

TEST REPORT

SABS

Materials/Installations Laboratory

Report No. ML/106476

Page 1 of 11

Client : APEX Cordset Technologies (Pty) Ltd, P.O. Box 1391, **BENONI**, 1500
Manufacturer : APEX LEADS
Apparatus : Connector
Designation : IC04

Ratings assigned by the Manufacturer:

Rated Voltage : 250 V ~

Rated Current : 10 A

Tests have been carried out strictly in accordance with

VC 8012 Compulsory specification for Appliance couplers for household and similar general purposes
Published by Government Notice No. R.1077 (Government Gazette No. 33763) of 19 November 2012

Date of Tests: 08 October 2012 to 10 November 2012.

Conclusion

The sample has complied with the relevant requirements

This report consists of:

Report form(s) : Pages 1-10
Photograph(s) : Page 11



F Nkosi
Specialist (Technical signatory)
Materials/Installations Laboratory: **SABS Commercial SOC Ltd**



JL Menyai
Area Manager
NETFA: **SABS Commercial SOC Ltd**

Olifantsfontein, 30 November 2012

43rd Street, Olifantsfontein. P.O. Box 144, Olifantsfontein, 1665. Tel +27 11 238 2300 Fax +27 11 238 2363

1 Dr Lategan Road, Groenkloof, Private Bag X191, Pretoria, 0001. Tel +27 12 428 7911. Fax +27 12 344 1568

The test work relating to this report was performed by SABS Commercial SOC Ltd. This report and its test results relate only to the specific sample(s) identified herein. They do not imply SABS approval of the quality and/or performance of the item(s) in question and the test results do not apply to any similar item that has not been tested. This report may not be reproduced except in full. The authenticity of this report and its contents can be confirmed by contacting the person who signed it.



T0159

0242M

740306456

1 Description of Sample

The sample consisted of nine (09) connectors moulded with flexible cords with the markings as indicated on page 11 of this report.

1.76 m flexible cords are marked as follows:

- 3X1.0mm² ABERDARE CABLES GBU2 300/500V SABS 1754-VDE 0281-5 H05VV-F
<VDE> 10A/25M MAX

2 Test Method

VC 8012 Compulsory specification for Appliance couplers for household and similar general purposes
Published by Government Notice No. R.1077 (Government Gazette No. 33763) of 19 November 2012

3 Sampling Procedure

The sample was new when submitted for testing by Apex Cordset Technologies (Pty) Ltd 16 July 2012 and allocated NETFA samples No. ML/106476(A-I).

4 Test Conditions

The tests were conducted at the National Electrical Test Facility, NETFA, at an altitude of 1 540 m.

5 Measuring Equipment

Refer to appendix A for a list of measuring equipment and tolerances.

6 Results

For detailed results see pages 3 to 9 of this report.

SANS 60320-1:2008			
Clause	Requirements-Test	Results-Remark	Verdict
6	Standard ratings		
6.1	The standard rated voltage is 250 V.	250 V-	Complied
6.2	Standard rated currents are 0.2 A, 2.5 A, 6 A, 10 A and 16 A.	10 A	Complied
7	Classification		
7.1	Appliance couplers are classified:		Complied
	- maximum pin temperature at the base of the pins,		Complied
	- type of equipment to be connected.		Complied
7.2	Connectors are, moreover, classified according to the method of connecting the cord:		Complied
	- rewirable connectors		N/A
	- non-rewirable connectors	Non-rewirable connectors	Complied

SANS 60320-1:2008			
Clause	Requirements-Test	Results-Remark	Verdict
8	Marking		
8.1	Connectors shall be marked with:		
	- rated current.....	10 A	Complied
	- rated voltage.....	250 V	Complied
	- symbol of nature of supply.....	~	Complied
	- manufacture's name.....	APEX LEADS	Complied
	- type reference.....	IC04	Complied
8.2	Appliance inlets...		N/A
8.3	Connectors and appliance inlets for class II equipment shall not be marked with the symbol for class II construction.		N/A
8.4	When symbols are used, they shall be as follows:		
	- amperes..... A	A	Complied
	- volts..... V	V	Complied
	- alternating current..... ~	~	Complied
	- earth..... (earth symbol with or without circle around it)		N/A
8.5	Marking shall be easily discernible when the connector is wired ready for use.		Complied
8.6	In non-reversible connectors, the contact position shall be as follows:		
	- earthing contact: upper central position;		Complied
	- line contact: lower right-hand position;		Complied
	- neutral contact: lower left-hand position.		Complied
	In rewirable, non-reversible contacts, terminals shall be indicated as follows:		
	- earthing terminal: earth symbol with or without circle around it		N/A
	- neutral terminal: the letter N		N/A
8.7	The marking required by standard shall be easily legible and durable.		Complied
8.8	Compliance with the requirements of 8.1 to 8.7 is checked by inspection and by rub test.		Complied
9	Checking of dimensions	Standard sheet C15	Complied

SANS 60320-1:2008			
Clause	Requirements-Test	Results-Remark	Verdict
10	Protection against electric shock		
10.1	Connector shall be so designed that live parts, and parts connected thereto, are not accessible when the connector is properly assembled and wired as in normal use.		Complied
10.2	It shall not be possible to make connection between of an appliance inlet and a contact of a connector as long as any of the pins is accessible.		Complied
10.3	It shall not be possible to remove parts preventing access to live parts without the aid of a tool.		Complied
10.4	External parts of connectors shall be of insulating materials.		Complied
11	Provision for earthing		
11.1	Earthing terminals shall comply with the requirements of clause 12.		Complied
11.2	Appliance couplers with earthing contact shall be so constructed that, when inserting the connector, the earth connection is made before the current-carrying contacts of the appliance inlet are energized.		Complied
12	Terminals and terminations		
12.1	General		Complied
12.2	Non-rewirable connectors shall be provided with soldered, welded, crimped or equally effective screwless connection...	Crimped	Complied
12.3	Rewirable connectors...		N/A
12.4	Clamping units...		N/A
12.5	Clamping units for earthing conductors...		N/A

SANS 60320-1:2008			
Clause	Requirements-Test	Results-Remark	Verdict
13	Construction		
13.1	Appliance couplers shall be so designed that there is no risk of accidental contact between the earthing contact of the appliance inlet and the current-carrying contacts of the connector		Complied
13.2	Screws...		N/A
13.3	Pins of appliance inlets and connectors shall locked		Complied
13.4	Pins of appliance inlets...		N/A
13.5	Contacts of connectors shall be self-adjusting so as to provide adequate contact pressure.		Complied
13.6	Rewirable connectors...		N/A
13.7	Rewirable connectors...		N/A
13.8	It shall no be possible to dismantle the connector without the aid of a tool.		Complied
13.9	Earthing contact shall be fixed to the body.		Complied
13.10	Terminations of non-rewirable accessories shall be so located or shielded that loose wires of a conductor in the accessory will not present a risk of electric shock.		Complied
14	Moisture resistance		
	Appliance couplers shall be proof against humid conditions which may occur in normal use.		Complied
15	Insulation resistance and electric strength		
15.1	The insulation resistance and electric strength shall be adequate		Complied
15.2	The insulation resistance test:		
	- rated current.....	10 A	Complied
	- rated voltage.....	250 V	Complied
	- test voltage.....	500 V	Complied
	- duration.....	1 min	Complied
	The insulation resistance shall be not less than 5MΩ	>2000 MΩ	Complied
15.2	The electric strength test,		
	- rated voltage.....	250 V	Complied
	- test voltage.....	3000 V	Complied
	- duration.....	1 min	Complied
	No flashover or breakdown shall occur during the test	OK	Complied

SANS 60320-1:2008			
Clause	Requirements-Test	Results-Remark	Verdict
16	Force necessary to insert and to withdraw the connector		
16.1	The construction of appliance couplers shall allow the easy insertion and withdrawal of the connector, and prevent the connector from working out of the appliance inlet in normal use.		Complied
16.2	Verification of the maximum withdrawal force,		Complied
16.3	Verification of the Minimum withdrawal force,		Complied
17	Operation of contacts		
	Contacts and pins of appliance couplers shall make connection with a sliding action. The contacts of connections shall provide adequate contact pressure and shall not deteriorate in normal use.		Complied
18	Resistance to heating of appliance couplers for hot conditions or very hot conditions		
18.1	Appliance couplers for hot conditions and those for very hot conditions shall withstand the heating to which they may be subjected by an appliance or other equipment.		Complied
18.2	Non-rewirable connectors are tested with the cord as delivered		Complied
18.3	Appliance inlets...		N/A
19	Breaking capacity		Complied
20	Normal operation		Complied
21	Temperature rise		
	Contacts and other current-carrying parts shall be designed that the temperature rise shall not exceed 45 K	7 K	Complied
	- rated current.....	10 A	Complied
	- test current.....	12,5 A	Complied
	- duration.....	1 h	Complied
	- nominal cross-sectional area of conductors.....	1,0 mm ²	Complied

SANS 60320-1:2008			
Clause	Requirements-Test	Results-Remark	Verdict
22	Cords and their connection		
22.1	Non-rewirable connectors shall be provided with a cord complying with either IEC 60227 or IEC 60245		Complied
	Non-rewirable connectors with earthing shall be provided with a three-core cord,		Complied
22.2	Connectors shall be provided with a cord anchorage...		Complied
22.3	Non-rewirable connectors are tested with cord as delivered		Complied
22.4	Connectors shall be so designed that the cord cannot be subjected to excessive bending where it enters the connector.		Complied
23	Mechanical strength		
23.1	Appliance couplers shall have adequate mechanical strength.		Complied
23.2	Non-rewirable connectors are tested with the cord as delivered:		
	- free length.....	100 mm	Complied
	- mass of the specimen.....	27,8 g	Complied
	- number of falls.....	500	Complied
23.3	A lateral pull:		
	- rated current.....	10 A	Complied
	- force.....	6 N	Complied
23.4	Appliance inlets...		N/A
23.5	Appliance inlets...		N/A
23.6	For 2,5 A connectors for class II		N/A
23.7	The external parts of connectors with a separate front part enclosing the contacts shall be reliably fixed to one another.		Complied
23.8	The shroud of the appliance inlet...		N/A
24	Resistance to heat and ageing		
24.1	Appliance couplers shall be sufficiently resistant to heat:		
	- resistance to heat at 100 °C,		Complied
	- ball pressure test at 125 °C		Complied
24.2	Connectors of elastomeric or thermoplastic shall be sufficiently resistance to ageing		Complied

SANS 60320-1:2008			
Clause	Requirements-Test	Results-Remark	Verdict
25	Screws, current-carrying parts and connections		
25.1	Connection, electrical or mechanical, shall withstand the mechanical stresses occurring in normal use.		Complied
25.2	For screws...		N/A
25.3	Electrical connections shall be so designed that contact pressure is not transmitted through insulating material		Complied
25.4	Screws and rivets...		N/A
25.5	Connections between terminals and other parts shall be so designed that they will not work loose in normal use.		Complied
25.6	Current-carrying parts and earthing contacts shall be of metal having,		Complied
25.7	Under moist conditions, metals having a great difference of electro-chemical potential with respect to each other shall not be used in contact with each other.		N/A
25.8	Pins of appliance inlets		N/A
26	Creepage distances, clearances and distances through insulation		
	Creepage distance, clearances and distances through insulation of connectors and appliance shall comply with table 9 of SANS 60320-1: 2008.		Complied
27	Resistance of insulating material to heat, fire and tracking		
27.1	Parts made of insulating material which might be exposed to thermal stresses due to electric effects and whose deterioration might safety shall not be unduly affected by heat and fire generated within the accessory.		Complied
27.2	Insulating parts supporting, or in contact with, live parts of appliance couplers for hot conditions and of appliance couplers for very hot condition, shall be of material resistant to tracking.		Complied
28	Resistance to rusting		
	Ferrous parts shall be adequately protected against rusting	No sign of rust	Complied
29	Electromagnetic compatibility (EMC) requirements		N/A
N/A=Not applicable			

APPENDIX A**Measuring Equipment**

The following equipment was used for the measurements:

Type of equipment	Make and model	SABS No.	Accuracy
Scale	Sartorius BP8100	26036	± 0,05 %
Vernier	Digital caliper	WW034264	± 0,02 mm
Omega stop watch	Omega UUT	13299	± 0,01 %
Impact hammer	MES 379	16828	± 3,0 %
Clamp meter	Top tronic	05338134	± 0,2 %
Megger 500V d.c.	Megger 2083832	14487	± 3,0 %
Oven	Gallenkamp	6486	± 5,0 %
Oven	Gallenkamp	7396	± 5,0 %
Temperature recorder	Yokogawa	PP&E0004209	± 2,0 %
High voltage test set	Foster	17920	± 0,2 %
Digital thermometer	Fluke 2175A	20940	± 5,0 °C

Calibration of this equipment is traceable to national standards.



Photograph No. 1
View of the sample



Photograph No. 2
Other view of the sample

Your ref.: O/No. 23261
Our ref.: ML/106476
Enquiries: SE Phewa
Date: 2012-11-30

APEX Cordset Technology (Pty) Ltd
Attention: Mr Christos Gerasis
PO Box 1391
BENONI
1500

Dear Sir

TESTING OF CONNECTOR

-- With reference to your order No. 23261, we have pleasure in enclosing our report No.ML/106476 for the tests conducted on your sample.

Our invoice covering the fee charged for conducting the tests will be forwarded to you under a separate cover

Yours faithfully



JL Monyai
Area Manager
NETFA: **SABS Commercial SOC Ltd**
Tel : 011 238 2300
Fax: 011 238 2363

SABS COMMERCIAL SOC Ltd. Reg. No. 2000/013581/07

Directors: Mr CB Sibisi, Dr B Mehlomakulu, Dr T Demana, Dr MJ Ellman, Mr WK Masvikwa, Ms B Mosako, Ms WJ Poulton, Ms W de Witt (Company Secretary). **Website:** www.sabs.co.za **E-mail:** info@sabs.co.za **Call Centre:** 086 1277 227

Gauteng Head Office

1 Dr Latogan Road,
Groenkloof
Private Bag X191
Pretoria, 0001
Tel +27 (0) 12 428 7911
Fax +27 (0) 12 344 1568

Western Cape

Liesbeek Park Way,
Rosebank
PO Box 615, Rondebosch,
Cape Town, 7701
Tel +27 (0) 21 681 6700
Fax +27 (0) 21 681 6701

Eastern Cape

30 Kipling Road
(cnr. Diaz and Kipling Roads)
PO Box 3013, North End,
Port Elizabeth, 6056
Tel +27 (0) 41 391 8400
Fax +27 (0) 41 391 8427

Kwazulu-Natal

15 Garth Road,
Waterfall Park
PO Box 30087,
Mayville, 4058
Tel +27 (0) 31 203 2900
Fax +27 (0) 31 203 2907