

No. SZR151010010001-1 Date: Oct. 20, 2015 Page 1 of 12

Applicant :

Address :

The submitted sample and sample information was/were submitted and identified by/on the behalf

of the client

Sample name : Power bank

Type /model : P324.952

Manufacturer : /

Sample received date : Oct. 10, 2015

**Testing period** : Oct. 10, 2015 to Oct. 20, 2015

Test requested : 1. As specified by client, to screen Lead(Pb), Cadmium(Cd),

Mercury(Hg), Chromium(Cr) and Bromine(Br) in the submitted

sample(s) by XRF.

2. As specified by client, when screening results exceed the XRF screening limit in IEC 62321-3-1:2013, further use of chemical methods are required to test the Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr(VI)), Polybrominated Biphenyls(PBBs), Polybrominated Diphenyl Ethers(PBDEs) in the

Ambotek

submitted samples.

## According to the RoHS Directive 2011/65/EU

**Test Method:** Please refer to the following page(s).

**Test Result(s):** Please refer to the following page(s).

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No. SZR151010010001-1 Date: Oct. 20, 2015 Page 2 of 12

### **Test Method:**

### A. Screening test by XRF spectroscopy

XRF screening limits in mg/kg for regulated elements according to IEC 62321-3-1:2013.

Element	Limit of IEC 62321-3	aborek MDLabor		
	Polymers and metals	Composite material	Polymers	Other material
Pbyek	BL≤(700-3σ) <x <(1300+3σ)<br="">≤OL</x>	BL≤(500-3σ) <x <(1500+3σ)<br="">≤OL</x>	10 mg/kg	50 mg/kg
Cd	BL≤(70-3σ) <x <(130+3σ)<br="">≤OL</x>	LOD≤(50-3σ) <x <(150+3σ)<br="">≤OL</x>	10 mg/kg	50 mg/kg
bote Hg	BL≤(700-3σ) <x <(1300+3σ)<br="">≤OL</x>	BL≤(500-3σ) <x <(1500+3σ)<br="">≤OL</x>	10 mg/kg	50 mg/kg
Cr Cr	BL≤(700-3σ)< X	BL≤(500-3σ)< X	10 mg/kg	50 mg/kg
Br	BL≤(300-3σ)< X	BL≤(250-3σ)< X	10 mg/kg	50 mg/kg

#### Note:

- -BL = Under the XRF screening limit
- -OL = Further chemical test will be conducted while result is above the screening limit
- -X= The symbol "X" marks the region where further investigation is necessary
- $-3 \sigma$  = The reproducibility of analytical instruments
- -LOD= Detection limit

### **B. Chemical Test**

Test Item(s)	Test Method	Measured Equipment(s)	MDL
Lead (Pb)/ Cadmium (Cd)	IEC 62321-5:2013 Ed.1.0	ICP-OES	2 mg/kg
Mercury (Hg)	IEC 62321-4:2013 Ed.1.0	ICP-OES	2 mg/kg
Anbote Anbotek	IEC 62321:2008 Ed.1 Annex B	UV-VIS	1 485
Hexavalent Chromium Cr(VI)	IEC 62321:2008 Ed.1 Annex C	UV-VIS	2 mg/kg
Polybrominated Biphenyls (PBBs)	IEC 62321-6:2015 Ed.1.0	GC-MS	5 mg/kg
Polybrominated Diphenyl Ethers (PBDEs)	IEC 62321-6:2015 Ed.1.0	GC-MS	5 mg/kg



No. SZR151010010001-1

Date: Oct. 20, 2015

Page 3 of 12

### **Test Results:**

Sample No.	Sample Description	Tested Items	XRF Screening Test Unit (mg/kg)	Chemical Test Unit (mg/kg)	Conclusion
rotek	Anbotek Anbe	Pb Rek	Anbore BLAnd	NOOPK A	Por VI
Anbe	Plack motal	Cd	Anboten BL Anbo	k. Josek	Aupore, Au
AUDOLO	Black metal shell	Anbotes Hganb	boteBL Anbot	Y WEEK	PASS
Anbote	SHEII WUR	Cr(Cr(VI))	BFA VUP	Vupp.	k. botek
ek no	Yek Aupo	Br(PBBs&PBDEs)	And	"potek / Aupor	K All Otek
otek	botek Anbors	Pby	BL	hotek / Anbot	And
	White plactic	<sup>An</sup> Cd	Potek Brupor	Ans orde and	otek Anbo
nbotek 2	White plastic shell	otek Hg	" otek BL Nupotes	Yupa I'sk	PASS
Aupotek.	SHEILO	Cr(Cr(VI))	And telBL above	Anbo	All
botek	Anboro	Br(PBBs&PBDEs)	BL BL	lek Kupote	Aup
b.,	ek Anbote.	And Pb pose	Aup BL Am	otek Inbotek	Aupo
Anb	Yellow double	Cd	rek "BGier VL	bote / bote	K Anbore
Sex 3 M	sides adhesive	Anb Hg And	BL botek	Anbo	PASS
bojek	tape	Cr(Cr(VI))	BL NOTEK	Aupose   Aug	tek ab
botek	Anboten Anb	Br(PBBs&PBDEs)	Aupor BL BL Otek	oupder b	Upo. V.
Yu.	upotek b	Pb Solek	Anbore BL Anb	k botek	Anbor
Anbo	K P. Potek	Anbot Cd And Jek	LOD MOD	W Week	Anbotek
4 nbox	Battery	Anbote Hg Anbo	BLOK AND	ore /Ans	PASS
ok Anh	oter Anbo	Cr(Cr(VI))	BL vek	upotek / Aupo	ek hotek
Not.	abotek Anbot	Br(PBBs&PBDEs)	BL	abotek/ Anbo	Ans
100 rek	botek Anbo	Pb	Projek Brype	All MONEY	poten And
Aupor	Vollow plactic	Cd Cd	botek BL Anbot	Aug Liek	anbotek An
AU 2 15	Yellow plastic film	nbotek Hgknbot	All oteBL Anbore	Ang	PASS
nbote	Anbo	Cr(Cr(VI))	BL	Pupote Pupote	Aur
K	tek Aupore	Br(PBBs&PBDEs)	BL	potek / Anbote.	Aups * ek
Dr.	botek Anboter	Pb <sub>k</sub>	otek BLott	nek   noot	Sk Vupo
b. b	1	An Cd	potek BLobotet	And	otek Anbot
nbote 6		Hgoto I	n BL nbotek	Auport Au	PASS
Aupotek	Anbore Ant	Cr(Cr(VI))	Anbo BL Stek	And	YUB
V. Potek	Aupolek	Br(PBBs&PBDEs)	Aupoto BL Aupo	lek Tupotek	Aupotek



No. SZR151010010001-1

Date: Oct. 20, 2015

Page 4 of 12

200	Sr Vupo	b. Poker	And	otek subot	VII.
Sample No.	Sample Description	Tested Items	XRF Screening Test Unit (mg/kg)	Chemical Test Unit (mg/kg)	Conclusion
otek	upose Aug	ek Pbek An	BL Kel	Vuposen Vupe	ek bo
rek	Nallan in an lating	Cd	Anbore BLAND	NOVE A	por K
Anbe 7	Yellow insulation	Hg	nbotek BL Anber	Losek	PASS
Aupor	paper	Cr(Cr(VI))	boteBL Anbote	VIII STOK	hotek
	Aug	Br(PBBs&PBDEs)	BEA WUP	Vupa V	P. Potek
K Anb	Yek Aupo	Pb Anbore	AND BL LOK	potek / Aupore	K West
* ek	botek Anbore	Cd	LOD	hotek / Anbol	AUD
8	Blue PCB board	Hg	botek BLnbots	And and	PASS
	And stek	Cr(Cr(VI))	otek BL Mbotes	And Lok	botek An
Upotek	Aupo W.	Br(PBBs&PBDEs)	And sek X shotek	N.D.	Aurotek
Anbotek	Anbot	atek Pb nbotek	And BL No	ek Kipote	VUR.
_1	Dia HOD motel	And Cd	Aup BL Au	stek Inbotek	Aupo
9 Anbo	Big USB metal	And Hg	rek REre Ar	pote / pote	PASS
ek An	shell	Cr(Cr(VI))	tek BLbotek	Anbor	otek Anbote
poiek	Aupore K	Br(PBBs&PBDEs)	Joseph Motek	Vuposel Vue	de Not
Anbotek	Anbore And	Pb botek	Anbot BL Att	upoles b	Upo N
400	Dig LICD inner	Cd Cd	Anbore BL Anb	k botek	Anbore
10	Big USB inner	Anbotto Hg And	nbo'BL Anbo	of the state of th	PASS
Vupos	white plastic	Cr(Cr(VI))	ek Blek Ant	or IAM	abotek
K Anb	ote, Aug	Br(PBBs&PBDEs)	BL tek	upoter / Aupo	ek hotel
otek p	abotek Anbo	Pbek An	BL	abotek Anbo	K Will
	abotek Anbo	Cd tek	Anborek LODabe	No. Th	poier And
mb°11	Chip diode	Hg	botek BL Anbote	And	PASS
Anbote	Chip diode	Cr(Cr(VI))	Anbote Anbote	AUD	h. botek
Aupote		Br(PBBs&PBDEs)	Ans Xk	N.D.	An
Anbo	ick Wupolek	Ans Pb Anbore	AnbBL Ak	botek / Aupotek	Yup Fek
iek 10 A	VII.	Cdv	otek PBL	otek / nbot	Sk Vupo,
metal shell	An Hg	botek BLnbote	And	PASS	
	Cr(Cr(VI))	Who seek BT Who seek	Aupose Au	sbotek An	
Anbotek	Anbotek Ant	Br(PBBs&PBDEs)	Aupor Photok	AUPLE	And
D. s.	100	- V	77.	7.0	V2 0 -



No. SZR151010010001-1

Date: Oct. 20, 2015

Page 5 of 12

Sample No.	Sample Description	Tested Items	XRF Screening Test Unit (mg/kg)	Chemical Test Unit (mg/kg)	Conclusion
potek 1	'upole Vue	Lek Bpek My	BL NOTON	Aupoten Aupo	rek wo
rek	Small USB inner	Cd	Anbore BLAns sek	A Podo	100 K
Anbotek	black plastic	Hg	Anboten BL Anbo	r Posek	PASS
Vupo,	black plastic	Cr(Cr(VI))	bot BL Anbot	Au Stek	Anbotek
Anbore	And	Br(PBBs&PBDEs)	BEK WUP	Yup.	botek
K Aupe	ter Aupo	Pb Anbore	BL	upotek / Aupot	ok hotek
siek .	Chin coil	Cd	LOD	potek / Aupo	And
14	Chip coil inductor	Hg	abotek BLabot	All.	PASS
horo	Injudictor	Cr(Cr(VI))	hotek BL Anbote	And I sek	abotek Ant
Aupoter	Aupo	Br(PBBs&PBDEs)	And to BL abotek	Aup)	A. Otek
Anbotek	Anbor	All Lotek Pb Anboten	Anbo OL	26850*	Anbotek
	ek Anbore	And Cd nboke	Anb LOD And	otek I pupoter	Aupo
15 <sup>hnbo</sup>	Chip resistor	And Hg	tek ALBERT AT	sek / spore	PASS
ser bu	ek Anbo ek hote	Cr(Cr(VI))	BL Dotek	Aupo. Y	otek Anbote
botek	Aupor Au	Br(PBBs&PBDEs)	BL botek	Aupore   Aug	sek nb
Anbotek	Anbore And	Pb botek	Anbot BL An Lotek	Pupoler b	upo rek
Auratek	Aupolek A	Cd hotek	Anbore LOD And	k potek	Vuposek V
16	Chip capacitor	Anbor Hg And Nek	nbo'BL Anbo	notek notek	PASS
Anbore	otek Anbotek	Cr(Cr(VI))	ek BLek And	VAUS SEEL	nbotek
ek Aup	FOK	Br(PBBs&PBDEs)	BL	upoter / Anbo	ek botek
otek	nbotek Anbo	Pbek An	BL	hotek Anbc	V V.
Anbotek	abotek Anbo	Cd	Anborek LODnbo	No. No.	potek Anbo
Anbo 17	LED Anbotek An	Hg	abotek BL Anbot	Andlek	PASS
Anbotek	And	Cr(Cr(VI))	BL Anbore	AUS	botek
anbote	Anbo	Br(PBBs&PBDEs)	BL <sub>k</sub>	rek Yupo,	All
k Aupo	Jek Wupor	Pb Noote	And BL	potek / Aupore	Ann
40.	botek Anbote.	Cd	LOD	in later I have	Pupo.
18	IC Anbotek Anbot	Hg	botek BLupote	And	PASS (VOIL)
nbotek	Anbotek Ant	Cr(Cr(VI))	BL botek	Vuport Vu	abotek Ant
anbotek.	Aupor Au	Br(PBBs&PBDEs)	Anbe XX hotek	N.D.	ynu cok



No. SZR151010010001-1

Date: Oct. 20, 2015

Page 6 of 12

Sample No.	Sample Description	Tested Items	XRF Screening Test Unit (mg/kg)	Chemical Test Unit (mg/kg)	Conclusion
otek	ek lupose Yun	rek Bpek An	BL week	Auposen Aup	188
White switch	White quiteb	Cd	Anbore BLAND	DOOP A	POL VI
19	White switch	Hg	nhotel BL Anbe	r Totak	PASS
Anbotek	plastic	Cr(Cr(VI))	boteBL Anbote	And	Anbotek
Anbore	And	Br(PBBs&PBDEs)	BEK NUP	Vupo Pupo	P. Potek
K Aupe	FOR VUDO	hotPb Anbote	AND BL tok	"potek   Aupote	K Wiek
*ek	hotek Anbote	Cd.	otek PBL	hotek / Anbo	VUD.
20	Silvery switch	<sup>An</sup> Hg	botek BLOOP	Aug State	PASS
nbotek	metal	Cr(Cr(VI))	otek BL anbotes	Auga I ek	botek An
Aupotek	Anbotek Ant	Br(PBBs&PBDEs)	And tek I sporek	Aup or	An
Anbotek	Anbot	otek Pb Anborek	And BL ho	iek Kipote	And
	Disals alliable	And Cd abote	Anb BL An	otek I popolek	Aupotek
21 <sup>Anbo</sup>	Black switch	And Hg	LOK PLESSES PL	1 10 to	PASS
tek Au	plastic	Cr(Cr(VI))	tek BLbotek	Aupor	stek Anbote
botek	Aupore Aur	Br(PBBs&PBDEs)	In X Motok	Anbo N.D.	tek ab
Anbotek	Anbore And	Pb potek	Anbot BL Am Otek	Vupoley b	upo
200	Anbotek A	Cd Cd	Anbore BL Anb	K Josek	Vuposek 1
22	Black jacket	Anbot Hg Am	nbo'BL Anbo	of the society	PASS
Anbote	Otek Anbotek	Cr(Cr(VI))	BLOK AND	VAU Stel	hotek
ek Anb	oter Aug	Br(PBBs&PBDEs)	BL rek	"poter / Vupo	ek botel
otek p	upotek Aupo	Pbek An	BL	abotek/ Anbe	K V.
,ek	Vuposek Vupo	Cd	nborek BLAND	NO. P.	pote, Vup.
23	Red jacket	Hg	abotek BL Anbote	Ans	PASS
Anbore	25 Red Jacket	Cr(Cr(VI))	AT LOTEBL Anbote	Vul.	h. botek
'upote,	Ando	Br(PBBs&PBDEs)	And BLk	yek Yupor	Am
V ~00	Silvery metal	Am Pb Anbote	AnbBL ak	potek / Aupotes	Vup.
otek or at		Cd	otek pBL	" sek / "pot	Sk Vupo,
.)/	plate	Hg	botek BLnbotes	And	PASS
nbotek	br.	Cr(Cr(VI))	ntek BL nbotek	Auport Au	spotek Ani
apotek	Anbotek Ant	Br(PBBs&PBDEs)	Aupo 1 King Stek	AUDI	YUD. K



No. SZR151010010001-1 Date: Oct. 20, 2015 Page 7 of 12

Sample No.	Sample Description	Tested Items	XRF Screening Test Unit (mg/kg)	Chemical Test Unit (mg/kg)	Conclusion
botek	upose Aug	lek Bpek Au	BL NOV	Vuposes Vup	ek bo'
rotek	Anbotek Anbo	Cd otek	Anbore BLAND tek	DOOL V	por An
25	Soldering tin	Hg tok	Anboten BL Anbo	r Posek	PASS
Aupor	A. botek	Cr(Cr(VI))	boteBL Anbot	An Stek	Motek
Anbore	Aug	Br(PBBs&PBDEs)	K MOLEK AND	Vups Pups	botek

#### Note:

- -MDL = Method Detection Limit
- -N.D. = Not Detected (<MDL)
- -mg/kg = ppm = parts per million
- -Negative = Absence of Cr(VI), the detected Cr(VI) concentration in the boiling water extraction solution is less than 0.02 mg/kg with 50cm<sup>2</sup> sample surface area used.
- -Positive = Presence of Cr(VI), the detected Cr(VI) concentration in the boiling water extraction solution is equal to or greater than 0.02 mg/kg with 50cm<sup>2</sup> sample surface area used.
- -26850\* = According to the customer statement, samples to the EU RoHS directive 2011/65/EU and 2011/534/EU exemption No. 7(c)-I: Containing lead in a glass or ceramic other than dielectric ceramic in capacitors, e.g. piezoelectronic devices, or in a glass or ceramic matrix compound.

#### Remark:

- The screening results are only used for reference.
- When conducting the test for PBBs&PBDEs, XRF was introduced to screen Br Exclusively; When conducting the test for Hexavalent Chromium, XRF was introduced to screen Chromium exclusively.



No. SZR151010010001-1

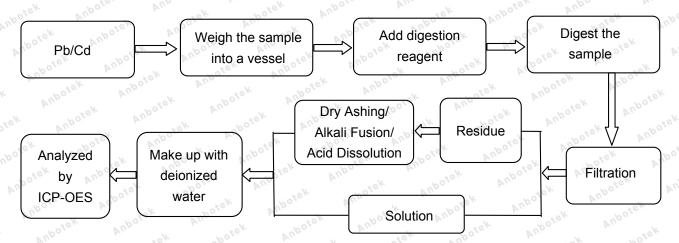
Date: Oct. 20, 2015

Page 8 of 12

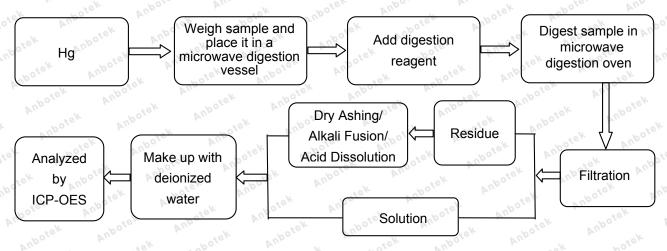
### **Test Process:**

The sample(s) had been dissolved totally tested for Lead, Cadmium, Mercury.

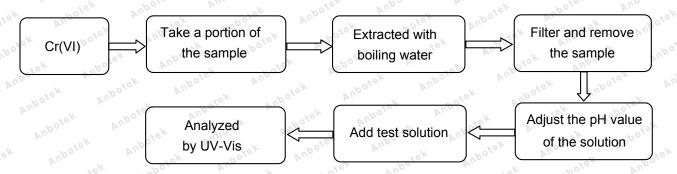
♦ IEC 62321-5:2013 Ed.1.0



## ♦ IEC 62321-4:2013 Ed.1.0



### ♦ IEC 62321:2008 Ed.1 Annex B

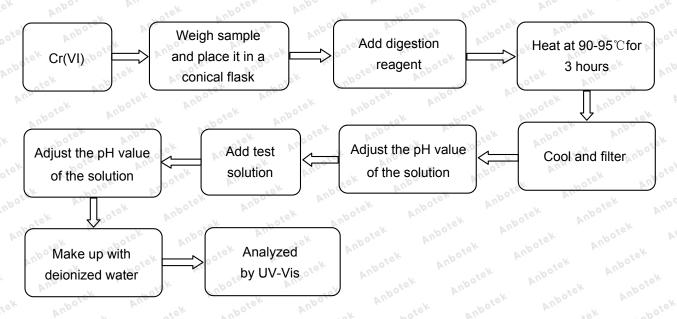


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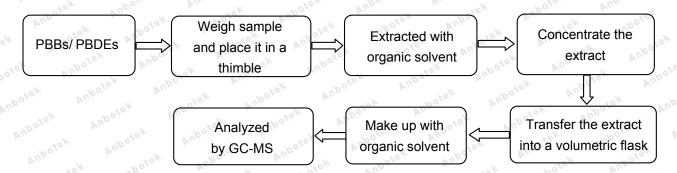


No. SZR151010010001-1 Date: Oct. 20, 2015 Page 9 of 12

### ♦ IEC 62321:2008 Ed.1 Annex C



## ♦ IEC 62321-6:2015 Ed.1.0





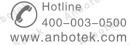
No. SZR151010010001-1

Date: Oct. 20, 2015

Page 10 of 12

**Photograph of Sample** 







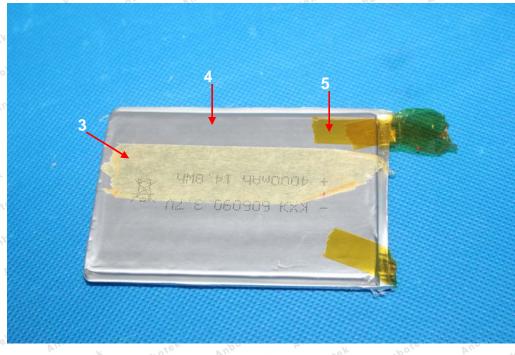
No. SZR151010010001-1

Date: Oct. 20, 2015

Page 11 of 12

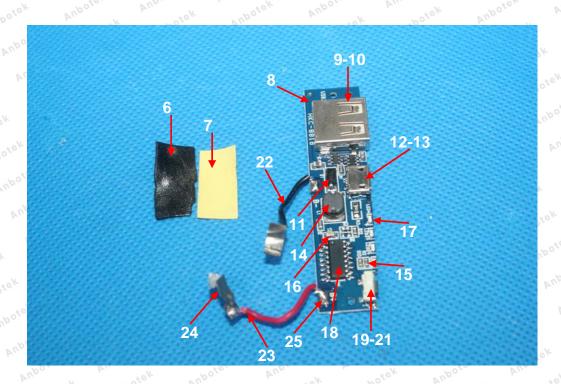
Photo(s) of the tested component(s)







Page 12 of 12 Date: Oct. 20, 2015 No. SZR151010010001-1



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

The test report is effective only with both signature and specialized stamp. The result(s) shown in this report refer only to the sample(s) tested. Without written approval of Anbotek, this report can't be reproduced except in full.

