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Customer:

Address:

Report on the submitted sample said to be

Sample name: LED strobe arm band Model: UF5190 (U289) 、UF5185

Item/Lot No.: /

Material: /
Buyer: /
Supplier: /

Manufacturer: /

Sample received date: Jan. 02, 2014

Testing period: From Jan. 02, 2014 to Jan. 07, 2014

Testing method:

With reference to IEC 62321:2008

(1) Section 6: Screening by X-ray Fluorescence Spectrometry (XRF)

(2) Chemical test:

Testing Item	Pretreatment method	Measuring instrument	MQL
Lead (Pb)	IEC 62321:2008, section 8/9/10	ICP-OES	2 mg/kg
Cadmium (Cd)	IEC 62321:2008, section 8/9/10	ICP-OES	2 mg/kg
Mercury (Hg)	IEC 62321:2008, section 7	CV-AAS	2 mg/kg
Chromium (Cr VI)	IEC 62321:2008, section C/B	UV-VIS	2 mg/kg 0.02 mg/kg*
PBBs/ PBDEs	IEC 62321: 2008, Annex A	GC-MS	5 mg/kg

Note:

Result:

Please refer to the next page(s)

<u>Standard</u> <u>Result</u>

Screening by XRF spectroscopy and chemical confirmation test

for RoHS directive (2011/65/EU) PASS

******FOR FURTHER DETAILS, PLEASE REFER TO THE FOLLOWING PAGE(S)******

Signed for and on behalf of

Shenzhen AOV Testing Technology Co., Ltd, Kunshan Branch

Project Leader: ___

Reviewed

Wang Wexin, Weikin

Approved by:

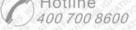
Yuan Qi, Mickey

Li Tingting, Maggie Chemical Test Director

Technical Director







^{- *0.02} mg/kg refers to the MQL of sample extraction liquid.



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Test Results:

No.	Component name	XRF result	ts (mg/kg)	Chemical confirmation result (mg/kg)
	Pb	N.D.		
	The state of the s	Cd	N.D.	
1	Black plastic	Hg	N.D.	
		Cr	N.D.	
Partie !		Br	N.D.	
W. Partie	TO A F	Pb	N.D.	
		Cd	N.D.	
2	Transparent plastic	/ Hg /	N.D.	
TELL TO TO		Cr Cr	N.D.	
A FEBRUARY		Br	N.D.	
Co Stant		Pb	N.D.	
Te 10 1		Cd	N.D.	11/1/05/
3	Red switch button	Hg	N.D.	// 4 1
Charles Charles		Cr	N.D.	
oparion. Oparion		Br	N.D.	
TIL OBITO		Pb	N.D.	
		Cd	N.D.	
4	Screw	Hg	N.D.	Cr: N.D.
ALL HELD		Cr	#2	
		Br	N.D.	
CALOR S		Pb	N.D.	
Trickly		Cd	N.D.	
5 Elastic	Elastic	Hg	N.D.	<u>.</u>
		Cr	N.D.	
		Br	N.D.	
ION PUT	The state of the s	Pb	N.D.	
CATION A	Particular Control of the William	Cd	N.D.	
6	White cloth	Hg	N.D.	<u></u>
FERTELE AT		Cr	N.D.	
ONEGRE	CHILD OF PROPERTY OF TOPS	Br	N.D.	Programme Control





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No.	Component name	XRF results (mg/kg)		Chemical confirmation result (mg/kg)	
		Pb	N.D.		
10 00 0 10 (0, 00 0 0 1)		Cd	N.D.		
7	Velcro buckle	Hg	N.D.	<u></u>	
		Cr	N.D.		
	UMA	Br	N.D.		
Partiel P		Pb	N.D.		
en part		Cd	N.D.		
8	Velcro fabric	Hg	N.D.		
Children Con		Cr	N.D.		
		Br	N.D.		
ALERICA PROPERTY OF		Pb	N.D.		
COLUMN TO THE		Cd	N.D.		
9	Copper	Hg	N.D.	10/1 Post	
10 75 10 10 75 10 10 75 10		Cr	N.D.		
Control		Br	N.D.		
OBLIGHT.		Pb	N.D.		
		Cd	N.D.		
10	Circuit boards	Hg	N.D.	PBBs: N.D. PBDEs: N.D.	
SALEGE OF		Cr	N.D.		
		Br	#2		
		Pb	N.D.		
		Cd	N.D.		
11 Spring	Spring	Hg	N.D.		
		Cr	N.D.		
	Br	N.D.			
12 LED	CHILDRIC CES HITTH FULL OF	Pb	N.D.		
		Cd	N.D.	DDD 41.5	
	LED	Hg	N.D.	PBBs: N.D. PBDEs: N.D.	
		Cr	N.D.		
REBIECKS		Br	#2		





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No.	Component name	XRF results (mg/kg)		Chemical confirmation result (mg/kg
The Willy		Pb	N.D.	
6,000 M		Cd	N.D.	
13	Gold wire	Hg	N.D.	
		Cr	N.D.	
	OMA	Br	N.D.	
Particular Property		Pb	N.D.	
	TALA TO	Cd	N.D.	
14	Red wire	Hg	N.D.	
Children Children	\sim \sim	Cr	N.D.	
elf i Chil		Br	/ N.D.	
O TENTRAL		Pb	N.D.	
5 10 16		Cd	N.D.	
15	White wire	Hg	N.D.	
1410112 110,42		Cr	N.D.	
Charles Charles	STORE REPORT OF THE	Br	N.D.	
OBLIGE		Pb	N.D.	
TILL OBLICE		Cd	N.D.	
16	Contacts	Hg	N.D.	Cr: N.D.
SILLE COL		Cr	#2	
		Br	N.D.	
		Pb	N.D.	
C C C C C C C C C C C C C C C C C C C		Cd	N.D.	
17 Chip resist	Chip resistors	Hg	N.D.	
		Cr	N.D.	
ANTHER T		Br	N.D.	
A PUTTE		Pb	N.D.	
CLOUP WILL		Cd	N.D.	
18	White package IC	Hg	N.D.	
REFERENCE TO		Cr	N.D.	
Call Co	TOTAL BUT HE STOCK OF ST	Br	N.D.	





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No.	Component name	XRF results (mg/kg)		Chemical confirmation result (mg/kg)
		Pb	N.D.	
		Cd	N.D.	
19	Soldering tin	Hg	N.D.	_
		Cr	N.D.	
2112	0/1/1	Br	N.D.	
Partie !		Pb	N.D.	
		Cd	N.D.	
20	Green switch button	Hg	N.D.	
		Cr	N.D.	
		Br	N.D.	
O. TERITO		Pb	N.D.	
		Cd	N.D.	
21	Grey plastic	Hg	N.D.	
		Cr	N.D.	
	Br	N.D.		
	Pb	N.D.		
	Cd	N.D.		
22	22 White plastic	Hg	N.D.	
		Cr	N.D.	
		Br	N.D.	
		Pb	N.D.	
		Cd	N.D.	
23 Black switch button	Black switch button	Hg	N.D.	<u></u>
		Cr	N.D.	
	Br	N.D.		
N PATTE		Pb	N.D.	
		Cd	N.D.	
24 Blue	Blue plasitc	Hg	N.D.	<u>-</u>
		Cr	N.D.	
	TO THE STITLE TO BE THE	Br	N.D.	





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No.	Component name	XRF results (mg/kg)		Chemical confirmation result (mg/kg)
		Pb	N.D.	
		Cd	N.D.	
25	Button batteries	Hg	N.D.	Cr: N.D.
		Cr	#2	
Profession of		Br	N.D.	

Remark:

- Specimens, which requested to determine Cadmium, Mercury and Lead Content by chemical test, have been dissolved completely.
- N.D. = Not Detected
- N.A.= Not Applicable
- Negative=Absence of Cr(VI);
- Positive=Presence of Cr(VI);

(#1) = The screening result was found in the region of inconclusive (See Table A) and further chemical tests were suggested.

(#2) = Cr or Br were detected above the screening Limit (see table A) and further chemical tests were suggested.

OL= OVER LIMIT

(A) XRF Screening Limit in mg/kg for regulated elements in various matrices.

Element	Polymer materials	Metallic materials	Composite materials
Pb	BL≤ (700 -3σ) < X < (1300 +3σ)≤OL	BL≤ (700 -3σ) < X < (1300 +3σ)≤OL	BL≤ (500 -3σ) < X < (1500 +3σ)≤OL
Cd	BL ≤(70 -3σ)< X <(130+3σ)≤OL	BL ≤(70 -3σ) < X < (70 +3σ)≤OL	LOD < X < (150 +3σ) ≤OL
Hg	BL≤ (700 -3σ) < X < (1300 +3σ)≤OL	BL≤ (700 -3σ) < X < (1300 +3σ)≤OL	BL≤ (500 -3σ) < X < (1500 +3σ)≤OL
Cr	BL ≤ (700-3σ)< X	BL ≤ (700-3σ)< X	BL ≤ (500-3σ)< X
Br	BL ≤(300-3σ)< X	Not Applicable	BL ≤(250 -3σ)< X

Remark:

- A "BELOW LIMIT" (BL) or "OVER LIMIT" (OL) determination will be set at 30 % (50 % for composite materials) less than or greater than the limit, respectively. The margins of safety have been agreed upon based on the experience of many experts and practitioners in the industry. Further explanation for this approach to estimating uncertainty.
- The symbol "X" marks the region, where further investigation is necessary.
- LOD means Limit of Detection.
- The term " 3σ " expresses the repeatability of the analyzer at the action level.





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(B) XRF

Element	Unit	MQL
Pb	mg/kg	30
Cd	mg/kg	30
Hg	mg/kg	30
Cr	mg/kg	30
Br	mg/kg	30

(C) RoHS Requirement

Restricted substances	Limits
Lead (Pb)	0.1% (1000 mg/kg)
Cadmium (Cd)	0.01% (100 mg/kg)
Mercury (Hg)	0.1% (1000 mg/kg)
Chromium(VI) (Cr ⁶⁺)	0.1% (1000 mg/kg)
Polybrominated biphenyls (PBBs)	0.1% (1000 mg/kg)
Polybrominated diphenyl ethers (PBDEs)	0.1% (1000 mg/kg)

The above limits were quoted from 2011/65/EU.

Remark:

- Chemical confirmation tests were conducted to verify the inconclusive results, Chromium (Cr VI), Polybrominated biphenyls (PBBs) and Polybrominated diphenyl ethers (PBDEs) content.
- As requested by the applicant, only components shown in this report were by XRF spectroscopy for 2011/65/EU, other substances were not screened in this report.

Disclaimers:

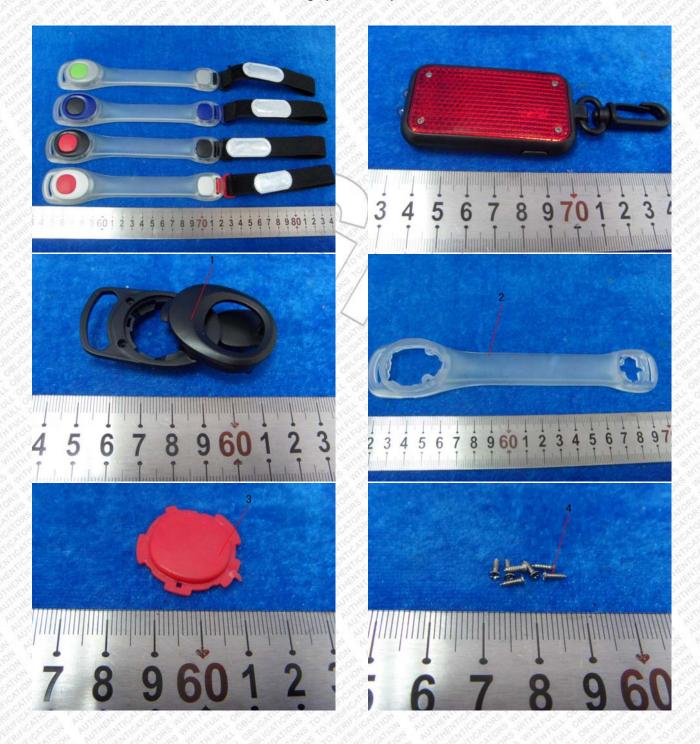
- This XRF Screening Report is for reference purposes only. The applicant shall make its/his/her own judgment as to whether the information provided in this XRF Screening Report is sufficient for its/his/her purposes.
- The results shown in this XRF Screening Report will differ based on various factors, including but not limited to, the sample size, thickness, area, surface flatness, equipment parameters and matrix effect (e.g. Plastic, Rubber, Metal, Glass, Ceramic etc.). Further wet chemical pre-treatment with relevant chemical equipment analysis are required to obtain quantitative data.





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Photographs of Samples

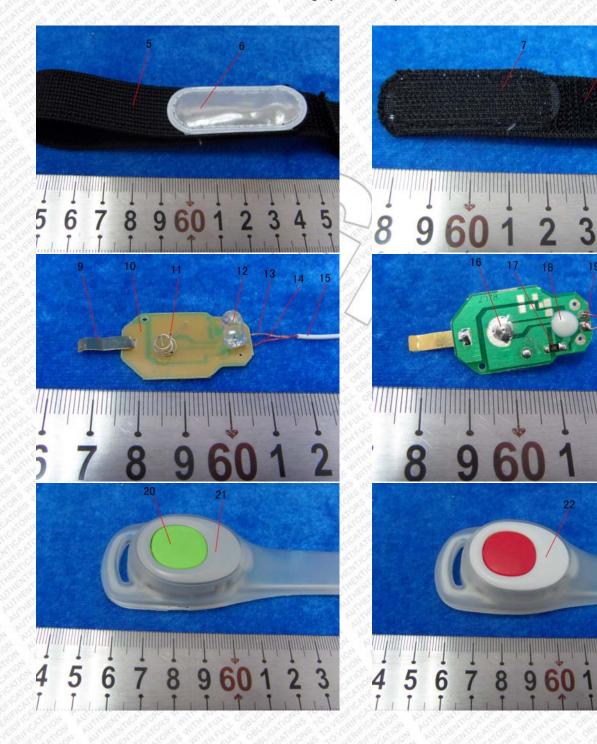






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Photographs of Samples







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Photographs of Samples

