

ZEROPLUS TECHNOLOGY CO., LTD 2F., NO. 123, JIAN 8TH RD., ZHONGHE DIST., NEW TAIPEI CITY, 23585, TAIWAN

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

Sample Submitted By ZEROPLUS TECHNOLOGY CO., LTD

LOGIC ANALYZER (邏輯分析儀) Sample Description

Style/Item No. : LAP EDUCATOR

Sample Receiving Date 2017/08/18 and 2017/09/05 **Testing Period** 2017/08/18 to 2017/09/08

Test Result(s) Please refer to following pages.

Conclusion Based upon the performed tests on submitted samples, the test results comply with the limits of RoHS Directive 2011/65/EU and amending

Directive (EU) 2015/863 with the exempted materials below according to the declaration from applicant:

1. ELECTRONIC COMPONENT (No.2.5) in Table 1: Lead (Pb)

("7(a), Lead in high melting temperature type solders (i.e. lead- based alloys containing 85 % by weight or more lead)"

in Directive 2011/65/EU)

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Chemical Laboratory - Taipei



## 1. Material Fraction Composition

Table 1 The results of XRF screening and chemical test

Tu	Table 1 The results of ARF screening and chemical test											
					1	_			-			
No.	Type of Components		Description	Figure	MDL Category	X-ray S	creening	UV	ICP-AES	GC-MS	Other Chemical	Note
				J		Element	Data	Cr (VI)	Pb/Cd/Hg	PBB/PBDE	Test	
	CASE					Pb	n.d.					
						Cd	n.d.					
						Hg	n.d.					
		1.1	WHITE PLASTIC	ESMONLES E	Polymers	Cr	n.d.				Refer to Table 3	
		1.1	COVER		1 Olymers	Br	n.d.				Telef to Table 5	
	ZEROPLUS				Cr(VI)							
						PBB						
	_					PBDE						
	_					Pb	n.d.					
						Cd	n.d.					
			WHITE LABEL	and the same of th		Hg	n.d.	_				
1		1.2	WITH COLORFUL		Polymers	Cr	n.d.	_				
			PRINT		,	Br	n.d.					
						Cr(VI)						
	Jampin Lage Arment Institute Life States			<u> </u>		PBB					_	
	the Called an other parties and the Called and the					PBDE						
						Pb Cd	n.d. n.d.	-				
						Hg	n.d.	1				
			SILVERY LABEL	Zaropia Logic Avergeer tone to ce travelle before 20 20 / 10 / 10 / 10 / 10 / 10 / 10 / 1		Cr	n.d.	+				
		1.3	WITH BLACK		Polymers	Br	n.d.	†				
			PRINT	Hater County PC C € X none		Cr(VI)	11.0.					
						PBB					┪	
						PBDE					┪	
لــــا		1	L		l l	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		I			1	

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No.	Type of Components		Description	Figure	MDL Category	X-ray S	creening	UV	ICP-AES	GC-MS	Other Chemical	Note
				J	,	Element	Data	Cr (VI)	Pb/Cd/Hg	PBB/PBDE	Test	
	CASE					Pb	n.d.					
						Cd	n.d.					
						Hg	n.d.					
		1.4	WHITE PLASTIC	ZEROPLUS	Polymers	Cr	n.d.					
			COVER	22007200	1 diyillolo	Br	n.d.					
						Cr(VI)						
						PBB						
						PBDE						
						Pb	n.d.					
	ZEROPLUS					Cd	n.d.					
				450		Hg	n.d.					
	_	1.5	TRANSPARENT		Polymers	Cr	n.d.				Refer to Table 3	
	_		1.5 PLASTIC COVER		-	Br C=0.40	n.d.					
						Cr(VI) PBB						
						PBDE					_	
1						Pb	n.d.					
						Cd	n.d.					
						Hg	n.d.					
	Samples Coupe Avenues					Cr	n.d.					
	Section 200 E	1.6	BLACK PAD		Polymers	Br	n.d.				Refer to Table 3	
						Cr(VI)						
						PBB						
						PBDE						
						Pb	n.d.					
				1		Cd	n.d.					
						Hg	n.d.					
		1.7	BLACK METALLIC		Metals	Cr	354					
		1.7	SCREW		IVICIAIS	Br	n.d.					
		GONEW	(17) March 18 (17)		Cr(VI)							
						PBB					_	
						PBDE						

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No.	Type of Components	Description		Figure	MDL Category	X-ray S	creening	UV	ICP-AES	GC-MS	Other Chemical	Note
			•	o o		Element	Data	Cr (VI)	Pb/Cd/Hg	PBB/PBDE	Test	
	PCBA			400		Pb			3.34			
						Cd			n.d.			
						Hg			n.d.			
		2.1	PCBA		Composite	Cr					Refer to Table 3	Refer to Table 2
					Material	Br						
				I topostopostopicoj (t. 17		Cr(VI)		n.d.				
				The state of the s		PBB				n.d.		
						PBDE Pb	n.d.			n.d.		
						Cd	n.d.					
						Hg	n.d.					
			ELECTRONIC		Composite	Cr	n.d.					
		2.2	COMPONENT	31/12/0015	Material	Br	n.d.					
	I William a Cit					Cr(VI)	11.0.					
				Name of the State		PBB						
	- Constitution			不可以是是是		PBDE						
2						Pb	n.d.					
						Cd	n.d.					
						Hg	n.d.					
	LAP SAUCHTO TE121Z-8040	2.3	BLACK PLASTIC		Polymers	Cr	n.d.				Refer to Table 3	
	i l	2.5	HOUSING	-	Polymers	Br	147				ixelei to Table 3	
						Cr(VI)						
						PBB						
						PBDE						
				THE RESIDENCE OF THE PARTY OF T		Pb	n.d.					
						Cd	n.d.					
			OOL DENIMETALLIC	The state of the s		Hg Cr	n.d.					
		2.4	GOLDEN METALLIC PIN	/ Y/W	Metals	Br	n.d. n.d.					
			FIIN	- 1 N		Cr(VI)	II.U.					
						PBB					-	
											-	
						PBDE						

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No.	Type of Components		Description	Figure	MDL Category	X-ray S	creening	UV	ICP-AES	GC-MS	Other Chemical	Note		
	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			1.9		Element	Data	Cr (VI)	Pb/Cd/Hg	PBB/PBDE	Test			
	PCBA					Pb	89800		*2					
						Cd	n.d.							
				-		Hg	n.d.							
		2.5	ELECTRONIC	1/25965	Composite	Cr	886							
		2.0	COMPONENT		Material	Br	n.d.							
						Cr(VI)		n.d.						
				THE RESERVE TO SERVE THE PARTY OF THE PARTY		PBB								
						PBDE								
						Pb	n.d.							
						Cd	n.d.							
			011.1/50.1/1/5741110	rie.		Hg	n.d.							
		2.6	SILVERY METALLIC COVER		Metals	Cr	100000					*5		
	To the state of th		COVER			Br Cr(//)	n.d.	n.d.						
	- 3000000000000000000000000000000000000				-	-	-	Cr(VI) PBB		n.a.				
	A STANTING OF THE STANTING OF					PBDE					_			
2						Pb	n.d.							
						Cd	n.d.							
						Hg	n.d.							
	LAP PARKET		ELECTRONIC		Composite	Cr	n.d.							
		2.7	COMPONENT	000 000 1659 A	Material	Br	n.d.							
						Cr(VI)								
	- Transmining			2000年6月2日		PBB								
						PBDE								
						Pb	n.d.							
						Cd	n.d.							
						Hg	n.d.							
		2.8	GRAY CORE	<b>100</b>	Composite	Cr	122							
		2.0	FRAME		Material	Br	n.d.							
						Cr(VI)								
						PBB					_			
						PBDE								

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No.	Type of Components	Description		Figure	MDL Category	X-ray S	creening	UV	ICP-AES	GC-MS	Other Chemical	Note
			·	, and the second	0 ,	Element	Data	Cr (VI)	Pb/Cd/Hg	PBB/PBDE	Test	
	PCBA					Pb	n.d.					
						Cd	n.d.					
						Hg	n.d.					
		2.9	COPPER		Metals	Cr	101					
			METALLIC COIL	<b>—</b>		Br	n.d.					
						Cr(VI)						
						PBB						
						PBDE						
						Pb	n.d.					
						Cd Hg	n.d. n.d.					
			SILVERY LABEL			⊓g Cr	n.d.					
		2.10	WITH BLACK	LAP Educator 16121Z-9546	Polymers	Br	63.3					
	The state of the s		PRINT			Cr(VI)	00.0					
						PBB					-	
	- Committee of the comm					PBDE					1	
2				- Surface Services (Const. Const. Con		Pb	n.d.					
	Garage Section 1					Cd	n.d.					
						Hg	n.d.					
	181212-0948	2.11	BROWN POLYMER JACKET WITH	party attends	Polymers	Cr	n.d.					
	SE L	2.11	WHITE PRINT	119	Polymers	Br	310					
	(A)					Cr(VI)						
						PBB				n.d.		
						PBDE				n.d.		
						Pb	n.d.					
						Cd	n.d.					
				THE RESERVE		Hg	n.d.					
		2.12	SILVERY METALLIC COVER	To annual to the same of the s	Metals	Cr	n.d.					
			COVER			Br C=0.40	n.d.					
				The state of the s		Cr(VI) PBB					-	
				STREET, STREET		PBDE					-	
						PRDE						

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No.	Type of Components		Description	Figure	MDL Category	X-ray S	creening	UV	ICP-AES	GC-MS	Other Chemical	Note
				J	, ,	Element	Data	Cr (VI)	Pb/Cd/Hg	PBB/PBDE	Test	
	PCBA					Pb	n.d.					
						Cd	n.d.					
						Hg	n.d.					
		2.13	BLACK PAD		Polymers	Cr	n.d.					
		2.10	DE TOTT / ID		1 diyinidid	Br	128					
						Cr(VI)						
						PBB						
						PBDE						
	174					Pb	n.d.					
						Cd	n.d.					
				4		Hg	n.d.					
		2.14	GRAY METALLIC FOIL		Metals	Cr Br	n.d.					
	The state of the s		FUIL				n.d.					
						Cr(VI) PBB					4	
	- All Marie Control of the Control o			* * * * * * * * * * * * * * * * * * *		PBDE					-	
2						Pb	n.d.					
						Cd	n.d.					
						Hg	n.d.					
	LAP COLORES					Cr	n.d.					
		2.15	BEIGE FILM		Polymers	Br	n.d.					
						Cr(VI)						
	- The state of the					PBB						
						PBDE						
						Pb	n.d.					
						Cd	n.d.					
						Hg	n.d.					
		2.16	GRAY METALLIC FOIL		Metals	Cr	n.d.					
		2.10	FOIL	S. Jan	IVICIAIS	Br	n.d.					
						Cr(VI)					_	
						PBB					_	
						PBDE						

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No.	Type of Components		Description Figure		MDL Category	X-ray Sc	creening	uv	ICP-AES	GC-MS	Other Chemical	Note
140.			Becompact	i igui o	Wibe outogory	Element	Data	Cr (VI)	Pb/Cd/Hg	PBB/PBDE	Test	
	PCBA					Pb	n.d.					
					Metals -	Cd	n.d.					
			SILVERY METALLIC PIN			Hg	n.d.					
		2.17				Cr	n.d.					
	NA STATE OF THE ST	2.17		7 6.0	IVICIAIS	Br	n.d.					
						Cr(VI)						
						PBB						
						PBDE						
					ıl	Pb	n.d.					
	3 - []		BLACK POLYMER JACKET WITH WHITE PRINT		Polymers	Cd	n.d.					
	- ALMANDIA MARTINIA M	2.18				Hg	n.d.					
2						Cr	n.d.					
-	(E)	2.10				Br	n.d.					
						Cr(VI)						
						PBB						
	LAP BALLCOIN 161212-8048					PBDE						
					ıl l	Pb	n.d.					
						Cd	n.d.					
						Hg	n.d.					
		2.19	ELECTRONIC		Composite	Cr	n.d.					
			COMPONENT		Material	Br	n.d.					
						Cr(VI)						
						PBB						
						PBDE						

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Table 2 The test results on the PCBA (CX/2017/80258-2.1) by point analysis (Unit: mg/kg)

Point Analysis	No. Figure		Material	X-ray Screening				
Folial Analysis	INO.	Figure	Туре	Element	Data	Note		
1 2				Pb	497			
				Cd	n.d.			
	1	E E	Metals	Hg	n.d.			
				Cr	n.d.			
		73		Br	n.d.			
				Pb	n.d.			
		6		Cd	n.d.			
	2	3.	Composite Material	Hg	n.d.			
The same of the sa			!	Cr	n.d.			
				Br	n.d.			



## Table 3 The test results of Phthalates (Unit: mg/kg)

	Mada ad		Result					
Test Item (s):	Method	MDL	1.1	1.5	1.6	2.1	2.3	
BBP (Butyl Benzyl phthalate) (CAS No.: 85-68-7)		50	n.d.	n.d.	n.d.	n.d.	n.d.	
DBP (Dibutyl phthalate) (CAS No.: 84-74-2)	With reference to IEC 62321-8	50	n.d.	n.d.	n.d.	n.d.	n.d.	
DEHP (Di- (2-ethylhexyl) phthalate) (CAS No.: 117-81-7)	(2017). Analysis was performed by GC/MS.	50	n.d.	n.d.	n.d.	n.d.	n.d.	
DIBP (Di-isobutyl phthalate) (CAS No.: 84-69-5)		50	n.d.	n.d.	n.d.	n.d.	n.d.	



Test Item		MDL (n	ng/kg)		XRF	
	Category Element	Polymers	Composite Material	Metals	screening threshold	Test method
XRF	Pb	50	100	100	500	
(X-ray	Cd	50	50	50	50	With reference to
fluorescence)	Hg	50	100	100	500	IEC 62321-3-1
	Cr	50	100	100	500	(2013)
	Br	50	100	n.a.	250	

Test Item (s)	Test method	MDL	Unit
Cr(\/ \)	With reference to IEC 62321-7-2 (2017) and performed by UV-VIS. (For Polymers and Electronics)	8	mg/kg
Cr(VI)	With reference to IEC 62321-7-1 (2015) and performed by UV-VIS. (For Coatings on Metals) (#2)	0.1	μg/cm²
Pb/Cd	With reference to IEC 62321-5 (2013) and performed by ICP-AES.	2	mg/kg
Hg	With reference to IEC 62321-4 (2013) and performed by ICP-AES.	2	mg/kg

	Test Item (s)	Unit	Method	MDL (mg/kg)
	PBBs			
	Monobromobiphenyl	mg/kg		5
,	Dibromobiphenyl	mg/kg		5
	Tribromobiphenyl	mg/kg		5
	Tetrabromobiphenyl	mg/kg		5
	Pentabromobiphenyl	mg/kg		5
	Hexabromobiphenyl	mg/kg		5
	Heptabromobiphenyl	mg/kg		5
	Octabromobiphenyl	mg/kg		5
	Nonabromobiphenyl	mg/kg	1450	5
	Decabromobiphenyl	mg/kg	With reference to IEC	5
	PBDEs		62321-6 (2015) and performed by GC/MS.	
	Monobromodiphenyl ether	mg/kg	performed by Gorwio.	5
	Dibromodiphenyl ether	mg/kg		5
	Tribromodiphenyl ether	mg/kg		5
	Tetrabromodiphenyl ether	mg/kg		5
	Pentabromodiphenyl ether	mg/kg		5
	Hexabromodiphenyl ether	mg/kg		5
	Heptabromodiphenyl ether	mg/kg		5
	Octabromodiphenyl ether	mg/kg		5
	Nonabromodiphenyl ether	mg/kg		5
	Decabromodiphenyl ether	mg/kg		5

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- 1. mg/kg = ppm
- 2. MDL = Method detection limit
- 3. n.d. = not detected or lower than MDL
- 4. "---" = not conducted
- 5. n.a. = not applicable
- 6. " " = Not Regulated
- 7. The XRF result of Br for metal sample is conducted from semiquantitative method of polymer. If the Br result is shown as n.d., the reading will be less than 100ppm.
- 8. (#2):
  - a. The sample is positive for Cr(VI) if the Cr(VI) concentration is greater than 0.13 µg/cm<sup>2</sup>.
    - The coating is considered to contain Cr(VI).
  - b. The sample is negative for Cr(VI) if Cr(VI) is n.d. (concentration less than 0.10 µg/cm<sup>2</sup>).
    - The coating is considered a non-Cr(VI) based coating.
  - c. The result between 0.10 µg/cm² and 0.13 µg/cm² is considered to be inconclusive - unavoidable coating variations may influence the determination.

- 9. Magnetic samples can not be located on test position and there are breakdown risks on XRF equipment. Therefore, this kind of sample will be conducted chemical test directly.
- 10. If the test result by EDXRF analysis is greater than XRF screening threshold, the test sample should be further conducted by chemical test.

Mark	Description of Mark
*1	The sample weight is not enough to conduct chemical tests.
*2	The item is exempted from EU RoHS directive.
*2	The item might be exempted from EU RoHS directive.
*3	The result was retested after regetting the same sample from client.
*4	The sample is provided separately from the client.
*5	Adopting modified IEC 62321-7-1(2015), due to the test area less than 25 cm <sup>2</sup>
*6	The test item was tested by dry base.
*7	This sample follows requirement of client to conduct directly chemical tests.

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