

Screening Report

Report: 071-75924520-201 **Date:** 18/12/2013

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

Product: Electrical Accessory **ESC Sample Number:** 5

Summary: TÜV SÜD Product Service was commissioned by The Electrical Safety Council to evaluate an Electrical Accessory (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. Internal construction was poor and the product failed the creepage and clearance and separation tests. 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

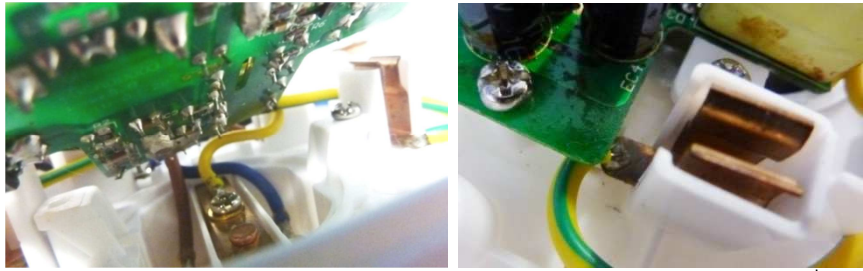
Amber = Improvements Required

Green = Pass



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:	5
Product Information	
Product Description:	Euro Travel Adapter with Integrated USB Ports
Rated Input Voltage:	250VAC
Rated Output:	Unknown
Protection Class:	Class I

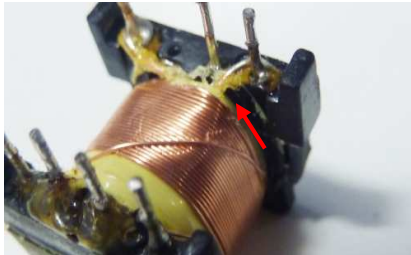
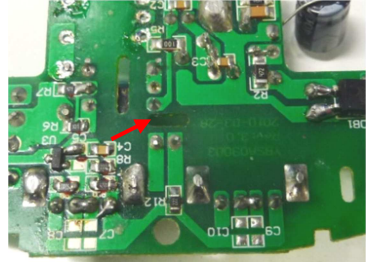
Findings	
Markings/Warnings (BS 5733, Clause 8)	
Marking of Product	<input checked="" type="checkbox"/> -Inadequate <input type="checkbox"/> -Poor <input type="checkbox"/> -Adequate <input type="checkbox"/> -Good <input type="checkbox"/> -Very Good <input type="checkbox"/> -N/A
Comments	<p>The product was marked with a model reference, input ratings (covering the BS 1363 sockets only) and distributor trademark. There were no electrical ratings for the USB ports. The WEEE logo and CE marking were also missing. BS 5733 was stated; however BS 5733/A should be stated as it a portable accessory.</p> <p>The packaging's carded insert stated that the product is ideal for iPods, telephones, mobile and hairdryers; however there was no safety advice provided to cover either the sockets or the USB outputs.</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
External Construction	
Product Build Quality	<input checked="" type="checkbox"/> -Pass <input type="checkbox"/> -Fail
Comments	The external construction was of an adequate standard however the mouldings were considered to be of a lesser quality compared to similar products already on the market. No sharp edges, burrs or pinch points were found.
Accessibility of Live Parts (BS 5733, Clause 11.2)	
Constructional Quality	<input type="checkbox"/> -Pass <input checked="" type="checkbox"/> -Fail
Comments	The casings had been adequately secured with screws (not tamperproof). The 1.0mm test pin did not access any live parts with the shutter closed.
Terminals & Terminations (BS 5733, Clause 14)	
Constructional Quality	<input checked="" type="checkbox"/> -Pass <input type="checkbox"/> -Fail
Comments	The product was supplied with a class I European (Schuko) plug face. A check revealed that some resistance was felt when inserting / removing a number of BS 1363 approved plugs into the sockets; however the earth pin engaged before the live / neutral pins.

**Internal Wiring / Separation
(BS EN 61558-1, Clause 21)**

Constructional Quality	<input type="checkbox"/> -Pass <input checked="" type="checkbox"/> -Fail
Comments	<p>The output (SELV) circuit was not found to be adequately separated from the input circuit. The live parts of the SELV circuit were found to be in direct contact with the protective earth. The earthing conductor to the L/H side was also noted to be in close proximity to the SELV circuit with 3.5mm clearance distance measured.</p>  <p>There was insufficient marking to the internal wiring to verify any 3rd party approvals.</p>

**Screws, Current Carrying Parts & Connections
(BS 5733, Clause 14 & 15)**

Constructional Quality	<input checked="" type="checkbox"/> -Pass <input type="checkbox"/> -Fail
Comments	<p>The connections to the conductors and the PCB were all found to be mechanically secured and soldered; however the intermediate wiring connections (multiple) were found to be retained by soldering with heat shrink sleeving used as an additional form of retention. It is recommended that a mechanical form of security is employed (i.e. terminal block).</p>  <p>Areas of verdigris to the copper conductors and rusting to the USB sockets (internal & external) were noted.</p> 

Creepage Distances, Clearances & Distances Through Insulation (BS EN 61558-1, Clause 26)	
Constructional Quality	<input type="checkbox"/> -Pass <input checked="" type="checkbox"/> -Fail
Comments	<p>The secondary transformer winding was of a triple-insulated construction. This would usually provide an adequate barrier from the primary winding; however the tails were left exposed and as such, negate the purpose of the insulation. The minimum creepage / clearance distance measured between the windings (0.7mm) and between the primary and secondary sides of the circuit (3.1mm) did not meet the requirement of the standard >5mm.</p> <div style="display: flex; justify-content: space-around;">   </div>
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 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 link or similar is incorporated into the circuit.
Mechanical Strength (BS 5733, Clause 21)	
Result	<input checked="" type="checkbox"/> -Pass <input type="checkbox"/> -Fail
Comments	<p>The product was subjected to a drop test from a height of 500mm onto a test floor. This was carried out on each of the products faces, with and without the USB cover opened. No damage was observed.</p> <p>Standard USB connectors were placed into each socket then subjected to an impact test of 5Nm to all sides. Some deformation of the sockets metal casing was noted; however this did not affect the mechanical fit of a USB plug.</p>
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 5733, Clause 19 / BS EN 61558-1, Clause 18)	
Result	<input checked="" type="checkbox"/> -Pass <input type="checkbox"/> -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 5.174VDC and 5.175VDC for the left and right USB sockets respectively and was between the limits of 4.75 – 5.25VDC.

The USB rated output current was unknown.

Under short circuit conditions the product drew <1mA at 50mV from both the USB ports. The maximum sustainable load was just over 0.94A on any port, anything over about 1.1A the output cut-out due to a current limiting device.

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 0.94A and left to run. The temperature was monitored around the device. After 8 hours the test was stopped.

Time	T1 (°C)	T2 (°C)	T3 (°C)	T4 (°C)	T5 (°C)
09:10:00	20	20	20	20	20
09:50:00	51	38	42	40	28
10:30:00	45	35	40	38	27
11:10:00	44	34	39	37	26
11:50:00	44	33	38	36	26
12:30:00	44	33	38	36	26
13:10:00	44	33	38	36	26
13:50:00	44	33	38	36	26
14:30:00	44	33	38	36	26
15:10:00	44	33	38	36	26
15:50:00	44	33	38	36	26
16:30:00	44	33	38	36	26
17:20:00	44	33	38	36	26
18:00:00	44	33	38	36	26

T1=Between the two sockets
T2=Left of USB socket
T3=Right of USB socket
T4=Base under USB sockets
T5=Plug

The maximum recorded temperature was 50.9°C.

Product Images

Internal Overview



Markings



Plug Face



Fuse

