

**LS MATERIALS CO.,LTD.**  
 39, 116Beon-gil, LS-ro, Dongan-gu  
 Anyang-si, Gyeonggi-do  
 Korea

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

<b>SGS File No.</b>	: AYAA23-06197
<b>Product Name</b>	: L/S-Type Cell Series
<b>Product No. / Model No.</b>	: N/A
<b>Client Reference Data</b>	: LSUC x.xV yyyF (x.x = 2.8 or 3.0, yyy = 100~600)
<b>Verification Period</b>	: 2023. 01. 19. to 2023. 02. 03.
<b>Verification Requested</b>	: With reference to RoHS Directive 2011/65/EU recasting 2002/95/EC and Commission Delegated Directive(EU) 2015/863
<b>Verification Method</b>	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. (1) Screening by XRF Spectroscopy (2) Wet Chemical Test Method 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
<b>Verification Result</b>	: Please refer to next page
<b>Verification Conclusion</b>	: Based on the review of previous reports and verification results of the submitted samples, the results of Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs) and Phthalates such as Bis(2-ethylhexyl) phthalate(DEHP), Butyl benzyl phthalate(BBP), Dibutyl phthalate(DBP), and Diisobutyl phthalate(DIBP)comply with the limits as set by RoHS Directive 2011/65/EU recasting 2002/95/EC and Commission Delegated Directive(EU) 2015/863.
<b>Comment</b>	: 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**  
**/LTS ANYANG Laboratory**



**Tommy Oh / Lab Manager**

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <https://www.sgs.com/en/terms-and-conditions/terms-e-document>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s).

**Details on Verification**

No.	Part Description	Restricted Substances	Results of EDXRF <sup>(1)</sup>	Results of Related or Additional Wet Chemical Tests (mg/kg) <sup>(2)</sup>	Report No.of Related or Additional Wet Chemical Test	Conclusion on RoHS	Remark <sup>(3)</sup>
1	L/S-Type Cell .001	Cd	BL			Comply	
		Pb	BL			Comply	
		Hg	BL			Comply	
		Cr <sup>6+</sup>	BL			Comply	
		PBBs	-			-	
		PBDEs	-			-	
		DEHP	-			-	
		DBP	-			-	
		BBP	-			-	
2	L/S-Type Cell .002	Cd	BL			Comply	
		Pb	BL			Comply	
		Hg	BL			Comply	
		Cr <sup>6+</sup>	BL			Comply	
		PBBs	BL			Comply	
		PBDEs	BL			Comply	
		DEHP	-	N.D.	AYAE23-00337	Comply	
		DBP	-	N.D.		Comply	
		BBP	-	N.D.		Comply	
DIBP	-	N.D.	Comply				
3	L/S-Type Cell .003	Cd	BL			Comply	
		Pb	BL			Comply	
		Hg	BL			Comply	
		Cr <sup>6+</sup>	BL			Comply	
		PBBs	BL			Comply	
		PBDEs	BL			Comply	
		DEHP	-	N.D.	AYAE23-00338	Comply	
		DBP	-	N.D.		Comply	
		BBP	-	N.D.		Comply	
DIBP	-	N.D.	Comply				
4	L/S-Type Cell .004	Cd	BL			Comply	
		Pb	OL	N.D.	AYAE23-00343	Comply	
		Hg	BL			Comply	
		Cr <sup>6+</sup>	BL			Comply	
		PBBs	-			-	
		PBDEs	-			-	
		DEHP	-			-	
		DBP	-			-	
		BBP	-			-	
DIBP	-			-			

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <https://www.sgs.com/en/terms-and-conditions/terms-e-document>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s).

No.	Part Description	Restricted Substances	Results of EDXRF <sup>(1)</sup>	Results of Related or Additional Wet Chemical Tests (mg/kg) <sup>(2)</sup>	Report No.of Related or Additional Wet Chemical Test	Conclusion on RoHS	Remark <sup>(3)</sup>
5	L/S-Type Cell .005	Cd	BL			Comply	
		Pb	BL			Comply	
		Hg	BL			Comply	
		Cr <sup>6+</sup>	BL			Comply	
		PBBs	BL			Comply	
		PBDEs	BL			Comply	
		DEHP	-	N.D.	AYAE23-00339	Comply	
		DBP	-	N.D.		Comply	
		BBP	-	N.D.		Comply	
DIBP	-	N.D.	Comply				
6	L/S-Type Cell .006	Cd	BL			Comply	
		Pb	BL			Comply	
		Hg	BL			Comply	
		Cr <sup>6+</sup>	BL			Comply	
		PBBs	BL			Comply	
		PBDEs	BL			Comply	
		DEHP	-	N.D.	AYAE23-00340	Comply	
		DBP	-	N.D.		Comply	
		BBP	-	N.D.		Comply	
DIBP	-	N.D.	Comply				
7	L/S-Type Cell .007	Cd	BL			Comply	
		Pb	BL			Comply	
		Hg	BL			Comply	
		Cr <sup>6+</sup>	BL			Comply	
		PBBs	-			-	
		PBDEs	-			-	
		DEHP	-			-	
		DBP	-			-	
		BBP	-			-	
DIBP	-			-			
8	L/S-Type Cell .008	Cd	BL			Comply	
		Pb	BL			Comply	
		Hg	BL			Comply	
		Cr <sup>6+</sup>	BL			Comply	
		PBBs	BL			Comply	
		PBDEs	BL			Comply	
		DEHP	-	N.D.	AYAE23-00341	Comply	
		DBP	-	N.D.		Comply	
		BBP	-	N.D.		Comply	
DIBP	-	N.D.	Comply				

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <https://www.sgs.com/en/terms-and-conditions/terms-e-document>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s).

No.	Part Description	Restricted Substances	Results of EDXRF <sup>(1)</sup>	Results of Related or Additional Wet Chemical Tests (mg/kg) <sup>(2)</sup>	Report No.of Related or Additional Wet Chemical Test	Conclusion on RoHS	Remark <sup>(3)</sup>
9	L/S-Type Cell .009	Cd	BL			Comply	
		Pb	BL			Comply	
		Hg	BL			Comply	
		Cr <sup>6+</sup>	BL			Comply	
		PBBs	BL			Comply	
		PBDEs	BL			Comply	
		DEHP	-	N.D.	AYAE23-00342	Comply	
		DBP	-	N.D.		Comply	
		BBP	-	N.D.		Comply	
		DIBP	-	N.D.		Comply	

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <https://www.sgs.com/en/terms-and-conditions/terms-e-document>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s).

**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) 50 < X < 170(IN) 170 < X (OL)	X < 50 (BL) 50 < X < 170(IN) 170 < X (OL)	X < 50 (BL) 50 < X < 170(IN) 170 < X (OL)
Pb	X < 500 (BL) 500 < X < 1500 (IN) 1500 < X (OL)	X < 500 (BL) 500 < X < 1500 (IN) 1500 < X (OL)	X < 500 (BL) 500 < X < 1500 (IN) 1500 < X (OL)
Hg	X < 500 (BL) 500 < X < 1500 (IN) 1500 < X (OL)	X < 500 (BL) 500 < X < 1500 (IN) 1500 < X (OL)	X < 500 (BL) 500 < X < 1500 (IN) 1500 < X (OL)
Cr	X < 500 (BL) 500 < X (IN)	X < 500 (BL) 500 < X (IN)	X < 500 (BL) 500 < X (IN)
Br	X < 500 (BL) 500 < X (IN)	-	X < 500 (BL) 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



This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <https://www.sgs.com/en/terms-and-conditions/terms-e-document>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s).



SGS authenticate the photo on original report only

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

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <https://www.sgs.com/en/terms-and-conditions/terms-e-document>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s).