

Safety Screening Report

Report: 071-75924520-601 **Date:** 18/12/2013

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

Product: Electrical Socket **ESC Sample Number:** 9

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 and the internal construction was poor. Several markings were also missing from the product. The product failed to meet its own stated maximum output current.

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

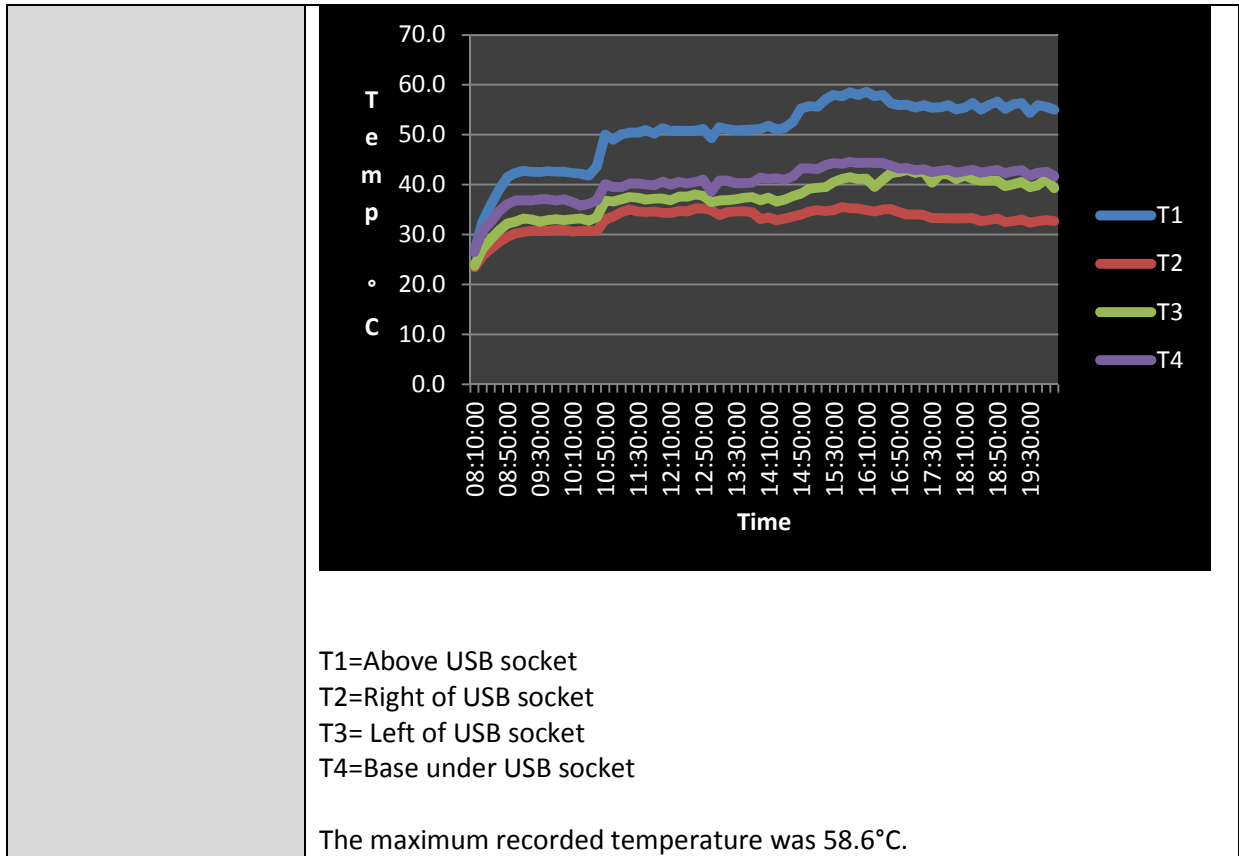
Testing Information	
Testing Laboratory:	TÜV SÜD Product Service
Location:	Octagon House, Concorde Way, Segensworth North, Fareham, Hampshire, PO15 5RL. UK.
Client:	The Electrical Safety Council
ESC Sample Number:	9
Product Information	
Product Description:	Single Wall Socket with a USB Port
Rated Input Voltage:	250VAC
Rated Output:	Unknown, USB sockets 1.2A
Protection Class:	Class I

Findings			
Markings/Warnings (BS 1363-2, Clause 7)			
Marking of Product	<input checked="" type="checkbox"/> -Inadequate <input checked="" type="checkbox"/> -Poor <input type="checkbox"/> -Adequate <input type="checkbox"/> -Good <input type="checkbox"/> -Very Good <input type="checkbox"/> -N/A		
Comments	<p>The product was marked with model reference, distributor name, and BS1363. The electrical ratings for the socket were given; however the USB ratings were not present (packaging / instructions only). This information should be made visible for the end user after installation. The WEEE logo and CE marking was also missing.</p> <p>An instruction leaflet was provided which included an adequate amount of information regarding the products technical specification and installation.</p> <p>Both the packaging and instructions stated that the product was suitable for mobile phones, Blackberry's, iPods, iPhones, PDA's and MP3's. A statement was present to advise the user that the product will trip should the current exceed 1.2A.</p>		
Markings/Photo	<input checked="" type="checkbox"/> -Yes <input type="checkbox"/> -No <i>If yes see last page of report</i>	CE Marking	<input type="checkbox"/> -Yes <input checked="" type="checkbox"/> -No

Construction (BS 1363-2, Clause 13)	
Product Build Quality	<input checked="" type="checkbox"/> -Pass <input type="checkbox"/> -Fail
Comments	<p>The external construction was of an adequate standard and considered comparable to similar products already on the market. No sharp edges or burrs were found; however a minor amount of excess material around the USB aperture was noted.</p> 

Accessibility of Live Parts (BS 1363-2, Clause 9)	
Constructional Quality	<input checked="" type="checkbox"/> -Pass <input type="checkbox"/> -Fail
Comments	The product was constructed with shutters which functioned simultaneously with the operation of the earth. Access to internal live parts could not be achieved when applying a 1.0mm calibrated test pin to openings exposed when installed.
Terminals & Terminations (BS 1363, Clause 11)	
Constructional Quality	<input checked="" type="checkbox"/> -Pass <input type="checkbox"/> -Fail
Comments	A number of BS 1363 plugs could be inserted fully into the socket with no issues found. The input conductors were constructed in brass; however the grub screws appeared to be made of zinc and not brass as expected. 
Internal Wiring / Separation (BS EN 61558-1, Clause 21)	
Constructional Quality	<input checked="" type="checkbox"/> -Pass <input type="checkbox"/> -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 was verified online as being UL approved.
Screws, Current Carrying Parts & Connections (BS 1363-2, Clause 13)	
Constructional Quality	<input checked="" type="checkbox"/> -Pass <input type="checkbox"/> -Fail
Comments	The connections to the PCB were found to be mechanically secured and soldered. The output conductors were adequately secured within the mouldings. The connections from the PCB were secured to the output conductors and crimp terminals which were pressed onto the receiving plug pin conductors.
Creepage Distances, Clearances & Distances Through Insulation (BS EN 61558-1, Clause 26)	
Constructional Quality	<input checked="" type="checkbox"/> -Pass <input type="checkbox"/> -Fail
Comments	The minimum creepage / clearance distance measured between the primary and secondary side of the circuit board (7mm) with a 1.3mm slot was found to be within the limit of the standard >5mm. The transformer was constructed with a 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	<input checked="" type="checkbox"/> -Pass <input type="checkbox"/> -Fail
Comments	A fusible resistor was suitably fitted to the primary side of the circuit. Although not a requirement it is recommended that a thermal protective device is incorporated into the circuit.
Mechanical Strength (BS 1363-2, Clause 20)	
Result	<input checked="" type="checkbox"/> -Pass <input type="checkbox"/> -Fail
Comments	A standard USB connector was placed in to the socket and subjected to an impact test of 5Nm to all sides then around the socket and facia. No damage was observed.
Insulation Resistance / Leakage Current (BS EN 61558-1, Clause 18.2)	
Result	<input checked="" type="checkbox"/> -Pass <input type="checkbox"/> -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	<input checked="" type="checkbox"/> -Pass <input type="checkbox"/> -Fail
Comments	The product as a whole was subjected to an electric strength test to 1500VAC. The output was tested to 4242VDC. No breakdown or flashover occurred.
Output Voltage & Current Under Load (BS EN 62684, Clause 5)	
Result	<input checked="" type="checkbox"/> -Pass <input type="checkbox"/> -Fail
Comments	<p>The device was plugged in and the open circuit voltage measured across the USB ground and supply. It was found to be 5.241VDC and was between the limits of 4.75 – 5.25VDC.</p> <p>The maximum stated output current was 1200mA which is within the required limit of 1500mA.</p> <p>Under short circuit conditions the product drew <50mV <1mA from the USB port. The maximum sustainable load was just over 1.01A. At approximately 1.09A the port started to trip out, presumably due to a current limiting device.</p> <p>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 1A and left to run. The temperature was monitored around the device. After 8 hours the test was stopped.</p>



Product Images

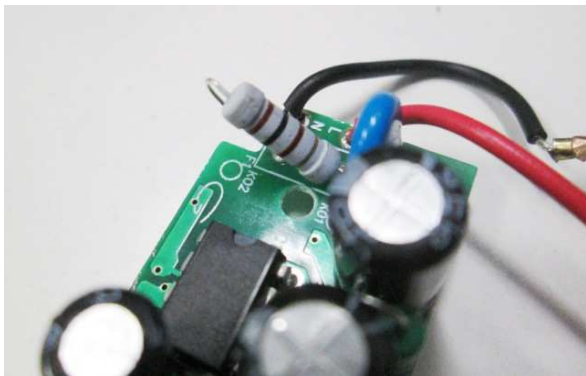
Internal Overview



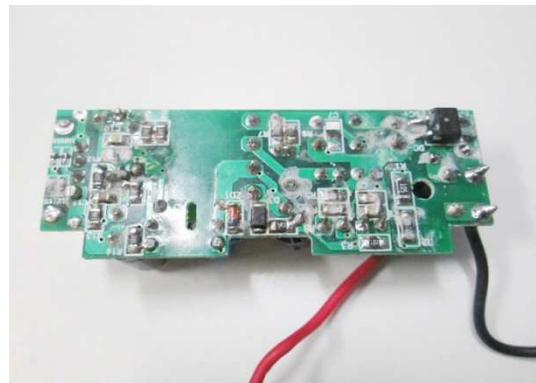
Internal Face



Fusible Resistor



PCB



Markings



Transformer

