACKING		P
21.1.1	Resistance to heat and fire for accessible parts:		P
	- ball-pressure test: test temperature; diameter of impression ≤ 2 mm..... :		N/A
	- glow-wire test at 650 °C : no visible flame or		N/A
	- flame extinguishes within 30s..... :		N/A
21.1.2	Resistance to heat and fire for parts in contact with or support current-carrying parts:		P
	- ball-pressure test: test temperature; diameter of impression ≤ 2 mm..... :		N/A
	- glow-wire test at 650 °C: no visible flame or		N/A
	- flame extinguishes within 30s..... :		N/A
21.1.3	Resistance to heat and fire for parts in contact with, maintain, or retain in position electrical connections:		P
	- ball-pressure test: test temperature; diameter of impression ≤ 2 mm..... :		N/A
	- glow-wire test: test temperature; no visible flame or..... :		N/A
	- flame extinguishes within 30s..... :		N/A
21.1.4	Resistance to heat and fire for all other parts:		P
	- glow-wire test at 550 °C: no visible flame or		N/A
	- flames extinguish within 30s..... :		N/A
21.2	Resistance to tracking:		P
	- 50 drops; test voltage (V); PTI (V) ..... :	175 / 250V	P
	- no flashover or breakdown (test not carried out for switches ≤ 50 or for use in clean situations)		P
22	RESISTANCE TO RUSTING		P
	Ferrous parts adequately protected against rusting; no signs of rust after exposure to ammonium chloride and moisture treatment in saturated air		P

Clause	Requirement - Test	Result - Remark	Verdict
23	ABNORMAL OPERATION AND FAULT CONDITIONS FOR ELECTRONIC SWITCHES		N/A
24	COMPONENTS FOR ELECTRONIC SWITCHES		N/A
24.1	Protective devices		N/A
24.1.1	Fuses		N/A
24.1.2	Cut-outs		N/A
24.1.2.1	Non-resettable cut-outs		N/A
24.1.2.2	Resettable, non-self-resetting cut-outs		N/A
24.1.2.3	Self-resetting cut-outs		N/A
24.1.3	Protective devices which only decrease the current (for example PTC resistors)		N/A
24.1.4	Fusing resistors		N/A
24.2	Capacitors		N/A
24.3	Resistor		N/A
25	EMC REQUIREMENTS		P
25.1	Immunity		P
25.1.1	Voltage dips and short interruptions		P
25.1.2	Withstand to 1, 2/ 50 wave impulses		P
25.1.3	Electrical fast transient test		P
25.1.4	Electrostatic discharge test		P
25.1.5	Radiated electromagnetic field test		P
25.1.6	Power-frequency magnetic field test		P
25.2	Emission		P
25.2.1	Low-frequency emission		P
25.2.2	Radio-frequency		P

A S P

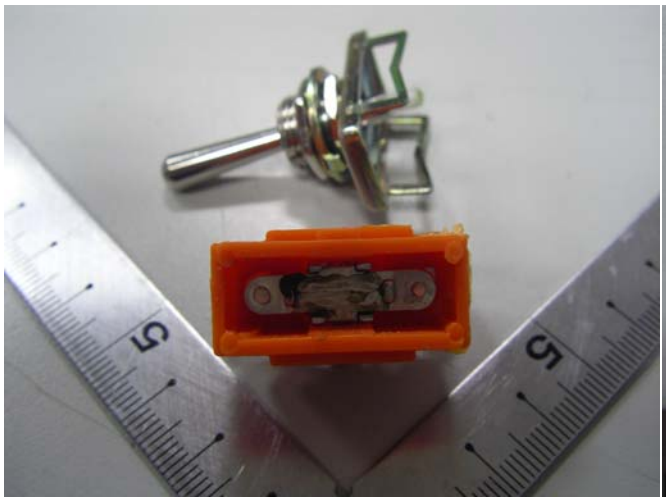
ADVANCED SAFETY PRODUCT
ASP TECHNOLOGY CORP

No.439, Jhen Cian St., Shulin City, Taipei Hsien, Taiwan 238, R.O.C.
TEL:886-2-86841136, FAX:886-2-86841142, E-mail: asplab@so-net.net.tw, asp.twn@gmail.com

C.
CONSTRUCTION PHOTOS(IF ANY)

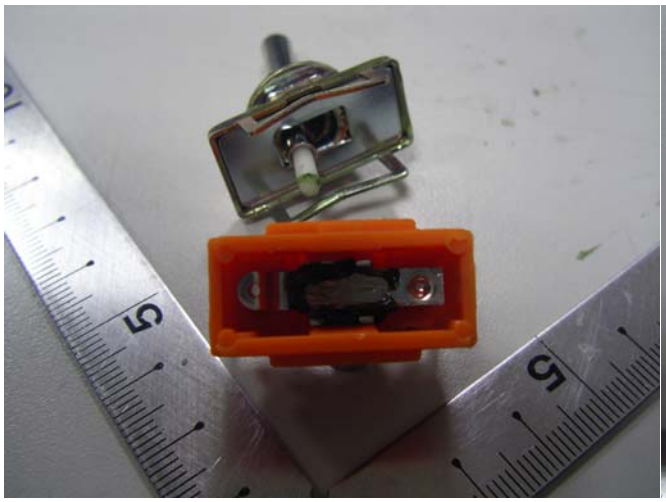
Annex. EUT Photographs

Model: SN-1021



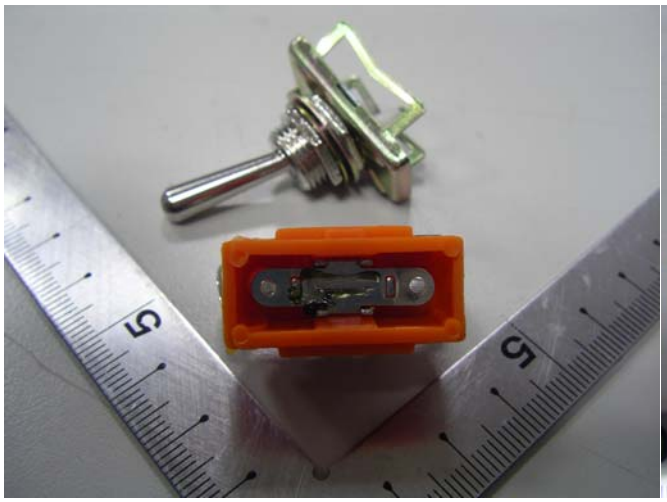
Annex. EUT Photographs

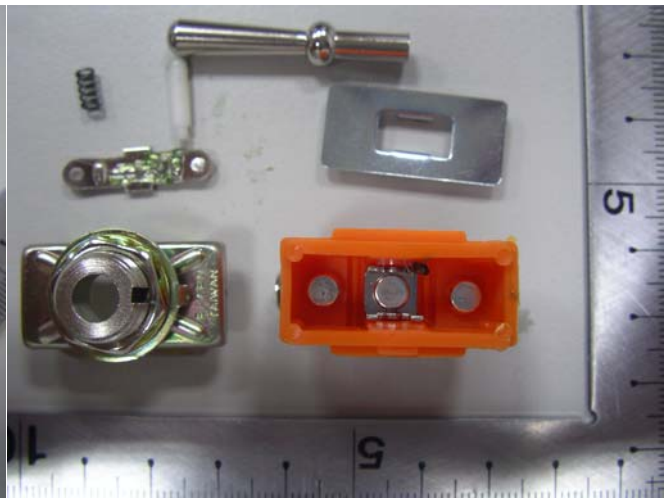
Model: SN-1021S



Annex. EUT Photographs

Model: SN-1121





Annex. EUT Photographs

Model: SN-1121S

Annex. EUT Photographs

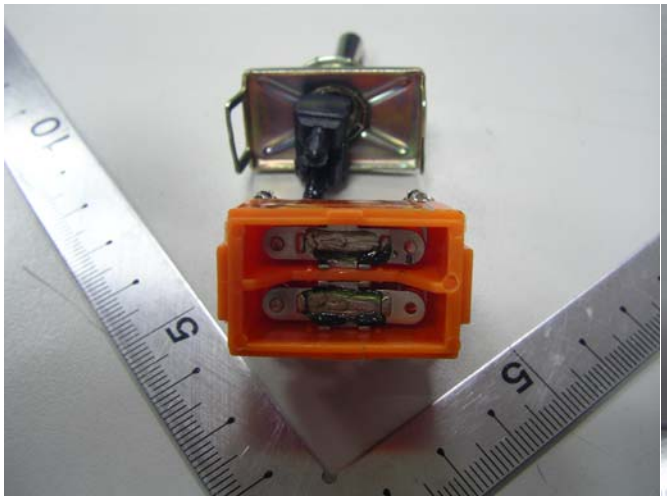
Model: SN-1122

Annex. EUT Photographs

Model: SN-1122S

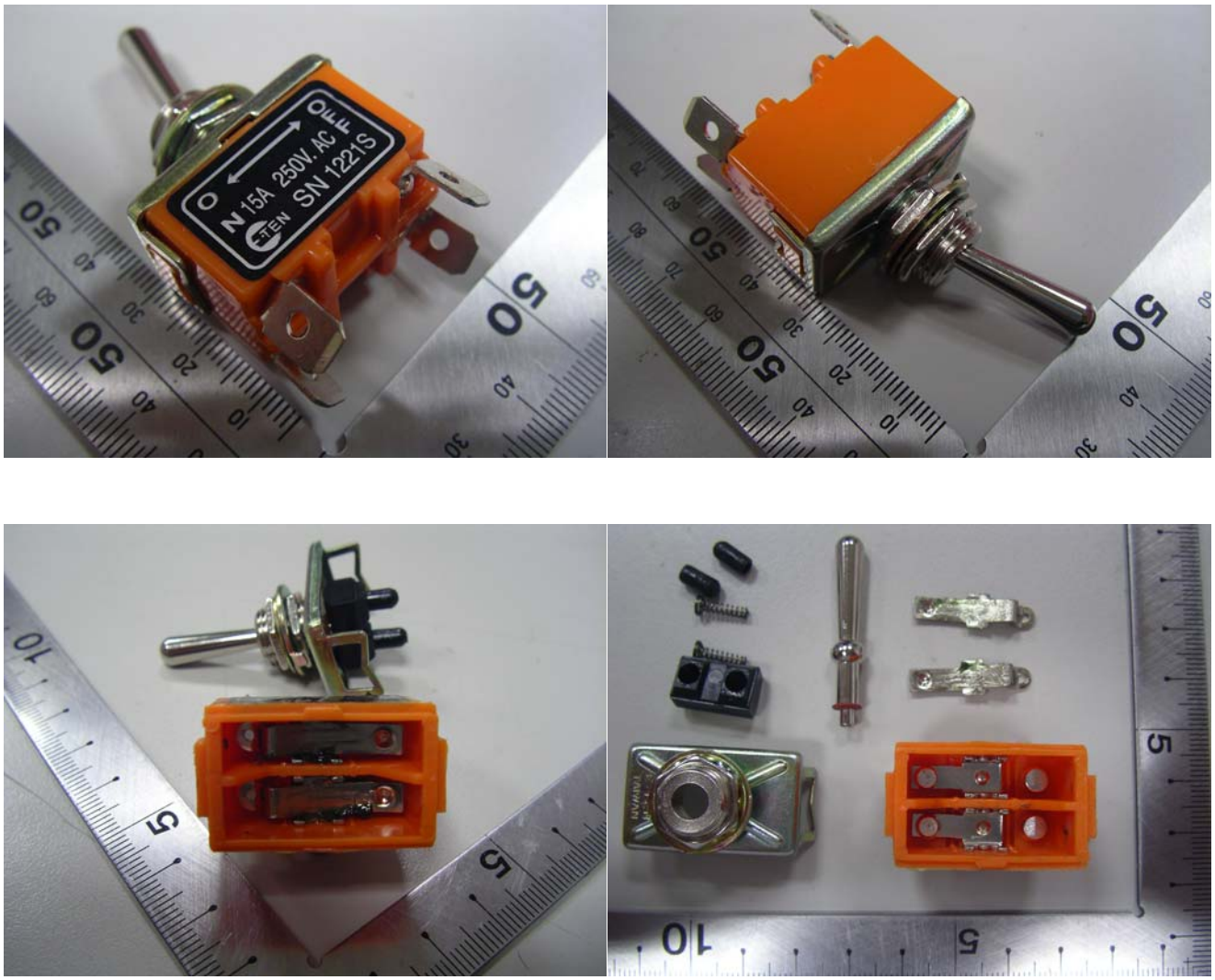
Annex. EUT Photographs

Model: SN-1221



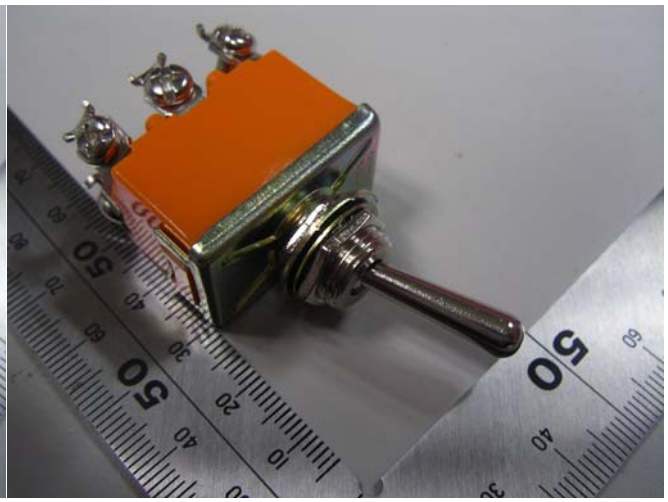
Annex. EUT Photographs

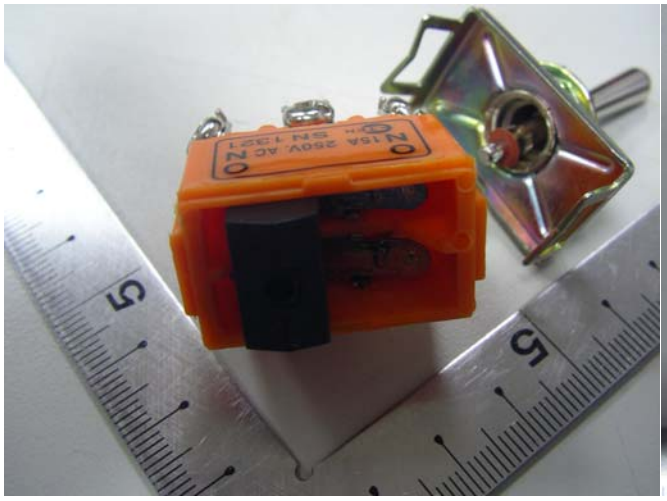
Model: SN-1221S



Annex. EUT Photographs

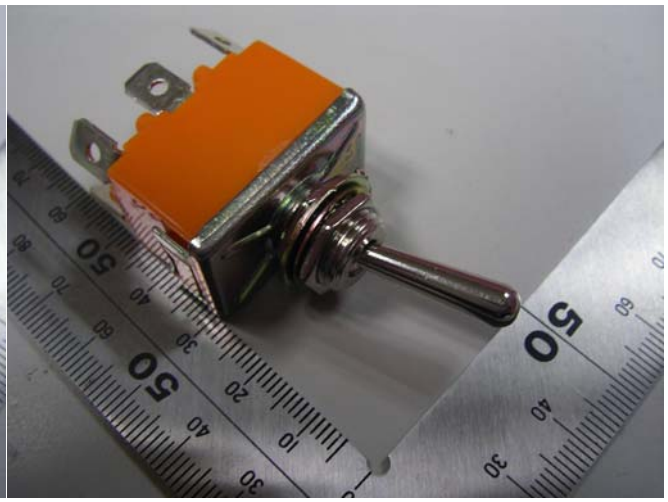
Model: SN-1321

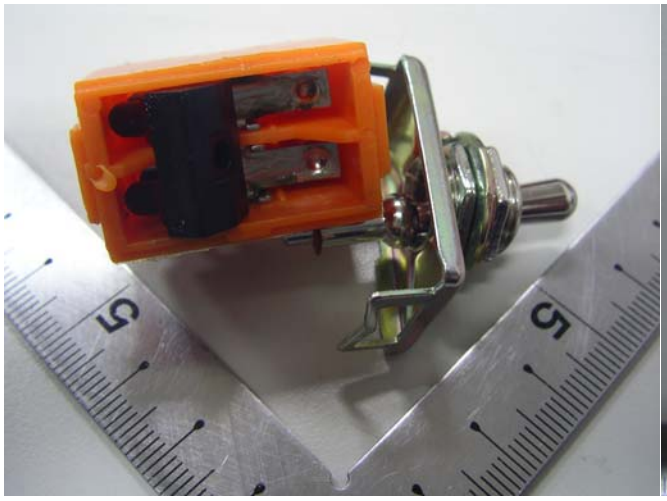




Annex. EUT Photographs

Model: SN-1321S





Annex. EUT Photographs

Model: SN-1322

Annex. EUT Photographs

Model: SN-1322S

A S P

ADVANCED SAFETY PRODUCT
ASP TECHNOLOGY CORP

No.439, Jhen Cian St., Shulin City, Taipei Hsien, Taiwan 238, R.O.C.
TEL:886-2-86841136, FAX:886-2-86841142, E-mail: asplab@so-net.net.tw, asp.twn@gmail.com

D.
ORIGINAL DESIGN DRAWINGS & SPECIFICATIONS INCLUDING SCHEMATICS, BLOCK DIAGRAMS, AND USER OR SERVICE MANUAL

A S P

ADVANCED SAFETY PRODUCT
ASP TECHNOLOGY CORP

No.439, Jhen Cian St., Shulin City, Taipei Hsien, Taiwan 238, R.O.C.
TEL:886-2-86841136, FAX:886-2-86841142, E-mail: asplab@so-net.net.tw, asp.twn@gmail.com

E.
ALL MODIFICATIONS THAT MAY AFFECT COMPLIANCE WITH THE EMI OR LVD REQUIREMENTS & NECESSARY TEST DATA