



# TEST REPORT

LAB NO. : (9315)174-0243-R2  
DATE : Aug 26, 2015  
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The report is amendment of and supersedes the previous report (9315)174-0243-R1 dated Jul 28, 2015

**APPLICANT** : **KYSAN ELECTRONICS INC.**  
820 CHARCOT AVENUE, SAN JOSE, CALIFORNIA 95131, USA

**CONTACT PERSON** : Tony Su

**DATE OF SUBMISSION** : Jun 23 2015

**TEST PERIOD** : Jun 23, 2015 to Jul 03, 2015

**NO. OF WORKING DAYS** : 9

**SAMPLE DESCRIPTION** : DC Motor

Color: /

Style no. / Model no.: KS-050, KS-030, KS-K10, KS-K20, KS-K30, KS-N20, KS-N60, KS-Q6D, KS-020, KS-130, KS-180, KS-140, KS-280, KS-260, KS-300, KS-370, KS-400, KS-500, KS-530, KS-520, KS-540, KS-545, KS-310, KS-356, KS-360, KS-365, KS-380, KS-385, KS-390, KS-445, KS-550, KS-555, KS-750, KS-770, KS-775, KS-B42, KS-B38, KS-B37, KS-B33, KS-B25, KS-B30, KS-A60, KS-A42, KS-A37, KS-A32, KS-A28, KS-A25, KS-A20, KS-A17, KS-A12, KS-A16, KS-IG16, KS-IG22, KS-IG17, KS-IG24, KS-IG28, KS-IG30, KS-IG32, KS-IG35, KS-IG36, KS-IG38, KS-IG42, KS-IG43, KS-IG45, KS-IG50, KS-IG60, KS-IG52, KS-IG71, KS-IG80, KS-IG90

P.O. No.: /

Country of Origin: /

Country of Destination: /

**MANUFACTURER** : /

## SUMMARY OF TEST RESULTS

TEST REQUESTED	CONCLUSION	REMARK
European Council Directive 2011/65/EU on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS)	PASS	

RW

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BUREAU VERITAS CONSUMER PRODUCTS SERVICES (GUANGZHOU) CO., LTD

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NINA REN  
SECTION MANAGER

**REMARK**

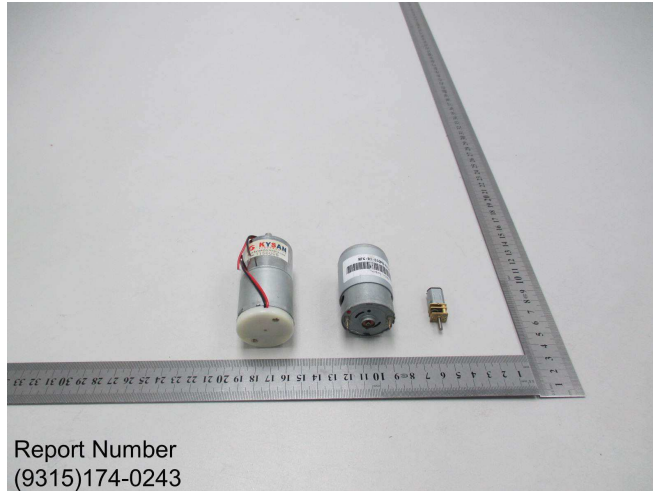
If there are questions or concerns on this report, please contact the following persons:

- a) GENERAL TEL: (86)755 83437287  
FAX: (86)755 83439100
- b) BUSINESS SZ TEL: (86)755 21534695  
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BUSINESS GZ TEL: (86) 20 87148525  
FAX: (86) 20 87148528
- EMAIL: eechemical.sc@cn.bureauveritas.com  
WEBSITE: cps.bureauveritas.cn

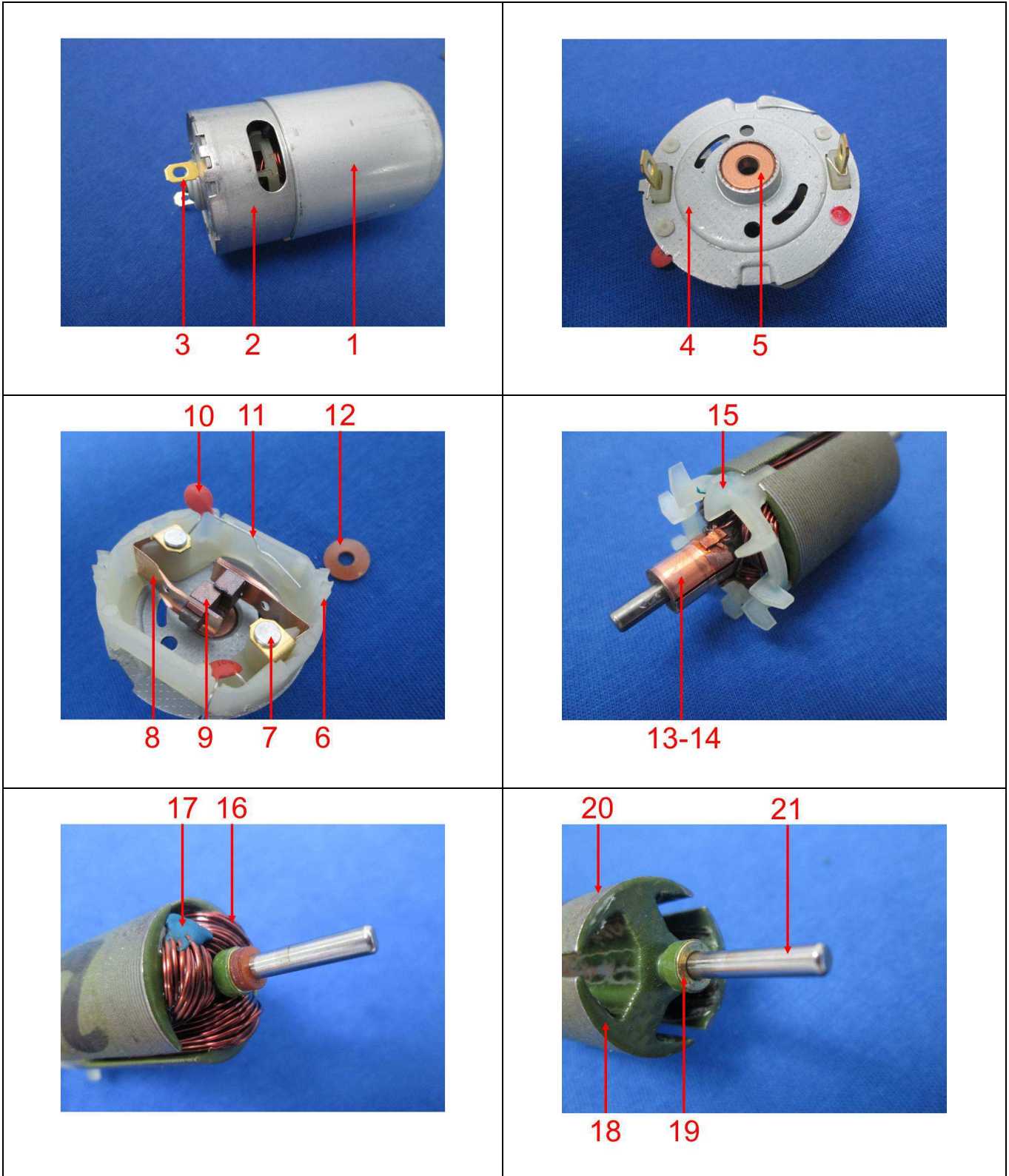


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Photo of the Submitted Sample



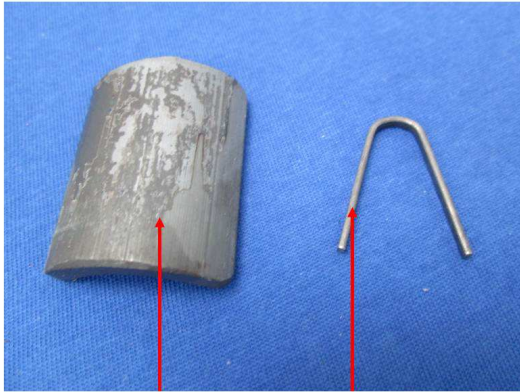
Photograph of test item(s)





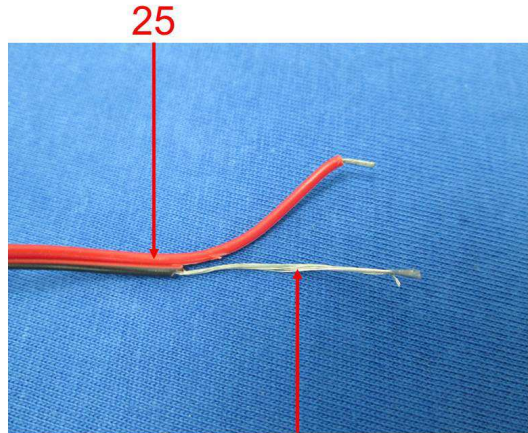
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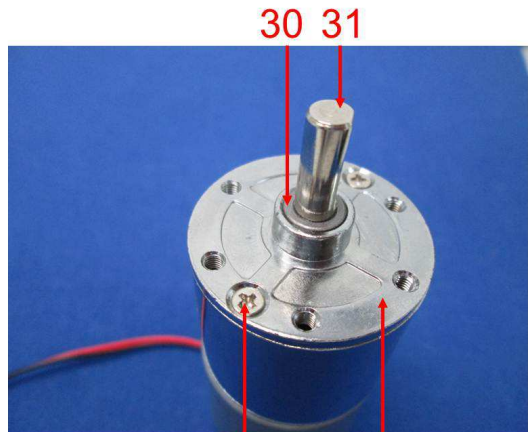


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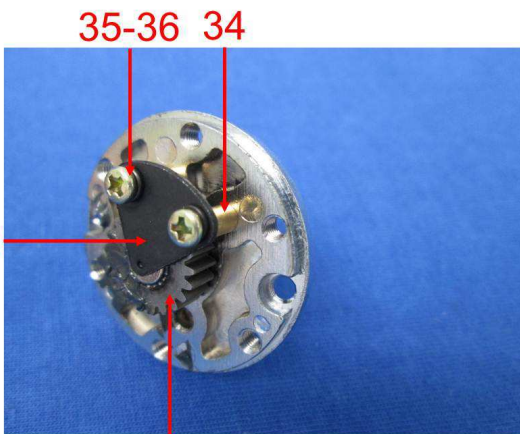
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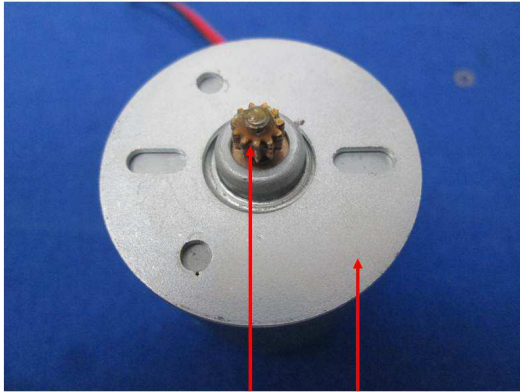
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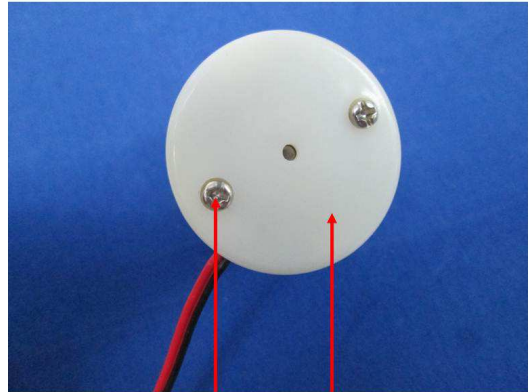


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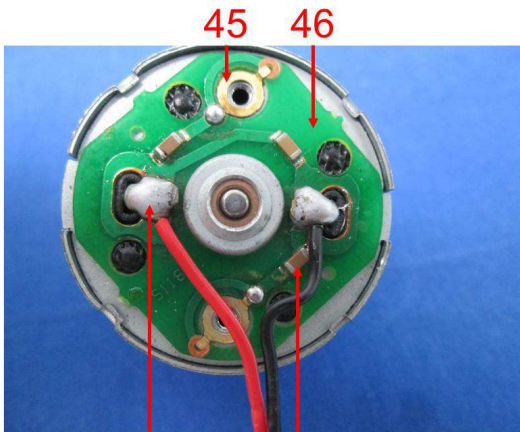
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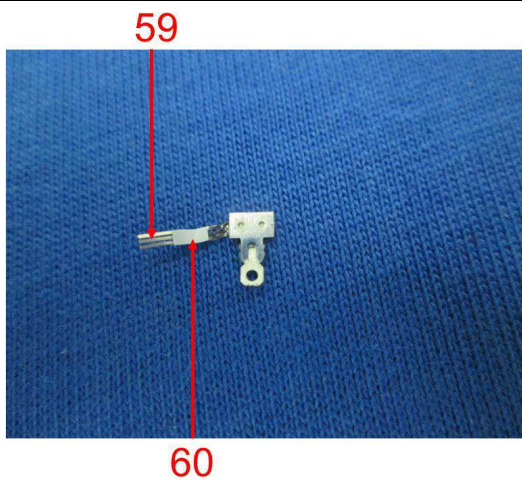
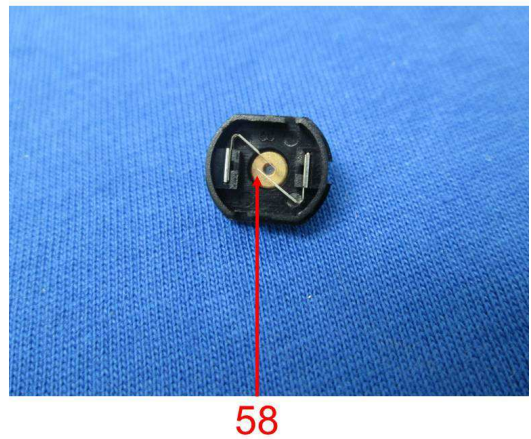
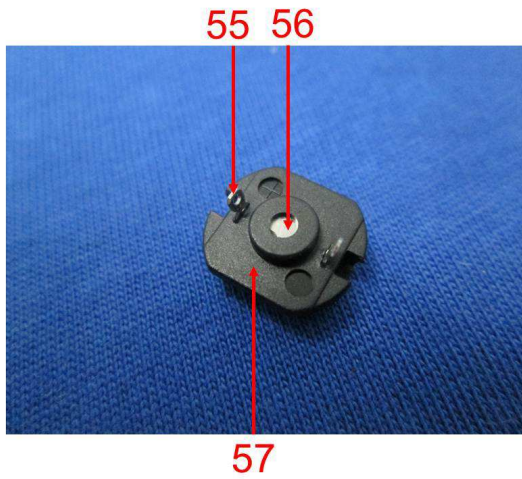
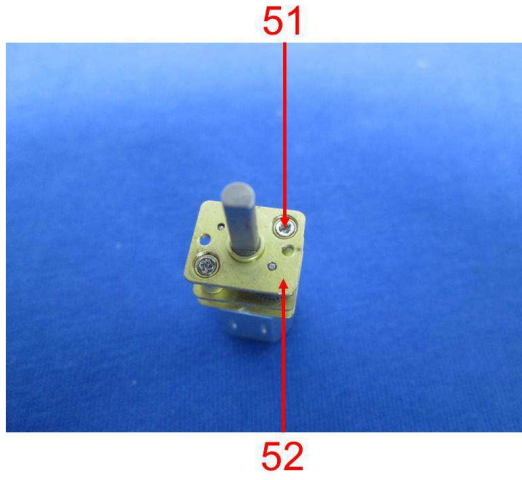


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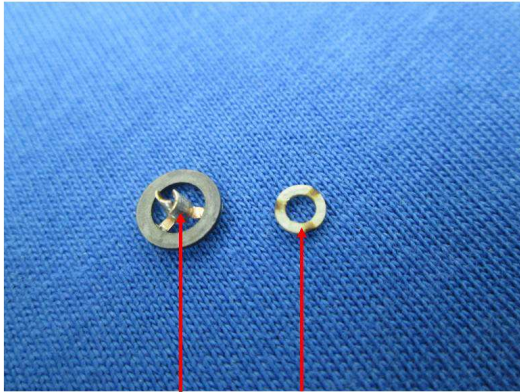
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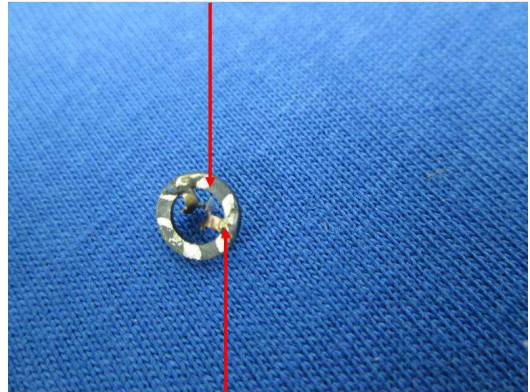


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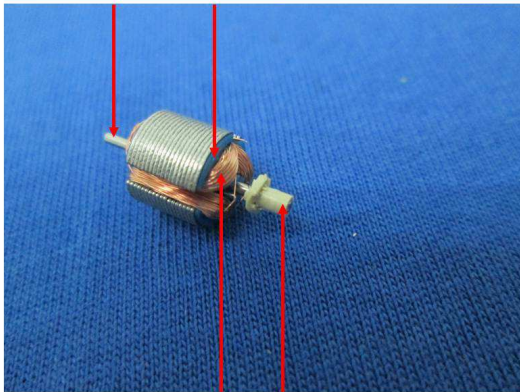
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### TEST RESULT

#### Compliance Test - European Council Directive 2011/65/EU on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS)

Test Method : See Appendix.

Test Item(s)	Item / Component Description(s)	Location(s)	Style(s)
1	Silvery metal	Holder	
2	Silvery metal	Case	
3	Golden metal	Pin	
4	Silvery metal	Base	
5	Bronze metal	Bearing	
6	Translucent plastic	Base	
7	Silvery metal	Rivet	
8	Coppery metal	Brush	
9	Black carbon	Brush	
10	Black printed brown body	Capacitor	
11	Silvery metal	Pin, capacitor	
12	Brown plastic	Ring	
13	Coppery metal	Commutator	
14	Black plastic	Commutator	
15	Grey plastic	Plate	
16	Coppery metal	Coil	
17	Blue glue	Coil	
18	Green coating	Plated	
19	Golden metal	Ring	
20	Silvery metal	Plate	
21	Silvery metal	Shaft	
22	Silvery metal	Spring	
23	Black magnet	Motor	
24	Silvery metal	Shaft, motor	
25	Red/ black soft plastic	Wire jacket	
26	Silvery plated coppery metal	Wire	
27	Silvery / coppery plated silvery metal	Case	
28	Silvery metal	Screw	
29	Silvery / coppery plated silvery metal	Cover	
30	Silvery metal	Bear	
31	Silvery metal	Shaft	
32	Black plated silvery metal	Plate	
33	Dull silvery metal	Gear	
34	Golden metal	Spacer	
35	Iridescent plated silvery metal	Screw	
36	Black plated silvery metal	Spring, washer	
37	Silvery metal	Shaft, gear	
38	Iridescent plated silvery metal	Screw	
39	Silvery metal	Plate	
40	Golden metal	Gear	
41	Silvery metal	Screw, base	
42	Beige plastic	Base	
43	Silvery solder	Base	
44	Brown body	SMD, capacitor	
45	Golden metal	Contact plate	
46	Green PCB	Base	



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47	Black plastic	Base	
48	Black plastic	Plate, magnet	
49	Black plastic	Insulator	
50	Coppery metal	Coil	
51	Silvery metal	Screw	
52	Golden metal	Frame	
53	Silvery metal	Gear	
54	Silvery metal	Shaft	
55	Silvery metal	Pin	
56	Silvery metal	Plate	
57	Black plastic	Base	
58	Golden metal	Bear	
59	Silvery metal	Brush	
60	White plastic	Brush	
61	White plastic	Ring, motor	
62	Grey plastic	Ring, commutator	
63	Silvery plated coppery metal	Contact plate, commutator	
64	Silvery solder	Commutator	
65	Silvery plated black core	Commutator	
66	Blue plastic	Insulator	
67	Coppery metal	Coil	
68	Beige plastic	Commutator	

Parameter	Result						Conclusion
	Lead (Pb)	Cadmium (Cd)	Mercury (Hg)	Chromium VI (Cr VI)	PBBs	PBDEs	
Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	-
Test Item(s)	-	-	-	-	-	-	-
1	ND	ND	ND	ND	NA	NA	PASS
2	ND	ND	ND	ND	NA	NA	PASS
3	ND	ND	ND	ND	NA	NA	PASS
4	ND	ND	ND	ND	NA	NA	PASS
5	ND	ND	ND	Negative*	NA	NA	PASS
6	ND	ND	ND	ND	ND	ND	PASS
7	ND	ND	ND	Negative*	NA	NA	PASS
8	ND	ND	ND	ND	NA	NA	PASS
9	<500	ND	ND	ND	ND	ND	PASS
10	ND	ND	ND	ND	ND	ND	PASS
11	ND	ND	ND	ND	NA	NA	PASS
12	ND	ND	ND	ND	ND	ND	PASS
13	ND	ND	ND	ND	NA	NA	PASS
14	ND	ND	ND	ND	ND	ND	PASS
15	ND	ND	ND	ND	ND	ND	PASS
16	ND	ND	ND	ND	NA	NA	PASS
17	ND	ND	ND	ND	ND	ND	PASS
18	ND	ND	ND	<500	ND	ND	PASS
19	34500*#	ND	ND	ND	NA	NA	EXEMPTED#
20	ND	ND	ND	Negative*	NA	NA	PASS
21	ND	ND	ND	ND	NA	NA	PASS
22	ND	ND	ND	ND	NA	NA	PASS
23	ND	ND	ND	ND	NA	NA	PASS
24	ND	ND	ND	ND	NA	NA	PASS
25	ND	ND	ND	ND	ND	ND	PASS
26	ND	ND	ND	ND	NA	NA	PASS



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Parameter	Result						Conclusion
	Lead (Pb)	Cadmium (Cd)	Mercury (Hg)	Chromium VI (Cr VI)	PBBs	PBDEs	
Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	-
Test Item(s)	-	-	-	-	-	-	-
27	ND	ND	ND	Negative*	NA	NA	PASS
28	ND	ND	ND	ND	NA	NA	PASS
29	ND	ND	ND	Negative*	NA	NA	PASS
30	ND	ND	ND	Negative*	NA	NA	PASS
31	ND	ND	ND	Negative*	NA	NA	PASS
32	ND	ND	ND	ND	NA	NA	PASS
33	ND	ND	ND	ND	NA	NA	PASS
34	ND	ND	ND	ND	NA	NA	PASS
35	ND	ND	ND	Negative*	NA	NA	PASS
36	ND	ND	ND	ND	NA	NA	PASS
37	ND	ND	ND	Negative*	NA	NA	PASS
38	ND	ND	ND	Negative*	NA	NA	PASS
39	ND	ND	ND	ND	NA	NA	PASS
40	<500	ND	ND	ND	NA	NA	PASS
41	ND	ND	ND	Negative*	NA	NA	PASS
42	ND	ND	ND	ND	ND	ND	PASS
43	>1500 <sup>#</sup>	ND	ND	ND	NA	NA	EXEMPTED <sup>#</sup>
44	ND	ND	ND	ND	ND	ND	PASS
45	<500	ND	ND	ND	NA	NA	PASS
46	ND	ND	ND	ND	ND*	ND*	PASS
47	ND	ND	ND	ND	ND	ND	PASS
48	ND	ND	ND	ND	ND	ND	PASS
49	ND	ND	ND	ND	ND*	ND*	PASS
50	ND	ND	ND	ND	NA	NA	PASS
51	ND	ND	ND	ND	NA	NA	PASS
52	8550* <sup>#</sup>	ND	ND	ND	NA	NA	EXEMPTED <sup>#</sup>
53	ND	ND	ND	Negative*	NA	NA	PASS
54	ND	ND	ND	ND	NA	NA	PASS
55	ND	ND	ND	Negative*	NA	NA	PASS
56	ND	ND	ND	Negative*	NA	NA	PASS
57	ND	ND	ND	ND	ND	ND	PASS
58	ND	ND	ND	ND	NA	NA	PASS
59	ND	ND	ND	ND	NA	NA	PASS
60	ND	ND	ND	ND	ND	ND	PASS
61	ND	ND	ND	ND	ND	ND	PASS
62	ND	ND	ND	ND	ND	ND	PASS
63	ND	ND	ND	ND	NA	NA	PASS
64	ND	ND	ND	ND	NA	NA	PASS
65	ND	ND	ND	ND	ND	ND	PASS
66	ND	ND	ND	ND	ND	ND	PASS
67	ND	ND	ND	ND	NA	NA	PASS
68	ND	ND	ND	ND	ND	ND	PASS



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Note / Key :

ND = Not detected

NR = Not requested

% = percent

Detection Limit : See Appendix.

“>” = Greater than

mg/kg = milligram(s) per kilogram = ppm = part(s) per million

10000 mg/kg = 1 %

NA = Not Applicable

Remark :

- The testing approach is listed in table of Appendix.
- \* denotes as reported result(s) was (were) performed by wet chemistry method. Others were screened by XRF. For XRF screening, the result(s) of Cr VI was (were) reported as total chromium and the result(s) of PBBs and PBDEs was (were) reported as total bromine. Also, the XRF result(s) may be different to the actual content based on various factors including, but not limit to, sample size, thickness, area, non-uniformity composition, surface flatness.
- Only selected example(s) is (are) indicated on the photograph(s) in Comment.
- According to European Council Directive 2011/65/EU, Article 5 “Adaptation of the Annexes to scientific and technical progress”, exemption(s) should be granted to the materials and components of Test Item(s) in the lists in Annexes III and IV of this directive.  
#According to Annex III of European Council Directive 2011/65/EU, exemptions were granted a few materials and Clause 6(c) is reiterated here “Copper alloy containing up to 4 % lead by weight.”. Test Item(s) 19, 52 was (were) claimed as is by client (received as is). Therefore, this (these) Test Item(s) containing the found lead level should be exempted.  
#According to Annex III of European Council Directive 2011/65/EU, exemptions were granted a few materials and Clause 7(a) is reiterated here “Lead in high melting temperature type solders (i.e. lead-based alloys containing 85 % by weight or more lead).”. Test Item(s) 43 was (were) claimed as is by client (received as is). Therefore, this (these) Test Item(s) containing the found lead level should be exempted.



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## APPENDIX

**List of Analytes and their Corresponding Test Methods, Detection Limit and Maximum Allowable Limit [ Verification Test for European Council Directive 2011/65/EU ] :**

No.	Name of Analytes	Detection Limit (mg/kg)				Maximum Allowable Limit (mg/kg)
		X-ray fluorescence (XRF) <sup>[a]</sup>			Wet Chemistry	
		Plastic	Metallic / glass / ceramic	Others		
1	Lead (Pb)	100	100	100	10 <sup>[b]</sup>	1000
2	Cadmium (Cd)	50	50	50	10 <sup>[b]</sup>	100
3	Mercury (Hg)	100	100	100	10 <sup>[c]</sup>	1000
4	Chromium (Cr)	100	100	100	NA	NA
5	Chromium VI (Cr VI)	NA	NA	NA	10 <sup>[d]</sup> / See [e, h]	1000 / Negative <sup>[h]</sup>
6	Bromine (Br)	100	NA	100	NA	NA
7	Polybromobiphenyls (PBBs) - Bromobiphenyl (MonoBB) - Dibromobiphenyl (DiBB) - Tribromobiphenyl (TriBB) - Tetrabromobiphenyl (TetraBB) - Pentabromobiphenyl (PentaBB) - Hexabromobiphenyl (HexaBB) - Heptabromobiphenyl (HeptaBB) - Octabromobiphenyl (OctaBB) - Nonabromobiphenyl (NonaBB) - Decabromobiphenyl (DecaBB)	NA	NA	NA	Each 50 <sup>[f]</sup>	Sum 1000
8	Polybromodiphenyl ethers (PBDEs) - Bromodiphenyl ether (MonoBDE) - Dibromodiphenyl ether (DiBDE) - Tribromodiphenyl ether (TriBDE) - Tetrabromodiphenyl ether (TetraBDE) - Pentabromodiphenyl ether (PentaBDE) - Hexabromodiphenyl ether (HexaBDE) - Heptabromodiphenyl ether (HeptaBDE) - Octabromodiphenyl ether (OctaBDE) - Nonabromodiphenyl ether (NonaBDE) - Decabromodiphenyl ether (DecaBDE)	NA	NA	NA	Each 50 <sup>[f]</sup>	Sum 1000

NA = Not applicable

[a] Test method with reference to International Standard IEC 62321-3-1: 2013.

[b] Test method with reference to International Standard IEC 62321-3-5: 2013.

[c] Test method with reference to International Standard IEC 62321-3-4: 2013.

[d] Polymers and Electronics - Test method with reference to European Standard EN 62321: 2009, Annex C.

[e] Metal - Test method with reference to European Standard EN 62321: 2009, Annex B<sup>[i]</sup>.

[f] Test method with reference to European Standard EN 62321: 2009, Annex A.

[g] Leather - Test method International Standard ISO 17075: 2007.

[h] Other Than Metal, Leather, Polymers and Electronics - Test method with reference to International Standard ISO 17075: 2007.

[i] The principle of this method was evaluated and supported by two studies organized by IEC TC 111 WG3. These studies were focused on detecting the presence of Cr VI in the corrosion protection coatings on metallic samples.

Result(s) of Cr VI for metallic material(s) was (were) expressed in term of positive and negative. Negative means the absence of Cr VI on the tested areas and the result(s) was (were) regarded as in compliance with European Parliament and Council Directive 2011/65/EU, Article 4(1). While, positive means the presence of Cr VI on tested areas and the result(s) was (were) regarded as in conflict with European Parliament and Council Directive 2011/65/EU, Article 4(1).



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**Testing Approach [ Verification Test for European Parliament and Council Directive 2011/65/EU ] :**

Verification test applies on the full product as final check or verification. The purpose is to quickly verify the RoHS status of the sample. When detecting failures, it is advised to go back to the technical file and communicate with the suppliers and production for potential problem. Its testing approach was with reference to the following document(s).

- 1 International Standards IEC 62321-1: 2013 and IEC 62321-2: 2013
- 2 "RoHS Enforcement Guidance Document Version 1" by EU RoHS Enforcement Authorities Informal Network. (May 2006)
- 3 "RoHS Regulations - Government Guidance Notes" by United Kingdom Department for Business Innovation & Skills. (February 2011)
- 4 "Final Report to RoHS substances (Hg, Pb, Cr(VI), Cd, PBB and PBDE) in electrical and electronic equipment in Belgium" by Belgium Federal Public Service Health, Food Chain Safety and Environment. (November 2005)