

Report No. BCTC-FYC19094495R

Date: Sep. 23, 2019

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Address

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Applicant

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

 Sample name
 :
 DSBT057-W

 Sample received date
 :
 Sep. 16, 2019

 Testing period
 :
 Sep. 16, 2019 - Sep. 23, 2019

Test requested

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 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 submitted samples.

 As specified by client, to test the Di-isobutyl phthalate(DIBP), Dibutyl phthalate(DBP), Benzyl butyl phthalate(BBP), Bis(2-ethyl(hexyl) phthalate)(DEHP)in the submitted sample(s).

According to the RoHS Directive 2011/65/EU and amendment Commission Delegated Directive (EU) 2015/863

*****For more detailed information, please refer to the next page*****

Tested by

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Hanyao Chen

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Test Method:

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A. Screening test by XRF spectroscopy

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

200	C Limit of IEC 62321-3	MDL		
Element	Polymers and metals	Composite material	Polymers	Other material
Pb	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
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	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

 -3σ = The reproducibility of analytical instruments

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-LOD= Detection limit

-"--" = Not regulated.

B. Chemical Test

Test Item(s)	Test Item(s) Test Method		MDL	Limit
Lead (Pb)	IEC 62321-5:2013 Ed.1.0	ICP-OES	2 mg/kg	1000 mg/kg
Cadmium (Cd)	IEC 62321-5:2013 Ed.1.0	ICP-OES	2 mg/kg	100 mg/kg
Mercury (Hg)	IEC 62321-4:2013+AMD1:2017	ICP-OES	2 mg/kg	1000 mg/kg
	IEC 62321-7-1:2015 Ed.1.0			1000 mg/kg
Hexavalent Chromium Cr(VI)	IEC 62321-7-2:2017 Ed.1.0	UV-VIS	8 mg/kg	1000 mg/kg
Polybrominated Biphenyls (PBBs)	IEC 62321-6:2015 Ed.1.0	GC-MS	5 mg/kg	1000 mg/kg
Polybrominated Diphenyl Ethers (PBDEs)	IEC 62321-6:2015 Ed.1.0	GC-MS	5 mg/kg	1000 mg/kg
Phthalates	IEC 62321-8:2017 Ed.1.0	GC-MS	50 mg/kg	1000 mg/kg

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Test Result(s):

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Sample No.	Sample Description	Tested Items	XRF Screening Test Unit (mg/kg)	Chemical Test Unit (mg/kg)	Conclusion
	CTC	Pb	BE	/	
1), <u> </u>	Cd	BL	1	
1	Gray plastic	Hg	BL	BCIT	PASS
	Br	Cr(Cr(VI))	BL	/	
0		Br(PBBs&PBDEs)	BL	/	BCIC
5		Pb	BL	/	-
	150	Cd	BLCTC	/	
2	Gray iron net	Hg	BL	/	PASS
		Cr(Cr(VI))	BL	BCTC	
		Br(PBBs&PBDEs)	BL	1	
		Pb	BCTC BL	/	RCTC
BCTC		Cd	BL	1	
3	White silica gel	Hg	BL action	1	PASS
	BCTL	Cr(Cr(VI))	BL	1	
		Br(PBBs&PBDEs)	BL	1 201	C
		Pb	BL	1	5m
		Cd	BL	/	
4 ₈ C	Silver screw	Hg	BL	/	PASS
0-		Cr(Cr(VI))	BL		
	B	Br(PBBs&PBDEs)	BL 😼	N.D.	
		Pb	BL	/	DETE
C		Cdacic	BL	/	BC.
5	Gray EVA	Hg	BL	/	PASS
	OFTC	Cr(Cr(VI))	BL	/	
	DC.	Br(PBBs&PBDEs)	BL	1	
		BCTCPb	3295	633	
		Cd	BL	/	
BCCC	Black EVA	Hg	TC BL	/	PASS
BUIT		Cr(Cr(VI))	BL	/	
	-55	Br(PBBs&PBDEs)	/ BCI	1	

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	_	Pb	BL	/	
		Cd	BL	/	
7	Green PCB	Hg	BL	/	PASS
1	CTC	Cr(Cr(VI))	BL	/	
		Br(PBBs&PBDEs)	9035	N.D.	
	00	Pb	BL	BLIT	
	p-	Cd	BL	/	
8	IC	Hg BC1	BL	/	PASS
~		Cr(Cr(VI))	BL	/	
	-55	Br(PBBs&PBDEs)	BLCTC	/	
	Bri	Pb	BL	/	
		Cd	BL	BCIL	
9	SMSMD switch	Hg	BL	1	PASS
1.00		Cr(Cr(VI))	BL	1	BCTC
BCTC		Br(PBBs&PBDEs)	BL	1	
		Pb	BL	1	
	BCIC	Cd	BL	1	
10	IC	Hg	BL	BC	PASS
		Cr(Cr(VI))	BL	1	
		Br(PBBs&PBDEs)	BL	1	PC.
BC	TC	Pb	BL	1	0-
P		Cd	BL	CC /	
11	SMD LED	Hg	BL	1	PASS
		Cr(Cr(VI))	BL	1	OCTC
C		Br(PBBs&PBDEs)	BL	1	Do.
		Pb	BL	1	
	BCTC	Cd	BL	1	
12	SMD mic	Hg	BL	1-	PASS
		Cr(Cr(VI))	BL	BCY]
		Br(PBBs&PBDEs)	BL	1	-030
DTTG		Pb	C BL	1	BCIT
pr. i -		Cd	BL	/	
13	SMD crystal	Hg	BL BCI	/	PASS
	oscillator	Cr(Cr(VI))	BL	/	
		Br(PBBs&PBDEs)	BL	BCTC	

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		Pb	BL	/	
		Cd	BL	1	
14	Switchh	Hg	BL	1	PASS
P	CTC	Cr(Cr(VI))	BL BL	1	
		Br(PBBs&PBDEs)	BL	1	
	20	Pb	BL	BLIT	
	BC	Cd	BL	/	
15	SMD resistor	Hg BCT	BL	/	PASS
		Cr(Cr(VI))	BL	/	
	-010	Br(PBBs&PBDEs)	BL	/	
	Brie	Pb	BL	1	
		Cd	BL	ECIL	
16	SMD micro	Hg	BL	/	PASS
		Cr(Cr(VI))	BL	/	BCTC
SCIC		Br(PBBs&PBDEs)	BL		
		Pb	BL	1	
	BCTC	Cd	BL	/	
17	Tin solder	Hg	BL	1 201	PASS
		Cr(Cr(VI))	BL	/	- 5
		Br(PBBs&PBDEs)	BL	/	20
BC	C	Pb	BL	/	pe
pe		Cd	BL		
18	SMD capacitor	Нg	BL	1	PASS
		Cr(Cr(VI))	BL	/	DITC
C		Br(PBBs&PBDEs)	BL	/	put
		Pb	BL	/	
	ACTC	Cd	BL	/	1
19	Tin solder	Hg	BL	1	PASS
		Cr(Cr(VI))	BL	BCY	_
		Br(PBBs&PBDEs)	BL	1	
-50		Pb	C BL	/	BCIC
sur		Cd	BL	/	1
20	Tin solder	Hg	BL BCT	1	PASS
	BCIC	Cr(Cr(VI))	BL	1	1
		Br(PBBs&PBDEs)	BL	BCTC	1

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		Pb	BL	/	1
		Cd	BL	/	
21	Gray magnet	Hg	BL	/	PASS
10	CTC	Cr(Cr(VI))	BL	/	
0		Br(PBBs&PBDEs)	BL	1	
	25	Pb	BL	BCIT	
ľ	p-	Cd	BL	/	
22	Tin solder	Hg	BL	/	PASS
-		Cr(Cr(VI))	BL	/	
ľ	155	Br(PBBs&PBDEs)	BL	/	
	Bris	Pb	BL	1	
ſ		Cd	BL	BCTC	
23	Brown tape	Hg	BL	1	PASS
		Cr(Cr(VI))	BL	/	BCTC
SCIC		Br(PBBs&PBDEs)	BL	/	
		Pb	BL		
ſ	BCTC	Cd	BL	/	
24	Yellow coil	Hg	BL	1 20	PASS
ſ		Cr(Cr(VI))	BL	1	
		Br(PBBs&PBDEs)	BL	/	20
BCT	10	Pb	BL	/	be
pu		Cd	BL	-55 1	
25	Red coil	Нg	BL	BLIT	PASS
		Cr(Cr(VI))	BL	/	DITC
C		Br(PBBs&PBDEs)	BL	/	p
		Pb	BL	/	
	ACTC	Cd	BL	/	
26	Black cloth	Hg	BL	1-	PASS
ſ		Cr(Cr(VI))	BL	BCIC	
		Br(PBBs&PBDEs)	BL	/	-30
C.C.		Pb	C BL	/	BCIC
scie		Cd	BL	1	
27	Black rubber	Hg	BL BC		PASS
ſ	BCIC	Cr(Cr(VI))	BL	1	
		Br(PBBs&PBDEs)	/	BCTC	

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		200	Pb	BL	/	3	
			Cd	BL	/	- C	
	28	Tin solder	Hg	BL	/	PASS	1
		CIC	Cr(Cr(VI))	BL	/		500
	b		Br(PBBs&PBDEs)	BL			
			Pb	BL	BCIT		
		BC	Cd	BL	/		
200	29	Silver battery	Hg BCT	BL	1	PASS	
CI	-		Cr(Cr(VI))	BL	1		
		-55	Br(PBBs&PBDEs)	BLCTC	/		
		Brie	Pb	BL	1		
			Cd	BL	BRIL		
	30	White wire	Hg	BL	1	PASS	
	200		Cr(Cr(VI))	SCTC BL	/	BCTC	
E.	SCIL		Br(PBBs&PBDEs)	BL	/		
			Pb	BL BCTC	/		
		BCIC	Cd	BL	/		
	31	Black wire	Hg	BL	/ BC1	PASS	
2			Cr(Cr(VI))	BL	1		
			Br(PBBs&PBDEs)	BL	/	BC	ΥÇ.
	BC	10	Pb	BL	/		
			Cd	BL	SC /		
	32	Red wire	Hg	BL	1	PASS	
		_	Cr(Cr(VI))	BL	/	RCTC	
01	C		Br(PBBs&PBDEs)	BL	/	V-	
			Pb	BL	/		B
		RCTC	Cd	BL	/		D.
	33	Black wire	Hg	BL	1	PASS	
			Cr(Cr(VI))	BL	BCY		
			Br(PBBs&PBDEs)	BL	/		

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BCIS				
Tested Item(s)	Results Unit (mg/kg)			
	1	2	3-6 8-33	7
Di-isobutyl phthalate(DIBP) CAS #:84-69-5	N.D.	N.D.	N.D.	N.D.
Dibutyl phthalate(DBP) CAS #:84-74-2	N.D.	N.D.	N.D.	N.D.
Benzylbutyl phthalate(BBP) CAS #:85-68-7	N.D.	N.D.	N.D.	N.D.
Bis(2-ethyl(hexyl) phthalate)(DEHP) CAS #:117-81-7	N.D.	N.D.	N.D.	N.D.
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Note:

-MDL = Method Detection Limit

-N.D. = Not Detected (<MDL)

-mg/kg = ppm = parts per million

-" / "= Not conducted.

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-Negative = Absence of Cr(VI), the detected Cr(VI) concentration in the boiling water extraction solution is less than $0.1\mu g/cm^2$ with $50cm^2$ sample surface area used.

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-Positive = Presence of Cr(VI), the detected Cr(VI) concentration in the boiling water extraction solution is equal to or greater than 0.13μ g/cm² with 50cm² sample surface area used.

-The data in this report are copy of this report:BCTC-FYC19094294R.

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Remark:

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- The screening results are only used for reference.

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- 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.

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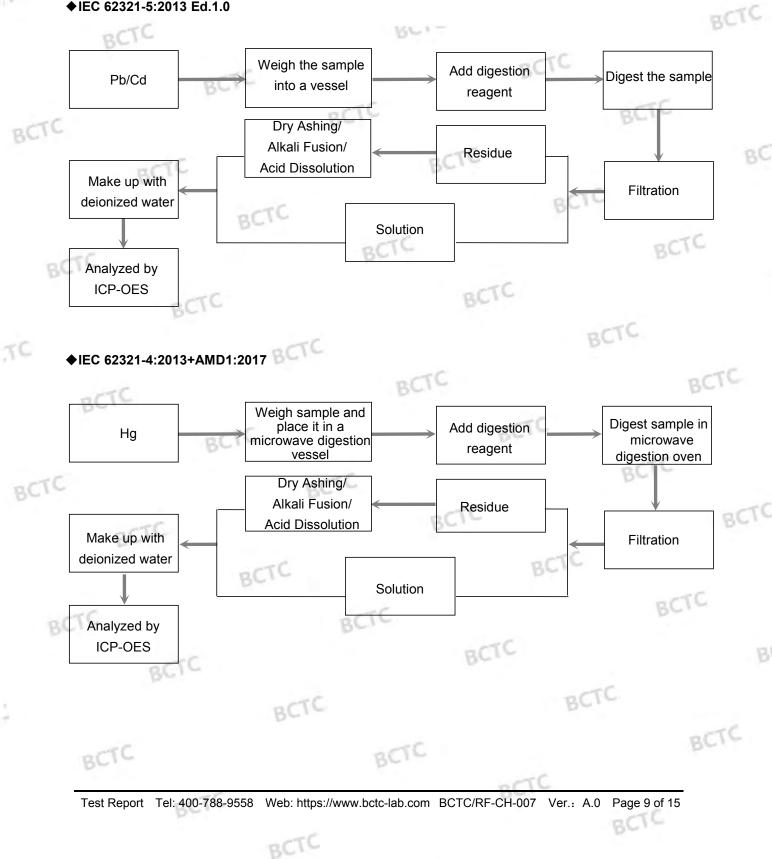
Test Process:

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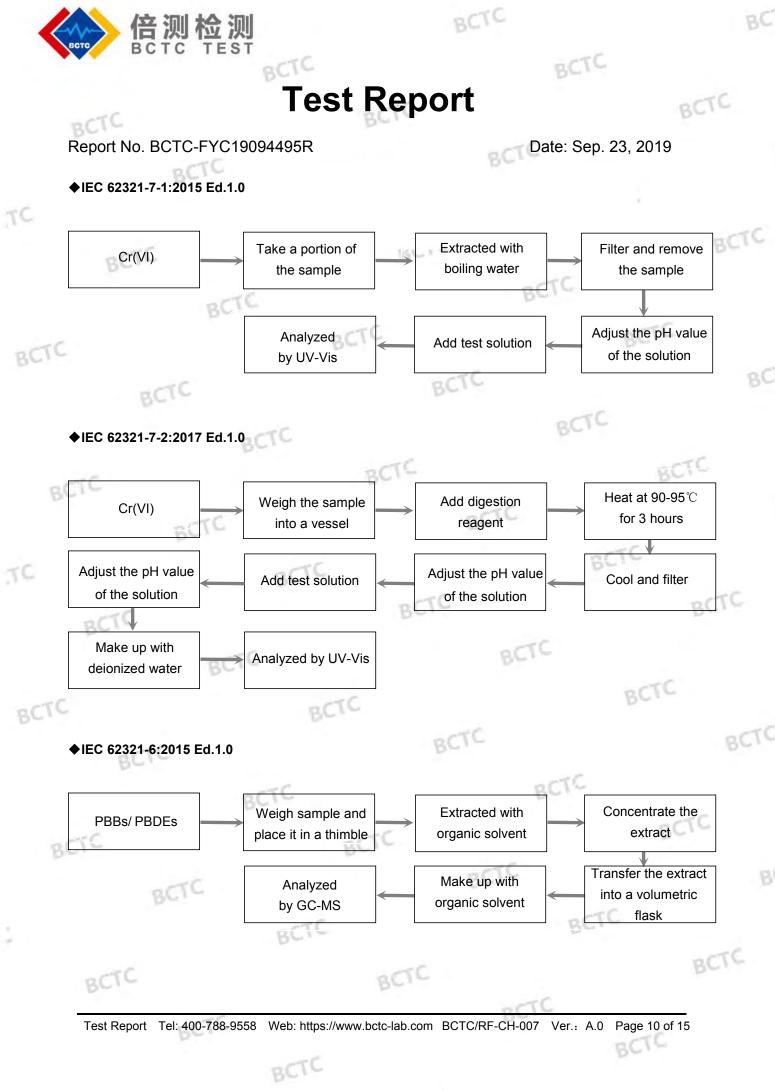
BE MAC

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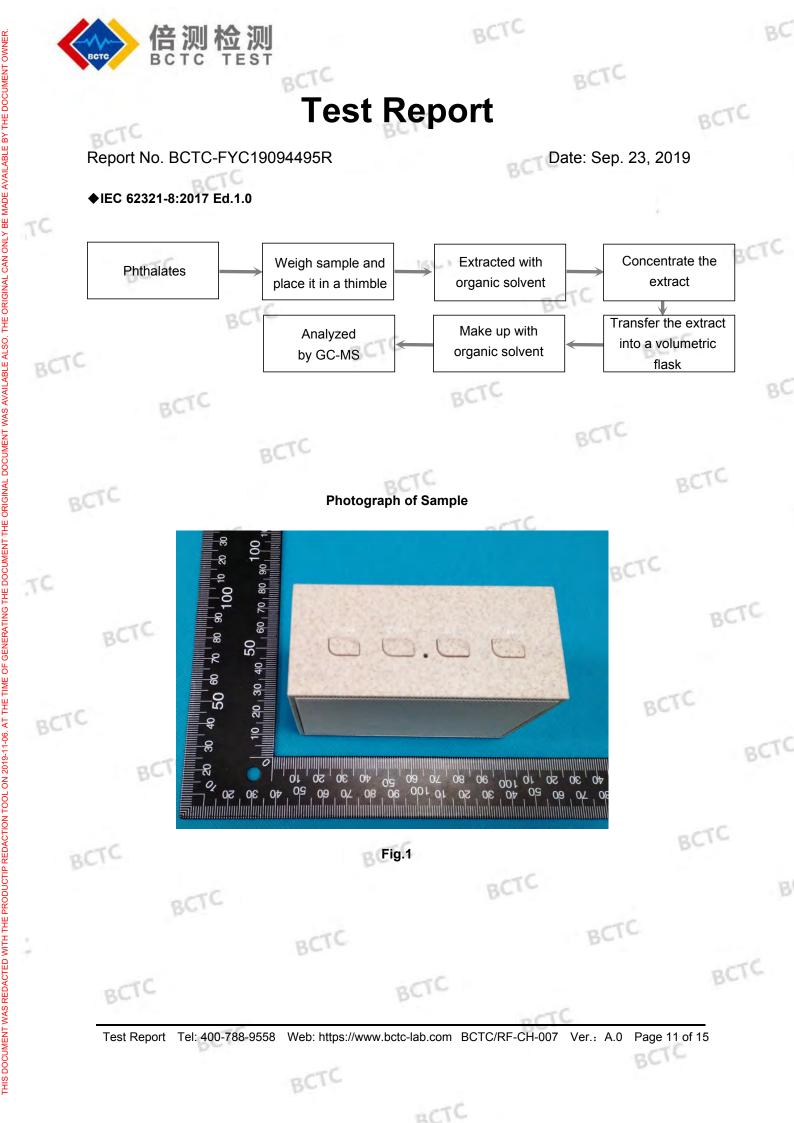
The sample(s) had been dissolved totally tested for Lead, Cadmium, Mercury. ♦IEC 62321-5:2013 Ed.1.0



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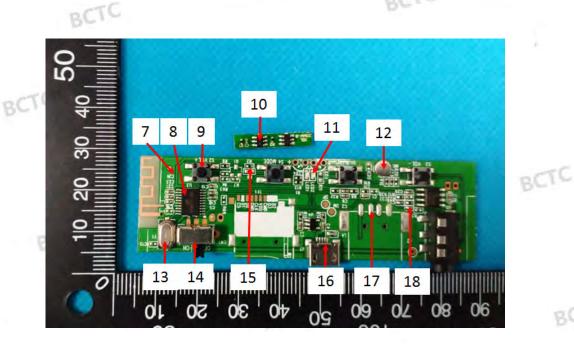


Fig.4

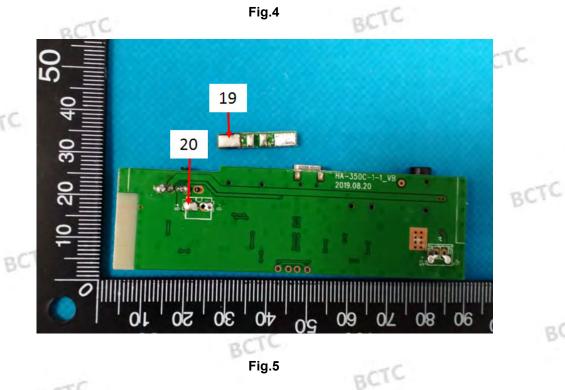


Fig.5

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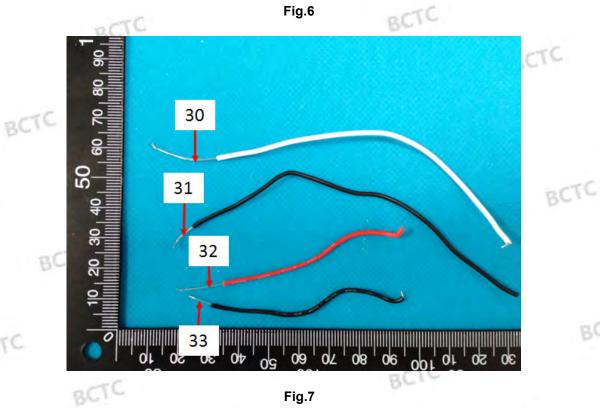


Fig.7

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STATEMENT

1. The equipment lists are traceable to the national reference standards.

2. The test report can not be partially copied unless prior written approval is

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issued from our lab.

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3. The test report is invalid without stamp of laboratory.

4. The test report is invalid without signature of person(s) testing and

authorizing.

5. The test process and test result is only related to the Unit Under Test.

6. The quality system of our laboratory is in accordance with ISO/IEC17025.

7. If there is any objection to report, the client should inform issuing laboratory

within 15 days from the date of receiving test report.

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