Product Service

Safety Screening Report

Report: 071-75924520-302 **Date:** 09/01/2014

Client: The Electrical Safety Council
Unit 331 Great Guildford Business
Square 30 Great Guildford Street
London
SE1 0HS

Product: Electrical Socket **ESC Sample Number:** 1

Summary: TÜV SÜD Product Service was commissioned by The Electrical Safety Council to evaluate an Electrical Socket (see figure 1). The aim of the assessment is to assess the product against the clients Safety Screening Test Plan.

Summary

The product was of adequate external construction but it failed to accept several BS1363 plugs. Internal construction was poor and the product had several markings were also missing from the product.

Figure 1

Assessed by:

Anna Jeeves
Consumer Product Technician

Reviewed by:

Greg Plummer
Consumer Product Test Engineer

Colour Code

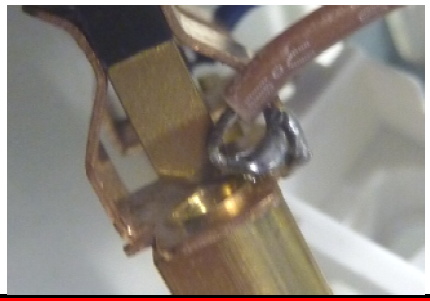
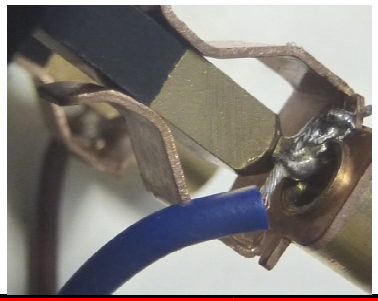
Red = Fail/Major Fault **Amber** = Improvements Required **Green** = Pass

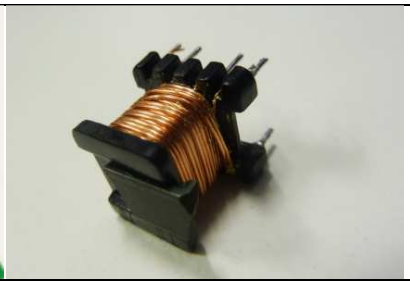
Product Service

Testing Information	
Testing Laboratory:	TÜV SÜD Product Service
Location:	Octagon House, Concorde Way, Segensworth North, Fareham, Hampshire, PO15 5RL. UK.
Client:	The Electrical Safety Council
ESC Sample Number:	1

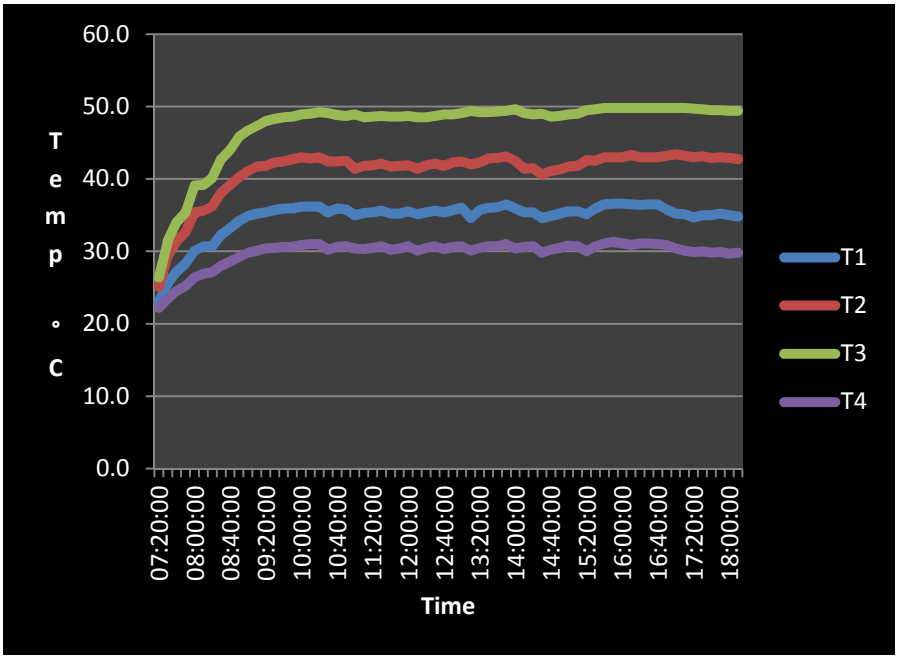
Product Information	
Product Description:	Single Wall socket with a USB Port
Rated Input Voltage:	250VAC
Rated Output:	5VDC / 500mA
Protection Class:	Class I

Findings			
Markings/Warnings (BS 1363-2, Clause 7)			
Marking of Product	☒-Inadequate ☐-Poor ☐-Adequate ☐-Good ☐-Very Good ☐-N/A		
Comments	The product was marked with a model reference and electrical ratings. BS 1363 -2 was stated; however BS 1363 is only required. The distributor's name / trademark, WEEE logo and CE marking were missing. These must be added. The USB's electrical ratings were noted to be clearly visible to the end user once installed. A small folded leaflet was provided with instructions for installation which was considered to be suitable for a qualified electrician. There was no operational or safety advice provided for the end user. The WEEE logo and CE marking were also missing from the user instructions.		
Markings/Photo	☒-Yes ☐-No *If yes see last page of report*	**CE Marking**	☐-Yes ☒-No
External Construction (BS 1363-2, Clause 13)			
Product Build Quality	☒-Pass ☐-Fail		
Comments	The external construction was of an adequate standard and considered comparable to similar products already on the market. No sharp edges, burrs or pinch points were found. The product was supplied with self tapping screws for attaching the socket to a pattress or back box. These were not fit for purpose as the socket became stuck to the back box during testing as the screws got jammed in the retaining metal nuts.		
Accessibility of Live Parts (BS 1363-2, Clause 9)			
Constructional Quality	☒-Pass ☐-Fail		
Comments	The product was assessed with the facia in situ and removed. Access to internal live parts could not be achieved when applying a 1.0mm calibrated test pin to potential areas of access, other than those intended to be exposed when installed or from inserting a plug.		

Terminals & Terminations (BS 1363, Clause 11)	
Constructional Quality	☐-Pass ☒-Fail
Comments	A number of BS 1363 approved plugs failed to fully fit into the socket. The input conductors were noted to be adequately secured within the mouldings. Appropriately sized / threaded screws were used.
Internal Wiring / Separation (BS EN 61558-1, Clause 21)	
Constructional Quality	☒-Pass ☐-Fail
Comments	The output (SELV) circuit was separated from the input circuit and covered with boxed moulding which was adequately secured. The Live parts of the SELV circuit were not in direct contact with the protective earth. There was insufficient information on the wiring to enable verification of any 3rd party approvals.
Screws, Current Carrying Parts & Connections (BS 1363-2, Clause 13)	
Constructional Quality	☐-Pass ☒-Fail
Comments	The connections to the PCB were found to be mechanically secured and soldered; however the connecting wires were tack soldered directly into the live / neutral conductors which prevented full insertion of the plug pins. It is recommended that connections of this type are mechanically secured in addition to soldering and situated as to not interfere with other connections.  
Creepage Distances, Clearances & Distances Through Insulation (BS EN 61558-1, Clause 26)	
Constructional Quality	☐-Pass ☒-Fail
Comments	The minimum creepage distance measured between the primary and secondary side of the circuit board was found to be within the limit; however a clearance distance of 2.25mm was measured. Although there was the addition of a 1mm slot, it did still did not meet the minimum requirement of the standard. There was no measurable distance between the primary and secondary transformer windings (touching). The standard requires a minimum of 5mm in both instances.

	 
Short Circuit, Overload and Thermal Protection (BS EN 61558-1, Clause 15)	
Constructional Quality	☒-Pass ☐-Fail
Comments	A 1A, glass fuse was suitably fitted to the primary side of the circuit. There was no thermal protection present. Although not a requirement it is recommended that a thermal link is incorporated into the circuit.
Mechanical Strength (BS 1363-2, Clause 20)	
Result	☒-Pass ☐-Fail
Comments	Standard USB connectors were placed into each socket,. These and areas around the facia and USB port were subjected to an impact test of 5Nm. Some deformation of the socket's metal casing was noted; however this did not affect the mechanical fit of a USB plug.
Insulation Resistance / Leakage Current (BS EN 61558-1, Clause 18.2)	
Result	☒-Pass ☐-Fail
Comments	The product was subjected to an insulation resistance test with a voltage of 500VDC applied. This was measured between live / neutral and the USB output. A measurement of >999MΩ was recorded across each path; therefore meeting the requirement of >5MΩ.
Electric Strength (BS 1363-2, Clause 15 / BS EN 61558-1, Clause 18)	
Result	☒-Pass ☐-Fail
Comments	The product was subjected to an electric strength test to 1500VAC. The mains output was tested to 4242VDC. No breakdown or flashover occurred.
Output Voltage & Current Under Load (BS EN 62684, Clause 5)	
Result	☒-Pass ☐-Fail
Comments	The device was plugged in and the open circuit voltage measured across the USB ground and supply. It was found to be 4.95 VDC and was between the limits of 4.75 – 5.25VDC. The stated output current was 500mA which is within the required limit of 1500mA. Under short circuit conditions the product drew 0.01V 0.165mA from the USB port. The maximum sustainable load was just over 1.15A which is over twice that stated. The device was setup with a load bank and the load slowly increased until

the voltage output dropped significantly. The load was then backed off until the voltage remained stable at a current of 1.16A and left to run. The temperature was monitored around the device. After 8 hours the test was stopped.



T1=Left of USB socket
T2=Right of USB socket
T3=Centre lower of USB socket
T4=Base

The maximum recorded temperature was 49.9°C.

Product Service

Product Images

Internal Overview

Internal Face

Rear

Fuse