Product Service

Safety Screening Report

Report: 071-75924520-701 **Date:** 18/11/2013

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

Product: Electrical Socket **ESC Sample Number:** 4

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 an adequate standard externally and internally. Markings were poor as they could be rubbed off the facia very easily. Several markings were also missing from the product. The product failed to meet its stated current limit of 1.2A by only managing an output of 0.74A .

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

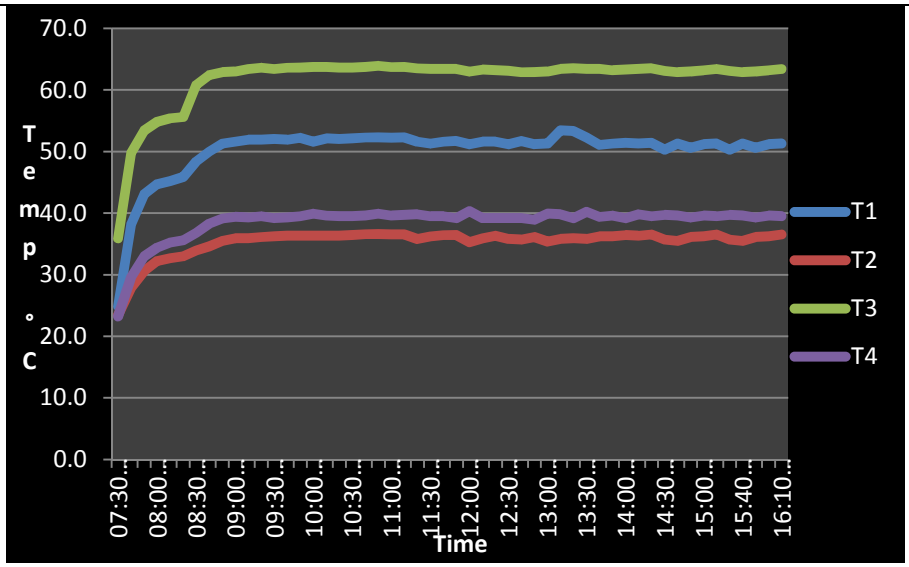
Testing Information	
Testing Laboratory:	TÜV SÜD Product Service
Location:	Octagon House, Concorde Way, Segensworth North, Fareham, Hampshire, PO15 5RL. UK.
Client:	The Electrical Safety Council
ESC Sample Number:	4

Product Information	
Product Description:	Double Wall Socket with USB Ports
Rated Input Voltage:	250VAC
Rated Output:	5VDC / 1A
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 model reference, distributor name, BS 1363 and the sockets electrical ratings. The USB's electrical ratings were printed on the front face; however this could be removed by just rubbing by hand. No regulated rub test was carried out as it was deemed un-necessary. The WEEE logo and CE marking were also missing from the product and packaging. An instruction leaflet was provided which included an adequate amount of information regarding the products technical specification and installation. Both the packaging and instructions stated that the product was suitable for mobile phones, Blackberry, iPods, iPhones, PDA's and MP3's. A statement advising the user that the product will trip should the current exceed 1.2A was also noted.		
Markings/Photo	☒-Yes ☐-No *If yes see last page of report*	**CE Marking**	☐-Yes ☒-No
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 or burrs or pinch points were found.		
Accessibility of Live Parts (BS 1363-2, Clause 9)			
Constructional Quality	☒-Pass ☐-Fail		
Comments	The product was constructed with shutters which operated simultaneously by insertion of a plug's earth pin. Access to internal live parts could not be achieved when applying a 1.0mm calibrated test pin to exposed openings when installed.		

Terminals & Terminations (BS 1363, Clause 11)	
Constructional Quality	☒-Pass ☐-Fail
Comments	A number of BS 1363 plugs could be inserted fully into the socket with no issues found. The input conductors were well constructed in brass. 
Internal Wiring / Separation (BS EN 61558-1, Clause 21)	
Constructional Quality	☒-Pass ☐-Fail
Comments	The output (SELV) circuit was found to be adequately separated from the input circuit and the protective earth. The PCB was fully encased between the socket face and back mouldings. The internal wiring did not carry any markings to enable verification of 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. The input and output conductors were adequately secured within the mouldings. The connections from the PCB were secured to the output conductors by crimping / soldering or mechanically securing / soldering.  
Creepage Distances, Clearances & Distances Through Insulation (BS EN 61558-1, Clause 26)	
Constructional Quality	☐-Pass ☒-Fail
Comments	A minimum creepage / clearance distance of 3.3mm with a 1.9mm slot was measured between the primary and secondary sides of the circuit board, meeting the requirement of the standard (>5mm). The transformer was constructed with a sleeved / triple insulated winding therefore providing an adequate barrier from the primary winding.

Short Circuit, Overload and Thermal Protection (BS EN 61558-1, Clause 15)	
Constructional Quality	☒-Pass ☐-Fail
Comments	A fuse was suitably fitted to the primary side of the circuit. There was no thermal protective device 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	A standard USB connector was placed in to the socket then subjected to an impact test of 5Nm to all sides around the socket, switches and facia. No damage was observed.
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 5.097VDC and 5.098VDC respectively on the left and right hand USB sockets and was between the limits of 4.75 – 5.25VDC. The stated output current was 1000mA for each USB port which is within the required limit of 1500mA. Under short circuit conditions a current of <0.5A at <0.7V and <0.5A at <0.8V for the left and right USB ports respectively was observed. The maximum sustainable load was just over 0.74A on either port which is 260mA less than stated. It had stated current limiting device of 1.2A per port but this appeared to be activating earlier at the 0.74A level. 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 around 0.74A for each port and left to run. The temperature was monitored around the device. After approximately 8 hours the test was stopped.



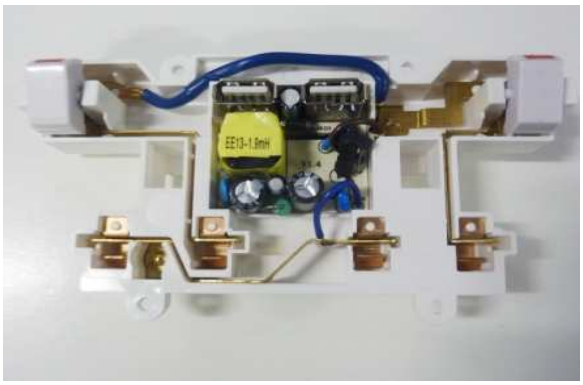
T1=Between the two USB sockets
T2=Left of the USB sockets
T3=Right of the USB sockets
T4=Base under USB sockets

The maximum recorded temperature was 63.9°C.

Product Service

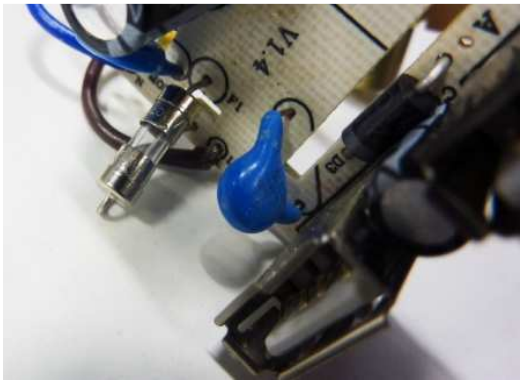
Product Images

Internal Overview

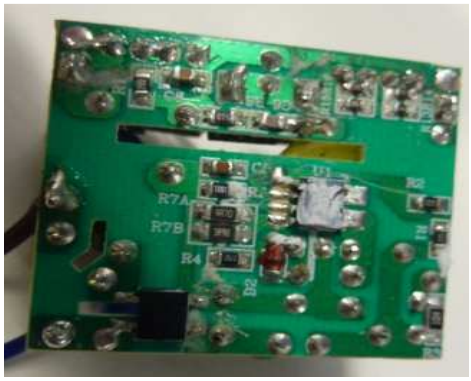


Internal Face

Fuse



PCB



Markings

Transformer