



**BUREAU
VERITAS**

TEST REPORT

LAB NO. : (8817)081-0070
DATE : Apr 7, 2017
PAGE : 1 OF 15

APPLICANT : **PARTICLE INDUSTRIES, INC.**
1475 Folsom St. #200 San Francisco, CA 94103

DATE OF SUBMISSION : MAR 22, 2017

TEST PERIOD : MAR 22, 2017 TO APR 7, 2017

SAMPLE DESCRIPTION : 3G/2G INTERNET OF THINGS DEVELOPMENT KIT

Style No. : ELECTRON

P.O. No. : 型号: E260KIT, E270KIT, E350KIT

Manufacturer : PARTICLE INDUSTRIES, INC.

Country of Origin: CHINA

SUMMARY OF TEST RESULTS

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

BUREAU VERITAS SHENZHEN CO.,LTD
DONGGUAN BRANCH

Harvey Xue
Assistant Manager, Analytical Lab

RT/EL/QQ

REMARK

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

Report Enquiry: (86) 0769 85935656 Ext. 8819 CPSAnalytical.DG@cn.bureauveritas.com


Business Contact: (86) 0769 85893595


This report shall not be reproduced except in full, without the written approval of our laboratory.

Photo of the Submitted Sample








Test Item Description and Photo List





Test Item(s)	Sample Photo	Item / Component Description(s)	Location(s)	Style(s)
I001		Multi- color coated brown plastic	Sticker, cover, small PCB, kit	-
I002		Silvery metal	Cover, small PCB, kit	-
I003		Black body	IC “M39LOR”, small PCB, kit	-
I004		Black body	IC “i5715”, small PCB, kit	-
I005		Black body	IC “i9812”, small PCB, kit	-
I006		Black body	Smallest IC, side IC “i9812”, small PCB, kit	-
I007		Silvery metal	Pin, smallest IC, side IC “i9812”, small PCB, kit	-
I008		Black body	IC “AAF07”, small PCB, kit	-
I009		Black body	IC “RF”, small PCB, kit	-
I010		Black body	Small SMD resistor, small PCB, kit	-
I011		Brown body	Smaller SMD capacitor, small PCB, kit	-
I012		Brown body	Small SMD capacitor, small PCB, kit	-
I013		Brown body	Big SMD capacitor, small PCB, kit	-
I014		Black body	Bigger SMD capacitor, small PCB, kit	-
I015		Silvery body	EC “T260”, small PCB, kit	-
I016		Silvery body	EC “M6”, small PCB, kit	-
I017		Silvery grey body	Smaller Inductor, small PCB, kit	-
I018		Coppery metal	Coil, smaller inductor, small PCB, kit	-

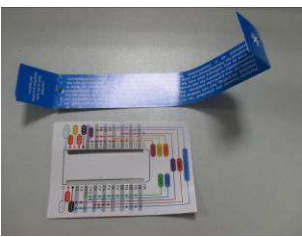


Test Item(s)	Sample Photo	Item / Component Description(s)	Location(s)	Style(s)
I019		Green coated translucent plastic with coppery metal	Small PCB, kit	-
I020		Golden metal	Case, socket, big PCB, kit	-
I021		Golden metal	Pin, socket, big PCB, kit	-
I022		Off white plastic	Holder, socket, big PCB, kit	-
I023		Black plastic	Button, micro switch, big PCB, kit	-
I024		Silvery metal	Case, micro switch, big PCB, kit	-
I025		Silvery metal	Contact plate, micro switch, big PCB, kit	-
I026		Black plastic	Base, micro switch, big PCB, kit	-
I027		Silvery metal	Pin, micro switch, big PCB, kit	-
I028		Translucent/black body	EC, side micro switch, big PCB, kit	-
I029		Beige body	SMD LED, big PCB, kit	-
I030		Black body	Big inductor, big PCB, kit	-
I031		Coppery metal	Coil, big inductor, big PCB, kit	-
I032		Black body	IC "4BN", big PCB, kit	-
I033		Silvery metal	Pin, IC "4BN", big PCB, kit	-
I034		Black body	IC "17043", big PCB, kit	-
I035		Silvery metal	Pin, IC "17043", big PCB, kit	-
I036		White coated black body	Big SMD resistor, big PCB, kit	-
I037	Black body	IC "CFY", big PCB, kit	-	
I038	Silvery metal	Pin, IC "CFY", big PCB, kit	-	

Test Item(s)	Sample Photo	Item / Component Description(s)	Location(s)	Style(s)
I039		Silvery metal	Case, USB socket, big PCB, kit	-
I040		Black plastic	Pin holder, USB socket, big PCB, kit	-
I041		Silvery metal	Pin, USB socket, big PCB, kit	-
I042		Off white plastic	Socket, big PCB, kit	-
I043		Silvery metal	Pin, socket, big PCB, kit	-
I044		Silvery metal	Contact plate, socket, big PCB, kit	-
I045		Black plastic	Socket, side, big PCB, kit	-
I046		Light golden metal	Pin, socket, side, big PCB, kit	-
I047		Brown body	SMD capacitor "227J", big PCB, kit	-
I048		Silvery metal	Case, socket, big PCB, kit	-
I049		Black plastic	Base, socket, big PCB, kit	-
I050		Golden metal	Pin, base, socket, big PCB, kit	-
I051		Silvery/golden body	Small EC "SFG30A", big PCB, kit	-
I052		Silvery/golden body	Big EC "SJ26", big PCB, kit	-
I053		Black body	IC "ARM", big PCB, kit	-
I054		Silvery metal	Pin, IC "ARM", big PCB, kit	-
I055		Black body	IC "CV5", big PCB, kit	-
I056		Silvery metal	Pin, IC "CV5", big PCB, kit	-
I057		Black body	IC "ZWU", big PCB, kit	-
I058	Silvery metal	Pin, IC "ZWU", big PCB, kit	-	

Test Item(s)	Sample Photo	Item / Component Description(s)	Location(s)	Style(s)
I059		Black body	IC "BQ24", big PCB, kit	-
I060		Silvery metal	Pin, IC "BQ24", big PCB, kit	-
I061		Black body	SMD diode "33", big PCB, kit	-
I062		Grey body	Inductor "2R2", big PCB, kit	-
I063		Coppery metal	Coil, inductor "2R2", big PCB, kit	-
I064		Silvery solder	Solder, big PCB, kit	-
I065		Black coated translucent plastic with coppery metal	Big PCB, kit	-
I066		Transparent soft plastic	Sleeve, cable, PCB, kit	-
I067		Golden metal	Socket, cable, PCB, kit	-
I068		White plastic	Holder, socket, cable, PCB, kit	-
I069		Black plastic	Wire jacket, cable, PCB, kit	-
I070		Transparent soft plastic	Wire insulation, cable, PCB, kit	-
I071		Silvery solder	Solder, PCB, kit	-
I072		Black coated translucent plastic with coppery metal	PCB, kit	-
I073		White paper with glue	Adhesive tape, PCB, kit	-
I074		Red printed white paper	Sheet, PCB, kit	-
I075		Black printed white paper	Barcode, socket, kit	-
I076		Black printed white plastic	Big socket, kit	-
I077		Silvery metal	Contact plate, big socket, kit	-
I078		Blue/red coated white plastic	Small socket, kit	-

Test Item(s)	Sample Photo	Item / Component Description(s)	Location(s)	Style(s)
I079		Silvery metal	Contact plate, small socket, kit	-
I080		White foam	Foam, socket, kit	-
I081		Yellow paper	Sheet, socket, kit	-
I082		White soft plastic	Case, big USB plug, cable, kit	-
I083		Silvery metal	Cover, big USB plug, cable, kit	-
I084		White plastic	Pin holder, front, big USB plug, cable, kit	-
I085		White soft plastic	Pin holder, behind, big USB plug, cable, kit	-
I086		Silvery metal	Pin, big USB plug, cable, kit	-
I087		Silvery solder	Solder, pin, big USB plug, cable, kit	-
I088		White soft plastic	Wire jacket, cable, kit	-
I089		Blue coated silvery metal	Foil, cable, kit	-
I090		White soft plastic	Wire insulation, cable, kit	-
I091		Black soft plastic	Wire insulation, cable, kit	-
I092		Red soft plastic	Wire insulation, cable, kit	-
I093		Green soft plastic	Wire insulation, cable, kit	-
I094		Silvery plated coppery metal	Wire, cable, kit	-
I095		White soft plastic	Case, small USB plug, cable, kit	-
I096		Silvery metal	Cover, small USB plug, cable, kit	-
I097		Black plastic	Pin holder, front, small USB plug, cable, kit	-
I098		White soft plastic	Pin holder, behind, small USB plug, cable, kit	-

Test Item(s)	Sample Photo	Item / Component Description(s)	Location(s)	Style(s)
I099		Silvery metal	Pin, small USB plug, cable, kit	-
I100		White soft plastic	Belt, cable, kit	-
I101		Silvery metal	Wire, belt, cable, kit	-
I102		Transparent plastic	Bag, kit	-
I103		Beige paper with glue	Adhesive tape, bag, kit	-
I104		Transparent body	Small LED, bag, kit	-
I105		Silvery metal	Pin, small LED, bag, kit	-
I106		Transparent body	Big LED, bag, kit	-
I107		Silvery metal	Pin, big LED, bag, kit	-
I108		Brown paper with glue	Adhesive tape, carbon film resistor, bag, kit	-
I109		Multi- color coated beige body	Carbon film resistor, bag, kit	-
I110		Silvery metal	Pin, carbon film resistor, bag, kit	-
I111			Blue/black printed white plastic with glue	Sticker, card, kit
I112	Dark blue coated white plastic with golden metal		Card, kit	-
I113		Blue coated white plastic with glue	Sticker, kit	-
I114		White paper	Sheet, sticker, kit	-

Test Item(s)	Sample Photo	Item / Component Description(s)	Location(s)	Style(s)
I115		Blue coated white paper	Strip, kit	
I116		Multi- color coated white paper	Sheet, kit	
I117		Black printed white plastic	Barcode, box, kit	
I118		Black paper	Box, kit	
I119		Red coated transparent plastic	Bag, kit	-
I120		Yellow/black printed coated white plastic	Sticker, bag, kit	-
I121		White plastic	Socket, cable, battery, kit	-
I122		Silvery metal	Pin, socket, cable, battery, kit	-
I123		Red soft plastic	Wire insulation, cable, battery, kit	-
I124		Black soft plastic	Wire insulation, cable, battery, kit	-
I125		Silvery solder	Solder, PCB, battery, kit	-
I126		Green coated translucent plastic with coppery metal	PCB, battery, kit	-
I127		White coated transparent plastic	Box, kit	-
I128		Matt black foam	Thick, foam, box, kit	-
I129		Black foam	Thin, foam, box, kit	-

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	ND	ND	PASS
I006	ND	ND	ND	ND	ND	ND	PASS
I007	ND	ND	ND	ND	NA	NA	PASS
I008	ND	ND	ND	ND	ND	ND	PASS
I009	ND	ND	ND	ND	ND	ND	PASS
I010	ND	ND	ND	ND	ND	ND	PASS
I011	ND	ND	ND	ND	ND	ND	PASS
I012	ND	ND	ND	ND	ND	ND	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	NA	NA	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	Negative*	NA	NA	PASS
I025	ND	ND	ND	Negative*	NA	NA	PASS
I026	ND	ND	ND	ND	ND	ND	PASS
I027	ND	ND	ND	ND	NA	NA	PASS



LAB NO. : (8817)081-0070
 DATE : Apr 7, 2017
 PAGE : 11 OF 15

I028	ND	ND	ND	ND	ND	ND	PASS
I029	ND	ND	ND	ND	ND	ND	PASS
I030	ND	ND	ND	ND	NA	NA	PASS
I031	ND	ND	ND	ND	NA	NA	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	NA	NA	PASS
I036	ND	ND	ND	ND	ND	ND	PASS
I037	ND	ND	ND	ND	ND	ND	PASS
I038	ND	ND	ND	ND	NA	NA	PASS
I039	ND	ND	ND	ND	NA	NA	PASS
I040	ND	ND	ND	ND	ND	ND	PASS
I041	ND	ND	ND	ND	NA	NA	PASS
I042	ND	ND	ND	ND	ND*	ND*	PASS
I043	ND	ND	ND	ND	NA	NA	PASS
I044	ND	ND	ND	ND	NA	NA	PASS
I045	ND	ND	ND	ND	ND*	ND*	PASS
I046	ND	ND	ND	ND	NA	NA	PASS
I047	ND	ND	ND	ND	ND	ND	PASS
I048	ND	ND	ND	Negative*	NA	NA	PASS
I049	ND	ND	ND	ND	ND	ND	PASS
I050	ND	ND	ND	ND	NA	NA	PASS
I051	ND	ND	ND	ND	NA	NA	PASS
I052	ND	ND	ND	ND	NA	NA	PASS
I053	ND	ND	ND	ND	ND	ND	PASS
I054	ND	ND	ND	ND	NA	NA	PASS
I055	ND	ND	ND	ND	ND	ND	PASS
I056	ND	ND	ND	ND	NA	NA	PASS
I057	ND	ND	ND	ND	ND	ND	PASS
I058	ND	ND	ND	ND	NA	NA	PASS
I059	ND	ND	ND	ND	ND	ND	PASS
I060	ND	ND	ND	ND	NA	NA	PASS
I061	ND	ND	ND	ND	ND*	ND*	PASS
I062	ND	ND	ND	ND	NA	NA	PASS
I063	ND	ND	ND	ND	NA	NA	PASS
I064	ND	ND	ND	ND	NA	NA	PASS
I065	ND	ND	ND	ND	ND*	ND*	PASS
I066	ND	ND	ND	ND	ND	ND	PASS
I067	ND	ND	ND	ND	NA	NA	PASS
I068	ND	ND	ND	ND	ND	ND	PASS



LAB NO. : (8817)081-0070
 DATE : Apr 7, 2017
 PAGE : 12 OF 15

I069	ND	ND	ND	ND	ND	ND	PASS
I070	ND	ND	ND	ND	ND	ND	PASS
I071	ND	ND	ND	ND	NA	NA	PASS
I072	ND	ND	ND	ND	ND*	ND*	PASS
I073	ND	ND	ND	ND	ND	ND	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	NA	NA	PASS
I078	ND	ND	ND	ND	ND	ND	PASS
I079	ND	ND	ND	ND	NA	NA	PASS
I080	ND	ND	ND	ND	ND	ND	PASS
I081	ND	ND	ND	ND	ND	ND	PASS
I082	ND	ND	ND	ND	ND	ND	PASS
I083	ND	ND	ND	ND	NA	NA	PASS
I084	ND	ND	ND	ND	ND*	ND*	PASS
I085	ND	ND	ND	ND	ND	ND	PASS
I086	ND	ND	ND	ND	NA	NA	PASS
I087	ND	ND	ND	ND	NA	NA	PASS
I088	ND	ND	ND	ND	ND	ND	PASS
I089	ND	ND	ND	Negative*	NA	NA	PASS
I090	ND	ND	ND	ND	ND	ND	PASS
I091	ND	ND	ND	ND	ND	ND	PASS
I092	ND	ND	ND	ND	ND	ND	PASS
I093	ND	ND	ND	ND	ND	ND	PASS
I094	ND	ND	ND	ND	ND	ND	PASS
I095	ND	ND	ND	ND	ND	ND	PASS
I096	ND	ND	ND	Negative*	NA	NA	PASS
I097	ND	ND	ND	ND	ND	ND	PASS
I098	ND	ND	ND	ND	ND	ND	PASS
I099	ND	ND	ND	Negative*	NA	NA	PASS
I100	ND	ND	ND	ND	ND	ND	PASS
I101	ND	ND	ND	ND	NA	NA	PASS
I102	ND	ND	ND	ND	ND	ND	PASS
I103	ND	ND	ND	ND	ND	ND	PASS
I104	ND	ND	ND	ND	ND*	ND*	PASS
I105	ND	ND	ND	ND	NA	NA	PASS
I106	ND	ND	ND	ND	ND*	ND*	PASS
I107	ND	ND	ND	ND	NA	NA	PASS
I108	ND	ND	ND	ND	ND	ND	PASS
I109	ND	ND	ND	ND	ND	ND	PASS

APPENDIX

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] :							
No.	Name of Analytes	Detection Limit (mg/kg)				Wet Chemistry	Maximum Allowable Limit (mg/kg)
		X-ray fluorescence (XRF)^[a]					
		Plastic	Metallic / glass / ceramic	Others			
1	Lead (Pb)	100	200	200	10 ^[b]	1000	
2	Cadmium (Cd)	50	50	50	10 ^[b]	100	
3	Mercury (Hg)	100	200	200	10 ^[c]	1000	
4	Chromium (Cr)	100	200	200	NA	NA	
5	Chromium VI (Cr VI)	NA	NA	NA	3 ^[g, h] / 10 ^[d] / Sec ^[e, i]	1000 / Negative ^[j]	
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 ^[f]	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 ^[f]	Sum 1000	



LAB NO. : (8817)081-0070
DATE : Apr 7, 2017
PAGE : 15 OF 15

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: 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).
- [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)

*** End of Report ***