



Maxwell Technologies, Inc.
3888 Calle Fortunada
San Diego, CA 92123

8 November 2018

RE: Pseudo capacitors (2.3V-50F~300F) RoHS Declaration - External

To Our Valued Customers:

The EU Restriction on Hazardous Substances (RoHS) Directive (2011/65/EU) was recast from Directive 2002/95/EC on July 21, 2011, and member states are required to enforce the restrictions by January 2, 2013. The four phthalates (DEHP, BBP, DBP and DIBP) are to be restricted by Commission Delegated Directive (EU) 2015/863 of 31 March 2015 amending Annex II to Directive 2011/65/EU, and member states are required to enforce the restrictions by July 22, 2019. It seeks to restrict the use of certain hazardous substances in electrical and electronic equipment by setting certain concentration limits for the following substances: lead(Pb), cadmium(Cd), mercury(Hg), hexavalent chromium(Cr6+), polybrominated biphenyls (PBB), polybrominated diphenyl ethers(PBDE), Di-(2-ethylhexyl) phthalate (DEHP), Di-butyl phthalate (DBP), Benzyl butyl phthalate (BBP), and Di-isobutyl phthalate (DIBP).

Maxwell Technologies, Inc., along with its affiliates, vendors and partners, support the RoHS objective of preventing risks to human health and the environment, with a particular focus on workers involved in the management of electronic waste. Accordingly, Maxwell hereby declares that the products listed in Table 1 below do not contain any of the above mentioned substances in excess of the permitted concentrations.

Table 1

PCAP0050 P230 S01 (PSHLR-0050C0-002R3)	PCAP0300 P230 S07 (PSHLR-0300C0-002R3)	PCAP0120 P230 S01 (PSHLR-0120C0-002R3)
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The above statements are based upon one of the following techniques employed by Maxwell, its affiliates, vendors, or partners: certification at accredited test facilities; or through similarity in construction and materials used.

RoHS test reports prepared for Maxwell by an accredited facility are attached:

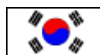
For additional questions or information, please contact your Maxwell Key Account Manager.



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 Republic of Korea

The following sample(s) was/were submitted and identified by/on behalf of the client as:-

SGS File No.	: AYGU18-07722
Product Name	: Pseudocapacitor
Product No. / Model No.	: PCAP0120 P230 S01(PSHLR-0120C0-002R3)
Client Reference Data	: PCAP0050 P230 S01(PSHLR-0050C0-002R3), PCAP0300 P230 S07(PSHLR-0300C0-002R3)
Verification Period	: 2018. 8. 24. to 2018. 8. 27.
Verification Requested	: With reference to RoHS Directive 2011/65/EU recasting 2002/95/EC and Commission Delegated Directive(EU) 2015/863
Verification Method	<ol style="list-style-type: none"> 1. Review was performed for the samples disjointed from the submitted articles and the related test reports submitted by the Applicant. 2. Test was performed for the samples indicated by the photos in the report with test methods reference to IEC 62321: Procedures for the Determination of Levels of Six Regulated Substances in Electrotechnical Products. <ol style="list-style-type: none"> (1) Screening by XRF Spectroscopy (2) Wet Chemical Test Method <ol style="list-style-type: none"> a. Determination of Lead & Cadmium by ICP or AAS b. Determination of Mercury by ICP c. Determination of Hexavalent Chromium by Spot test or Colorimetric Method d. Determination of PBBs and PBDEs by GC/MS e. Determination of DEHP and DBP, BBP, DIBP by GC/MS

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- Verification Result** : Please refer to next page
- Verification Conclusion** : Based on the review of previous reports and verification results of the submitted samples, the results of Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBB), Polybrominated diphenyl ethers (PBDE) comply with the limits as set by RoHS Directive 2011/65/EU recasting 2002/95/EC.
- Comment** : The test results are related only to the tested items. The report shall not be reproduced except in full without the written approval of the testing laboratory. By the applicant's request, item No.s/part No.s & client reference information are stated/added on report.

SGS Korea Co., Ltd. Gimhae Laboratory

Thomas Hwang / Lab Manager

Details on Verification

No.	Part Description	Restricted Substances	Results of EDXRF ⁽¹⁾	Results of Related or Additional Wet Chemical Tests (mg/kg) ⁽²⁾	Report No. of Related or Additional Wet Chemical Test	Conclusion on RoHS	Remark ⁽³⁾
1	Pseudocapacitor .001	Cd	BL			Comply	
		Pb	BL			Comply	
		Hg	BL			Comply	
		Cr ⁶⁺	BL			Comply	
		PBBs	-			Comply	
		PBDEs	-			Comply	
		DEHP	-			Comply	
		DBP	-			Comply	
		BBP	-			Comply	
2	Pseudocapacitor .002	Cd	BL		AYAA18-46030	Comply	
		Pb	BL			Comply	
		Hg	BL			Comply	
		Cr ⁶⁺	BL			Comply	
		PBBs	BL			Comply	
		PBDEs	-			Comply	
		DEHP	-	N.D.		Comply	
		DBP	-	N.D.		Comply	
		BBP	-	N.D.		Comply	
3	Pseudocapacitor .003	Cd	BL			Comply	
		Pb	BL			Comply	
		Hg	BL			Comply	
		Cr ⁶⁺	BL			Comply	
		PBBs	-			Comply	
		PBDEs	-			Comply	
		DEHP	-			Comply	
		DBP	-			Comply	
		BBP	-			Comply	
4	Pseudocapacitor .004	Cd	BL		AYAA18-46032	Comply	
		Pb	BL			Comply	
		Hg	BL			Comply	
		Cr ⁶⁺	BL			Comply	
		PBBs	BL			Comply	
		PBDEs	-			Comply	
		DEHP	-	N.D.		Comply	
		DBP	-	N.D.		Comply	
		BBP	-	N.D.		Comply	

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No.	Part Description	Restricted Substances	Results of EDXRF ⁽¹⁾	Results of Related or Additional Wet Chemical Tests (mg/kg) ⁽²⁾	Report No.of Related or Additional Wet Chemical Test	Conclusion on RoHS	Remark ⁽³⁾
5	Pseudocapacitor .005	Cd	BL		AYAA18-46031	Comply	
		Pb	BL			Comply	
		Hg	BL			Comply	
		Cr ⁶⁺	BL			Comply	
		PBBs	BL			Comply	
		PBDEs				Comply	
		DEHP	-	N.D.		Comply	
		DBP	-	N.D.		Comply	
		BBP	-	N.D.		Comply	
		DIBP	-	N.D.		Comply	
6	Pseudocapacitor .006	Cd	BL		AYAA18-46031	Comply	
		Pb	BL			Comply	
		Hg	BL			Comply	
		Cr ⁶⁺	BL			Comply	
		PBBs	BL			Comply	
		PBDEs				Comply	
		DEHP	-	N.D.		Comply	
		DBP	-	N.D.		Comply	
		BBP	-	N.D.		Comply	
		DIBP	-	N.D.		Comply	
7	Pseudocapacitor .007	Cd	BL		AYAA18-46031	Comply	
		Pb	BL			Comply	
		Hg	BL			Comply	
		Cr ⁶⁺	BL			Comply	
		PBBs	BL			Comply	
		PBDEs				Comply	
		DEHP	-	N.D.		Comply	
		DBP	-	N.D.		Comply	
		BBP	-	N.D.		Comply	
		DIBP	-	N.D.		Comply	

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Remark

- (1) (a) It is the result on total Br while test item on restricted substances is PBBs/PBDEs. It is the result on total Cr while test item on restricted substances is Cr(VI).
- (b) Results are obtained by EDXRF for primary screening, and further chemical testing by ICP (for Cd, Pb, Hg), UV-VIS (for Cr(VI)) and GC/MS (for PBBs, PBDEs) is recommended to be performed, if the concentration exceeds the below warning value according to IEC62321 (unit: mg/kg)

Element	Polymer	Metal	Composite Materials
Cd	X < 50 (BL)	X < 50 (BL)	X < 50 (BL)
	50 < X < 170(IN)	50 < X < 170(IN)	50 < X < 170(IN)
	170 < X (OL)	170 < X (OL)	170 < X (OL)
Pb	X < 500 (BL)	X < 500 (BL)	X < 500 (BL)
	500 < X < 1500 (IN)	500 < X < 1500 (IN)	500 < X < 1500 (IN)
	1500 < X (OL)	1500 < X (OL)	1500 < X (OL)
Hg	X < 500 (BL)	X < 500 (BL)	X < 500 (BL)
	500 < X < 1500 (IN)	500 < X < 1500 (IN)	500 < X < 1500 (IN)
	1500 < X (OL)	1500 < X (OL)	1500 < X (OL)
Cr	X < 500 (BL)	X < 500 (BL)	X < 500 (BL)
	500 < X (IN)	500 < X (IN)	500 < X (IN)
Br	X < 500 (BL)	-	X < 500 (BL)
	500 < X (IN)	-	500 < X (IN)

(c) BL=Below Limit , OL=Over Limit, IN=Inconclusive.

(d) The XRF screening test for RoHS elements-The reading may be different to the actual content in the sample of non-uniformity composition.

- (2) (a) mg/kg=ppm=0.0001%, N.D.=not detected (<MDL), - =not conducted.

(b) Unit and Method Detection Limit (MDL) in wet chemical test.

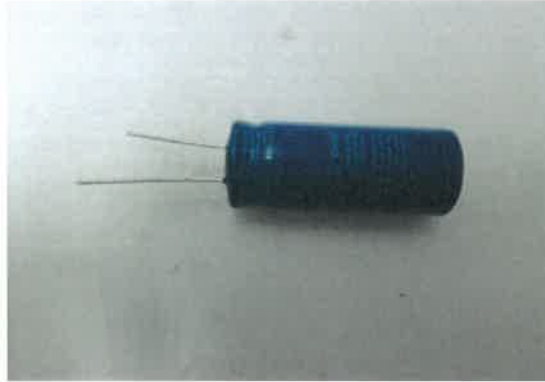
Test Items	Pb	Cd	Hg	PBBs&PBDEs	Cr6+ (for polymer & composite sample)	Phthalates (DEHP, DBP, BBP, DIBP)
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
MDL	5	0.5	2	5	1	50

(c) According to IEC 62321, result on Cr6+ for metal sample is shown as Positive/Negative.
 Negative = Absence of Cr6+ coating, Positive=Presence of Cr6+ coating.

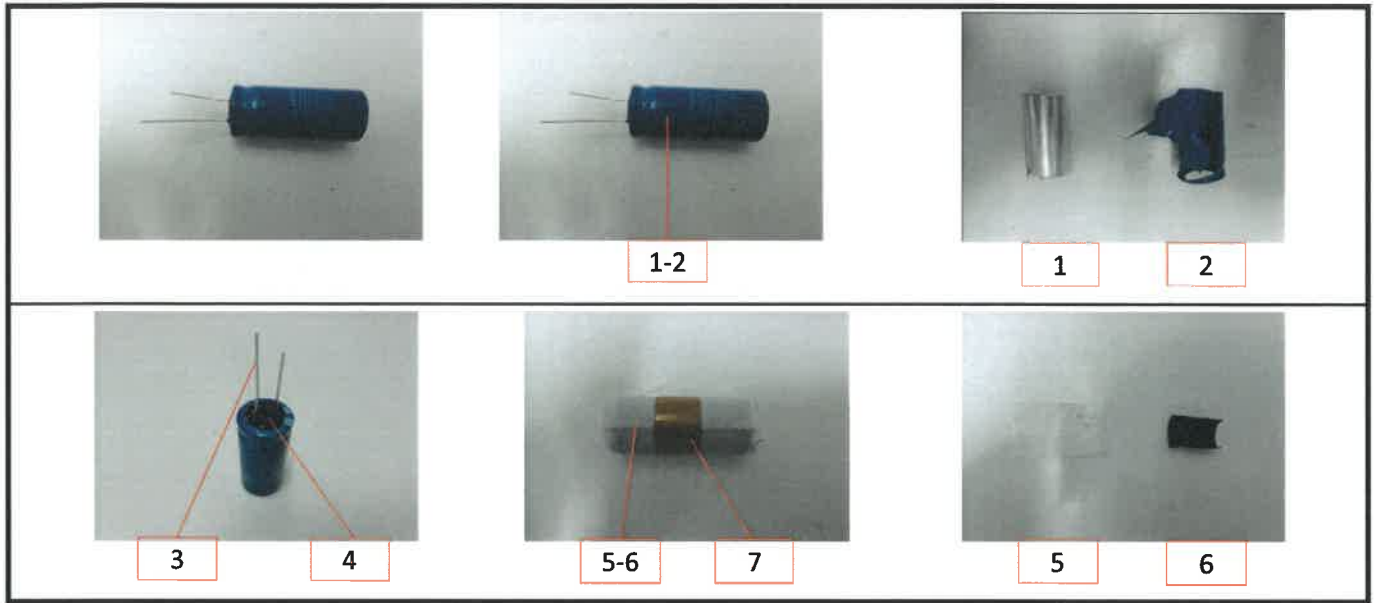
- (3) (a) The detail of the exemptions are stated in Annex III of RoHS Directive 2011/65/EU.

Photo Index

Picture of Sample as Received



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SGS authenticate the photo on original report only

*** End of Report ***