



**BUREAU  
VERITAS**

# TEST REPORT

LAB NO. : (8820)253-0079  
DATE : Sep 25, 2020  
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**APPLICANT** : **GUANGZHOU SANJING ELECTRIC CO., LTD**  
SAH INNOVATION PARK, NO.9, LIZHISHAN ROAD,  
GUANGZHOU HIGH-TECH ZONE, GUANGDONG, P.R.CHINA

**DATE OF SUBMISSION** : Sep 9, 2020

**TEST PERIOD** : Sep 9, 2020 TO Sep 25, 2020

**SAMPLE DESCRIPTION** : Controller Box

Style No. : SC01-2D1A, SC01-2D1A-S, SC01-2D1A-B, SC01-2D1A-L,  
SC01-2D1A-M, SC01-2D1A-BS, SC01-2D1H, SC01-2D1G,  
SC02-UL, SC02-UL-B, SC01-3P2C-S, SC01-3P2C, SC01-1D4A-B,  
SC01-1D4A, SC08-1D4A, SC09-2D1A, SH01-DBK, ICBOX10-UL

Sample Size : 1PCS

BUREAU VERITAS SHENZHEN CO.,LTD  
DONGGUAN BRANCH



Harvey Xue  
Manager, Analytical Lab

RT/Bing Wang/ Coco-qq Chen

## **REMARK**

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

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Business Contact: (86) 0769 85893595

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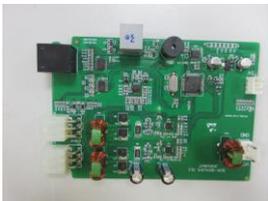
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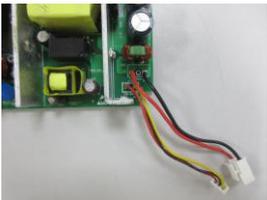
**SUMMARY OF TEST RESULTS**

<b>TEST REQUESTED</b>	<b>CONCLUSION</b>	<b>REMARK</b>
European Parliament and Council Directive 2011/65/EU on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS)	<b>PASS</b>	-
The BBP/DBP/DEHP/DIBP content requirements of the European Council Directive 2011/65/EU on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) with its Amendment Directive 2015/ 863	<b>PASS</b>	-

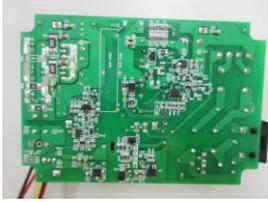


**Test Item Description and Photo List**

Test Item(s)	Sample Photo	Item / Component Description(s)	Location(s)	Style(s)
I001		Black plastic	Case, J4	-
I002		Silvery metal	Horn, J4	-
I003		Gray plastic	Case, J7	-
I004		Translucent plastic	Connector	-
I005		Silvery metal	Horn, connector	-
I006		White plastic	Connector	-
I007		Black plastic	Case, buzzer	-
I008		Black plastic	Base, buzzer	-
I009		Silvery metal	Gasket, buzzer	-
I010		Black metal	Magnet, buzzer	-
I011		Silvery metal	Core of buzzer	-
I012		Coppery metal	Coil of buzzer	-
I013		Green plastic	PCB, buzzer	-
I014		White printed black soft plastic	Electrolytic capacitor sleeve	-
I015		Silvery metal	Electrolytic capacitor shell	-
I016		Black soft plastic	Rubber seal	-
I017		Gray metal	Aluminum foil	-
I018		Silvery metal	Aluminum foil	-
I019		Brown paper	Electrolytic paper	-
I020		Silvery metal	Pin of electrolytic capacitor	-
I021		Black coated silvery metal	Electrolytic capacitor shell	-

Test Item(s)	Sample Photo	Item / Component Description(s)	Location(s)	Style(s)
I022		Black plastic	Gasket, capacitor	-
I023		Green core	Core of inductance	-
I024		Coppery metal	Coil of inductance	-
I025		Brown plastic	Board, inductance	-
I026		Black body	SMD IC	-
I027		Black body	SMD transistor	-
I028		Black body	SMD resistor	-
I029		Silvery body	Crystal	-
I030		Black body	SMD diode	-
I031		Brow body	SMD capacitor	-
I032		White body	SMD capacitor	-
I033		Silvery solder	Solder, PCB	-
I034		White coated nature printed green plastic	PCB	-
I035			White plastic	Connector
I036	Silvery metal		Horn, connector	-
I037	Black soft plastic		Big insulation	-
I038	Red soft plastic		Big insulation	-
I039	Black soft plastic		Small insulation	-
I040	Red soft plastic		Small insulation	-
I041	Yellow soft plastic		Insulation	-
I042	Silvery metal		Wire	-

Test Item(s)	Sample Photo	Item / Component Description(s)	Location(s)	Style(s)	
I043		Silvery metal	Heat sink	-	
I044		Silvery metal	Screw, heat sink	-	
I045		Black body	Diode, heat sink	-	
I046		White printed brown soft plastic	Electrolytic capacitor sleeve	-	
I047		Black plastic	Case, K1	-	
I048		Black plastic	Frame, K1	-	
I049		Silvery metal	Core of K1	-	
I050		Coppery metal	Coil of K1	-	
I051		Yellow soft plastic with adhesive	Adhesive tape, transformer	-	
I052		Black plastic	Frame, transformer	-	
I053		Transparent plastic	Insulation	-	
I054		Black metal	Magnet	-	
I055		Coppery metal	Wire	-	
I056		Coppery metal	Coil of transformer	-	
I057		Blue body	Capacitor	-	
I058			Black plastic	Case, AC socket	-
I059			Silvery metal	AC plug	-
I060	Silvery metal		Contact plate, AC plug	-	
I061	Silvery metal		Cover, inductance	-	
I062	Black plastic		Frame, inductance	-	
I063	Gray metal		Core of inductance	-	

Test Item(s)	Sample Photo	Item / Component Description(s)	Location(s)	Style(s)	
I064		Black body	BD1	-	
I065		Yellow plastic	Capacitor sleeve	-	
I066		Silvery plastic	Filler, capacitor	-	
I067		Black body	NTC	-	
I068		Black plastic	Fuse sleeve	-	
I069		Black plastic	Holder, fuse	-	
I070		Silvery metal	Horn, fuse	-	
I071		Gray body	Resistor	-	
I072		Black soft plastic	Resistor sleeve	-	
I073		Silvery metal	Horn, resistor	-	
I074		Green body	Capacitor	-	
I075			Black body	SMD transistor	-
I076			Black body	SMD diode	-
I077			White body	SMD capacitor	-
I078	Silvery solder		Solder, PCB	-	
I079	White coated nature printed green plastic		PCB	-	



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**TEST RESULT**

**Compliance Test – European Parliament and 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.

See Analytes and their corresponding Maximum Allowable Limit in Appendix

-	Result						
Parameter	Lead (Pb)	Cadmium (Cd)	Mercury (Hg)	Chromium VI (Cr VI)	PBBs	PBDEs	Conclusion
Unit	mg/kg						-
Test Item(s)	-	-	-	-	-	-	-
I001	ND	ND	ND	ND	ND*	ND*	PASS
I002	ND	ND	ND	ND	NA	NA	PASS
I003	ND	ND	ND	ND	ND*	ND*	PASS
I004	ND	ND	ND	ND	ND	ND	PASS
I005	ND	ND	ND	ND	NA	NA	PASS
I006	ND	ND	ND	ND	ND	ND	PASS
I007	ND	ND	ND	ND	ND*	ND*	PASS
I008	ND	ND	ND	ND	ND	ND	PASS
I009	ND	ND	ND	ND	NA	NA	PASS
I010	ND	ND	ND	ND	NA	NA	PASS
I011	ND	ND	ND	ND	NA	NA	PASS
I012	ND	ND	ND	ND	NA	NA	PASS
I013	ND	ND	ND	ND	ND*	ND*	PASS
I014	ND	ND	ND	ND	ND	ND	PASS
I015	ND	ND	ND	ND	NA	NA	PASS
I016	ND	ND	ND	ND	ND	ND	PASS
I017	ND	ND	ND	ND	NA	NA	PASS
I018	ND	ND	ND	ND	NA	NA	PASS
I019	ND	ND	ND	ND	ND	ND	PASS
I020	ND	ND	ND	ND	NA	NA	PASS
I021	ND	ND	ND	ND	NA	NA	PASS
I022	ND	ND	ND	ND	ND	ND	PASS
I023	ND	ND	ND	ND	ND	ND	PASS
I024	ND	ND	ND	ND	NA	NA	PASS
I025	ND	ND	ND	ND	ND*	ND*	PASS
I026	ND	ND	ND	ND	ND	ND	PASS
I027	ND	ND	ND	ND	ND	ND	PASS
I028	ND	ND	ND	ND	ND	ND	PASS



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I029	ND	ND	ND	ND	ND	ND	PASS
I030	ND	ND	ND	ND	ND	ND	PASS
I031	ND	ND	ND	ND	ND	ND	PASS
I032	ND	ND	ND	ND	ND	ND	PASS
I033	ND	ND	ND	ND	NA	NA	PASS
I034	ND	ND	ND	ND	ND*	ND*	PASS
I035	ND	ND	ND	ND	ND	ND	PASS
I036	ND	ND	ND	ND	NA	NA	PASS
I037	ND	ND	ND	ND	ND	ND	PASS
I038	ND	ND	ND	ND	ND	ND	PASS
I039	ND	ND	ND	ND	ND	ND	PASS
I040	ND	ND	ND	ND	ND	ND	PASS
I041	ND	ND	ND	ND	ND	ND	PASS
I042	ND	ND	ND	ND	NA	NA	PASS
I043	ND	ND	ND	ND	NA	NA	PASS
I044	ND	ND	ND	Negative*	NA	NA	PASS
I045	ND	ND	ND	ND	ND	ND	PASS
I046	ND	ND	ND	ND	ND	ND	PASS
I047	ND	ND	ND	ND	ND*	ND*	PASS
I048	ND	ND	ND	ND	ND*	ND*	PASS
I049	ND	ND	ND	ND	NA	NA	PASS
I050	ND	ND	ND	ND	NA	NA	PASS
I051	ND	ND	ND	ND	ND	ND	PASS
I052	ND	ND	ND	ND	ND	ND	PASS
I053	ND	ND	ND	ND	ND	ND	PASS
I054	ND	ND	ND	ND	NA	NA	PASS
I055	ND	ND	ND	ND	NA	NA	PASS
I056	ND	ND	ND	ND	NA	NA	PASS
I057	ND	ND	ND	ND	ND	ND	PASS
I058	ND	ND	ND	ND	ND*	ND*	PASS
I059	ND	ND	ND	Negative*	NA	NA	PASS
I060	ND	ND	ND	ND	NA	NA	PASS
I061	ND	ND	ND	Negative*	NA	NA	PASS
I062	ND	ND	ND	ND	ND	ND	PASS
I063	ND	ND	ND	ND	NA	NA	PASS
I064	ND	ND	ND	ND	ND*	ND*	PASS
I065	ND	ND	ND	ND	ND*	ND*	PASS
I066	ND	ND	ND	ND	ND	ND	PASS
I067	ND	ND	ND	ND	ND	ND	PASS
I068	ND	ND	ND	ND	ND	ND	PASS
I069	ND	ND	ND	ND	ND	ND	PASS



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I070	ND	ND	ND	ND	NA	NA	PASS
I071	ND	ND	ND	ND	ND	ND	PASS
I072	ND	ND	ND	ND	ND	ND	PASS
I073	ND	ND	ND	ND	NA	NA	PASS
I074	ND	ND	ND	ND	ND	ND	PASS
I075	ND	ND	ND	ND	ND	ND	PASS
I076	ND	ND	ND	ND	ND	ND	PASS
I077	ND	ND	ND	ND	ND	ND	PASS
I078	ND	ND	ND	ND	NA	NA	PASS
I079	ND	ND	ND	ND	ND*	ND*	PASS

Note / Key:

ND = Not detected

NR = Not requested

NA = Not applicable

Detection Limit : See Appendix.

“>” = Greater than

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

% = percent

“<” = Less than

10000 mg/kg = 1 %

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.
  - 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.
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**APPENDIX**

<b>List of Analytes and their Corresponding Test Methods, Detection Limit and Maximum Allowable Limit [ Compliance Test for European Parliament and Council Directive 2011/65/EU ] :</b>						
<b>No.</b>	<b>Name of Analytes</b>	<b>Detection Limit (mg/kg)</b>				<b>Maximum Allowable Limit (mg/kg)</b>
		<b>X-ray fluorescence (XRF)<sup>[a]</sup></b>			<b>Wet Chemistry</b>	
		<b>Plastic</b>	<b>Metallic / glass / ceramic</b>	<b>Others</b>		
1	Lead (Pb)	100	200	200	10 <sup>[b]</sup>	1000
2	Cadmium (Cd)	50	50	50	10 <sup>[b]</sup>	100
3	Mercury (Hg)	100	200	200	10 <sup>[c]</sup>	1000
4	Chromium (Cr)	100	200	200	NA	NA
5	Chromium VI (Cr VI)	NA	NA	NA	3 <sup>[g, h]</sup> / 10 <sup>[d]</sup> / Sec <sup>[e, i]</sup>	1000 / Negative <sup>[j]</sup>
6	Bromine (Br)	200	NA	200	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



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

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 62321-5: 2013.
- [c] Test method with reference to International Standard IEC 62321-4: 2013.
- [d] Polymers and Electronics - Test method with reference to European Standard EN 62321: 2009, Annex C.
- [e] Metal - Test method with reference to International Standard IEC 62321-7-1: 2015.
- [f] Test method with reference to International Standard IEC 62321-6: 2015.
- [g] Leather - Test method International Standard ISO 17075-1:2017.
- [h] Other Than Metal, Leather, Polymers and Electronics - Test method with reference to International Standard ISO 17075-1:2017.
- [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).
- [j]

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

The 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)



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### TEST RESULT

#### **BBP/DBP/DEHP/DIBP Content – European Council Directive 2011/65/EU on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) with its Amendments**

**Test Method :** Sample was extracted with organic solvent and then analyzed by Gas Chromatograph Mass Spectrometer.

Test Parameter:	BBP	DBP	DEHP	DIBP	-
Limit (%):	0.1	0.1	0.1	0.1	-
Test Item(s)	Result (%)				Conclusion
I001	ND	ND	ND	ND	PASS
I003	ND	ND	ND	ND	PASS
I004	ND	ND	ND	ND	PASS
I006	ND	ND	ND	ND	PASS
I007	ND	ND	ND	ND	PASS
I008	ND	ND	ND	ND	PASS
I013	ND	ND	ND	ND	PASS
I014	ND	ND	ND	ND	PASS
I016	ND	ND	ND	ND	PASS
I022	ND	ND	ND	ND	PASS
I025	ND	ND	ND	ND	PASS
I034	ND	ND	ND	ND	PASS
I035	ND	ND	ND	ND	PASS
I037	ND	ND	ND	ND	PASS
I038	ND	ND	ND	ND	PASS
I039	ND	ND	ND	ND	PASS
I040	ND	ND	ND	ND	PASS
I041	ND	ND	ND	ND	PASS
I046	ND	ND	ND	ND	PASS
I047	ND	ND	ND	ND	PASS
I048	ND	ND	ND	ND	PASS
I051	ND	ND	ND	ND	PASS
I052	ND	ND	ND	ND	PASS
I053	ND	ND	ND	ND	PASS
I058	ND	ND	ND	ND	PASS
I062	ND	ND	ND	ND	PASS
I065	ND	ND	ND	ND	PASS
I066	ND	ND	ND	ND	PASS
I068	ND	ND	ND	ND	PASS
I069	ND	ND	ND	ND	PASS
I072	ND	ND	ND	ND	PASS



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I079	ND	ND	ND	ND	PASS
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Note / key:

BBP = Butyl benzyl phthalate (CAS No: 85-68-7)      DBP = Dibutyl phthalate (CAS No: 84-74-2)  
DEHP = Di(2-ethylhexyl) phthalate (CAS No: 117-81-7)      DIBP = Diisobutyl phthalate (CAS No: 84-69-5)  
ND = Not detected      % = percent      10000 mg/kg = 1 %  
mg/kg = milligram(s) per kilogram  
Detection Limit (%) : Each 0.005

Remark:

- The amendment will be effective on 22 July 2019. For medical devices and control instruments, effective date will be 22 July 2021.

\*\*\* End of Report \*\*\*