TECHNICAL REPORT

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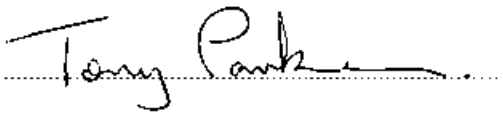
AUTHORISED FOR ISSUE: 

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Extension Cord Sets: Safety Assessments

Introduction

The Electrical Safety Council provided Intertek with a selection of 4-way extension cord sets for testing under the general safety provisions of the relevant standards.

In particular, six samples were selected for testing. An overview of the samples is shown on page 3.

The safety assessments have been carried out under the terms of reference in Appendix I, and as such, the results are only applicable to the samples tested and the conditions of the tests. Sample variability and changes in test conditions could influence some results, and the result(s) as stated may not be representative of the mean result if a number of different samples were tested under a variety of test conditions.

The assessments were carried out at Intertek during April 2008.

Summary

The samples, as tested, passed the electrical safety assessment with no departures or observations being noted.

The table below contains the sample details and the assessment results.

Intertek sample code	Product type	Assessment results
A1	4 way 0.5M extension lead	Pass
A2	4 way 2M extension lead with neon indicator	Pass
A3	4 way 5M extension lead	Pass
A6	4 way 2M extension lead with neon indicator	Pass
A7	4 way 1M extension lead	Pass
A8	Twin socket converter	Pass

Project Samples Overview

The following six samples were selected for testing under this project:

Sample code A1

Sample code A2

Sample code A3

Sample code A6

Sample code A7

Sample code A8

Electrical Safety Assessment

The cord extension sets are classed as electrical equipment under the Electrical Equipment (Safety) Regulations 1994, which implement into the UK law the Low Voltage Directive 2006/95/EC.

The samples have been subjected to a safety assessment under the general safety provisions of the following standard:

- BS 1363-2:1995 13 A plugs, socket-outlets, adaptors and connection units – Part 2: Specification for 13 A switched and unswitched socket-outlets, incorporating amendments 1 and 2

The terms of reference for the Intertek safety assessment can be found in Appendix I.

Electrical Safety Assessments

4 way 0.5 Metre Extension Lead (Sample code A1)

Figure 1 *Sample A1*

Initial Inspection and Functional Check

The sample was undamaged and a functional check proved satisfactory.

Electrical Safety Assessment

The following standards were used for the electrical safety assessment. Results of the safety assessment are shown in the table below.

- BS 1363-2:1995 13 A plugs, socket-outlets, adaptors and connection units – Part 2: Specification for 13 A switched and unswitched socket-outlets, incorporating amendments 1 and 2

Safety criteria	Results
Functional check	Pass
Marking and labelling	Pass
Clearances, creepage distances and solid insulation	Pass
Accessibility of live parts	Pass
Provision for earthing	Pass
Terminals and terminations of intermediate adaptors and adaptor plugs	Pass
Construction of adaptors (plug portion)	NA
Construction of adaptors (adaptor socket-outlet portion)	Pass
Insulation resistance and electric strength	Pass
Mechanical strength	Pass
Screws, current-carrying parts and connections	Pass

Additional testing

Resistance to abnormal heat, fire and tracking	Pass

4 way 2 Metre Extension Lead with neon indicator (Sample code A2)

Figure 2 *Sample A2*

Initial Inspection and Functional Check

The sample was undamaged and a functional check proved satisfactory.

Electrical Safety Assessment

The following standards were used for the electrical safety assessment. Results of the safety assessment are shown in the table below.

- BS 1363-2:1995 13 A plugs, socket-outlets, adaptors and connection units – Part 2: Specification for 13 A switched and unswitched socket-outlets, incorporating amendments 1 and 2

Safety criteria	Results
Functional check	Pass
Marking and labelling	Pass
Clearances, creepage distances and solid insulation	Pass
Accessibility of live parts	Pass
Provision for earthing	Pass
Terminals and terminations of intermediate adaptors and adaptor plugs	Pass
Construction of adaptors (plug portion)	NA
Construction of adaptors (adaptor socket-outlet portion)	Pass
Insulation resistance and electric strength	Pass
Mechanical strength	Pass
Screws, current-carrying parts and connections	Pass

Additional testing

Resistance to abnormal heat, fire and tracking	Pass

4 way 5 Metre Extension Lead (Sample code A3)

Figure 3 *Sample A3*

Initial Inspection and Functional Check

The sample was undamaged and a functional check proved satisfactory.

Electrical Safety Assessment

The following standards were used for the electrical safety assessment. Results of the safety assessment are shown in the table below.

- BS 1363-2:1995 13 A plugs, socket-outlets, adaptors and connection units – Part 2: Specification for 13 A switched and unswitched socket-outlets, incorporating amendments 1 and 2

Safety criteria	Results
Functional check	Pass
Marking and labelling	Pass
Clearances, creepage distances and solid insulation	Pass
Accessibility of live parts	Pass
Provision for earthing	Pass
Terminals and terminations of intermediate adaptors and adaptor plugs	Pass
Construction of adaptors (plug portion)	NA
Construction of adaptors (adaptor socket-outlet portion)	Pass
Insulation resistance and electric strength	Pass
Mechanical strength	Pass
Screws, current-carrying parts and connections	Pass

Additional testing

Resistance to abnormal heat, fire and tracking	Pass

4 way 2 Metre Extension Lead with neon indicator (Sample code A6)

Figure 4 *Sample A6*

Initial Inspection and Functional Check

The sample was undamaged and a functional check proved satisfactory.

Electrical Safety Assessment

The following standards were used for the electrical safety assessment. Results of the safety assessment are shown in the table below.

- BS 1363-2:1995 13 A plugs, socket-outlets, adaptors and connection units – Part 2: Specification for 13 A switched and unswitched socket-outlets, incorporating amendments 1 and 2

Safety criteria	Results
Functional check	Pass
Marking and labelling	Pass
Clearances, creepage distances and solid insulation	Pass
Accessibility of live parts	Pass
Provision for earthing	Pass
Terminals and terminations of intermediate adaptors and adaptor plugs	Pass
Construction of adaptors (plug portion)	NA
Construction of adaptors (adaptor socket-outlet portion)	Pass
Insulation resistance and electric strength	Pass
Mechanical strength	Pass
Screws, current-carrying parts and connections	Pass

Additional testing

Resistance to abnormal heat, fire and tracking	Pass

4 way 1 Metre Extension Lead (Sample code A7)

Figure 5 *Sample A7*

Initial Inspection and Functional Check

The sample was undamaged and a functional check proved satisfactory.

Electrical Safety Assessment

The following standards were used for the electrical safety assessment. Results of the safety assessment are shown in the table below.

- BS 1363-2:1995 13 A plugs, socket-outlets, adaptors and connection units – Part 2: Specification for 13 A switched and unswitched socket-outlets, incorporating amendments 1 and 2

Safety criteria	Results
Functional check	Pass
Marking and labelling	Pass
Clearances, creepage distances and solid insulation	Pass
Accessibility of live parts	Pass
Provision for earthing	Pass
Terminals and terminations of intermediate adaptors and adaptor plugs	Pass
Construction of adaptors (plug portion)	NA
Construction of adaptors (adaptor socket-outlet portion)	Pass
Insulation resistance and electric strength	Pass
Mechanical strength	Pass
Screws, current-carrying parts and connections	Pass

Additional testing

Resistance to abnormal heat, fire and tracking	Pass

Twin Socket Converter (Sample code A8)

Figure 6 *Sample A8*

Initial Inspection and Functional Check

The sample was undamaged and a functional check proved satisfactory.

Electrical Safety Assessment

The following standards were used for the electrical safety assessment. Results of the safety assessment are shown in the table below.

- BS 1363-3:1995 13 A plugs, socket-outlets, adaptors and connection units – Part 3: Specification for adaptors, incorporating amendments 1 and 2 and Corrigendum 1

Safety criteria	Results
Functional check	Pass
Marking and labelling	Pass
Clearances, creepage distances and solid insulation	Pass
Accessibility of live parts	Pass
Provision for earthing	Pass
Terminals and terminations of intermediate adaptors and adaptor plugs	Pass
Construction of adaptors (plug portion)	NA
Construction of adaptors (adaptor socket-outlet portion)	Pass
Insulation resistance and electric strength	Pass
Mechanical strength	Pass
Screws, current-carrying parts and connections	Pass

Additional testing

Resistance to abnormal heat, fire and tracking	Pass

Appendix I

Terms of Reference for the Intertek Electrical Safety Assesssment

The Intertek ectrical safety assessment consists primarily of visual inspections and basic electrical safety tests. It relies on the test engineer's knowledge and expertise of testing a broad range of electrical products. However, the inspections and tests are based upon the latest safety standards. The headings below are taken from EN 60335-1:2002 (Safety of household and similar electrical appliances. Part 1: General requirements) and generally form the criteria for the screening test. The clause headings may change if another standard is used, e.g. EN 60598 for Luminaires.

The Intertek safety assessment is most usefully applied where a product already complies with a safety standard. It is not suitable for inclusion in a technical file as a justification for CE marking under the Electrical Equipment (Safety) Regulations 1994.

Marking and instructions - Inspection of *pictorial* and *written warnings* on the appliance and in the instructions. Look for CE and approval marks.

Protection against access to live parts - Inspection for *access* to live parts after removal of *detachable parts***.** ***From EN 60335-1: clause 8***

Leakage current and electric strength - Carry out *leakage current* test and *electric strength* test. ***From EN 60335-1: clause 13 and 16.3***

Stability and mechanical hazards - Inspect for *access* to *dangerous moving parts*.

Mechanical strength - Carry out *impact and/or drop* tests

Construction - Inspect for *basic* constructional requirements

Internal wiring - Inspect for *basic* wiring requirements.

Supply connection and external flexible cords - Inspect cord for marking of *cross sectional area* and *cord anchorage*. Carry out tests in cases of doubt.

Provision for earthing - Inspect *earthing* system and carry out *25 Amp* test if applicable.

Clearances, creepage distances and solid insulation - Inspect *creepage* and *clearances*, measure only in cases of doubt.

Other tests and inspections

- ***Functional check*** – Carried out at rated voltage after product has stabilized.
- ***Plug and fuse*** - Inspect pins of plug-in devices and plugs for fuse rating, wiring and BS1363 mark

End of report