

## Test Report

No. SZXEC2002878201

Date: 26 Nov 2020

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BENNIC COMPONENTS (HUIZHOU) CO.,LTD.

82, HUI FENG XI SI ROAD, HUIZHOU, GUANG DONG PROVINCE

The following sample(s) was/were submitted and identified on behalf of the clients as : ALUMINIUM ELECTROLYTIC CAPACITORS

SGS Job No. : RP20-025683 - SZ

Date of Sample Received : 19 Nov 2020

Testing Period : 19 Nov 2020 - 24 Nov 2020

Test Requested : Selected test(s) as requested by client.

Test Method : Please refer to next page(s).

Test Results : Please refer to next page(s).

Conclusion : Based on the performed tests on submitted sample(s), 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 (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Signed for and on behalf of  
SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch

*Ford*

Ford Shi  
Approved Signatory



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Test Results :

## Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	SZX20-028782.001	Silver-gray foil (semi-product) (said to be"ALUMINUM FOIL")1#
SN2	SZX20-028782.002	Silvery metal (semi-product) (said to be"ALUMINUM CASE") 2#
SN3	SZX20-028782.003	Silvery metal (semi-product)(said to be"LEAD WIRE(AL WIRE)") 3#
SN4	SZX20-028782.004	Silvery metal pin (semi-product)(said to be"LEAD WIRE(CP WIRE)") 4#
SN5	SZX20-028782.005	Beige paper (semi-product) (said to be"PAPER")5#
SN6	SZX20-028782.006	Colorless transparent liquid (semi-product) (said to be"ELECTROLYTE") 6#
SN7	SZX20-028782.007	Black tube with white printing (semi-product) (said to be"PET BLACK PLASTIC TUBE") 7#
SN8	SZX20-028782.008	Dark blue tube with white printing (semi-product)(said to be"PET DARK BLUE PLASTIC TUBE") 8#
SN9	SZX20-028782.009	Black material (semi-product)(said to be"RUBBER") 9#
SN10	SZX20-028782.010	Yellow adhesive tape (semi-product) (said to be"ELECTRONIC TAPE") 10#

Remarks :

- (1) 1 mg/kg = 1 ppm = 0.0001%
- (2) MDL = Method Detection Limit
- (3) ND = Not Detected ( < MDL )
- (4) "-" = Not Regulated

## RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU

Test Method : With reference to IEC 62321-4:2013+AMD1:2017, IEC62321-5:2013, IEC62321-7-2:2017, IEC 62321-6:2015 and IEC62321-8:2017, analyzed by ICP-OES, UV-Vis and GC-MS.

Test Item(s)	Limit	Unit	MDL	005	006	007
Cadmium (Cd)	100	mg/kg	2	ND	ND	ND
Lead (Pb)	1,000	mg/kg	2	ND	ND	ND
Mercury (Hg)	1,000	mg/kg	2	ND	ND	ND
Hexavalent Chromium (Cr(VI))	1,000	mg/kg	8	ND	ND	ND
Sum of PBBs	1,000	mg/kg	-	ND	ND	ND
Monobromobiphenyl	-	mg/kg	5	ND	ND	ND
Dibromobiphenyl	-	mg/kg	5	ND	ND	ND



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Test Item(s)	Limit	Unit	MDL	005	006	007
Tribromobiphenyl	-	mg/kg	5	ND	ND	ND
Tetrabromobiphenyl	-	mg/kg	5	ND	ND	ND
Pentabromobiphenyl	-	mg/kg	5	ND	ND	ND
Hexabromobiphenyl	-	mg/kg	5	ND	ND	ND
Heptabromobiphenyl	-	mg/kg	5	ND	ND	ND
Octabromobiphenyl	-	mg/kg	5	ND	ND	ND
Nonabromobiphenyl	-	mg/kg	5	ND	ND	ND
Decabromobiphenyl	-	mg/kg	5	ND	ND	ND
Sum of PBDEs	1,000	mg/kg	-	ND	ND	ND
Monobromodiphenyl ether	-	mg/kg	5	ND	ND	ND
Dibromodiphenyl ether	-	mg/kg	5	ND	ND	ND
Tribromodiphenyl ether	-	mg/kg	5	ND	ND	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND	ND	ND
Pentabromodiphenyl ether	-	mg/kg	5	ND	ND	ND
Hexabromodiphenyl ether	-	mg/kg	5	ND	ND	ND
Heptabromodiphenyl ether	-	mg/kg	5	ND	ND	ND
Octabromodiphenyl ether	-	mg/kg	5	ND	ND	ND
Nonabromodiphenyl ether	-	mg/kg	5	ND	ND	ND
Decabromodiphenyl ether	-	mg/kg	5	ND	ND	ND
Dibutyl Phthalate (DBP)	1000	mg/kg	50	ND	ND	ND
Butyl benzyl Phthalate (BBP)	1000	mg/kg	50	ND	ND	ND
Bis(2-ethylhexyl) Phthalate (DEHP)	1000	mg/kg	50	ND	ND	ND
Diisobutyl Phthalate (DIBP)	1000	mg/kg	50	ND	ND	ND

Test Item(s)	Limit	Unit	MDL	008	009	010
Cadmium (Cd)	100	mg/kg	2	ND	ND	ND
Lead (Pb)	1,000	mg/kg	2	ND	ND	ND
Mercury (Hg)	1,000	mg/kg	2	ND	ND	ND
Hexavalent Chromium (Cr(VI))	1,000	mg/kg	8	ND	ND	ND
Sum of PBBs	1,000	mg/kg	-	ND	ND	ND
Monobromobiphenyl	-	mg/kg	5	ND	ND	ND
Dibromobiphenyl	-	mg/kg	5	ND	ND	ND
Tribromobiphenyl	-	mg/kg	5	ND	ND	ND
Tetrabromobiphenyl	-	mg/kg	5	ND	ND	ND
Pentabromobiphenyl	-	mg/kg	5	ND	ND	ND
Hexabromobiphenyl	-	mg/kg	5	ND	ND	ND
Heptabromobiphenyl	-	mg/kg	5	ND	ND	ND
Octabromobiphenyl	-	mg/kg	5	ND	ND	ND
Nonabromobiphenyl	-	mg/kg	5	ND	ND	ND



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Test Item(s)	Limit	Unit	MDL	008	009	010
Decabromobiphenyl	-	mg/kg	5	ND	ND	ND
Sum of PBDEs	1,000	mg/kg	-	ND	ND	ND
Monobromodiphenyl ether	-	mg/kg	5	ND	ND	ND
Dibromodiphenyl ether	-	mg/kg	5	ND	ND	ND
Tribromodiphenyl ether	-	mg/kg	5	ND	ND	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND	ND	ND
Pentabromodiphenyl ether	-	mg/kg	5	ND	ND	ND
Hexabromodiphenyl ether	-	mg/kg	5	ND	ND	ND
Heptabromodiphenyl ether	-	mg/kg	5	ND	ND	ND
Octabromodiphenyl ether	-	mg/kg	5	ND	ND	ND
Nonabromodiphenyl ether	-	mg/kg	5	ND	ND	ND
Decabromodiphenyl ether	-	mg/kg	5	ND	ND	ND
Dibutyl Phthalate (DBP)	1000	mg/kg	50	ND	ND	ND
Butyl benzyl Phthalate (BBP)	1000	mg/kg	50	ND	ND	ND
Bis(2-ethylhexyl) Phthalate (DEHP)	1000	mg/kg	50	ND	ND	ND
Diisobutyl Phthalate (DIBP)	1000	mg/kg	50	ND	ND	ND

### Notes :

(1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.

IEC 62321 series is equivalent to EN 62321 series

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(2) The restriction of DEHP, BBP, DBP and DIBP shall apply to medical devices, including in vitro medical devices, and monitoring and control instruments, including industrial monitoring and control instruments, from 22 July 2021.

(3) The restriction of DEHP, BBP, DBP and DIBP shall not apply to toys which are already subject to the restriction of DEHP, BBP, DBP and DIBP through entry 51 of Annex XVII to Regulation (EC) No 1907/2006.

### RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU

Test Method : With reference to IEC 62321-4:2013+AMD1:2017, IEC62321-5:2013, IEC 62321-7-1:2015, analyzed by ICP-OES and UV-Vis.

Test Item(s)	Limit	Unit	MDL	001	002	003
Cadmium (Cd)	100	mg/kg	2	ND	ND	ND
Lead (Pb)	1,000	mg/kg	2	ND	ND	ND
Mercury (Hg)	1,000	mg/kg	2	ND	ND	ND
Hexavalent Chromium (Cr(VI))▼	-	µg/cm <sup>2</sup>	0.10	ND	ND	ND



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Test Item(s)	Limit	Unit	MDL	004
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	9
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))▼	-	µg/cm <sup>2</sup>	0.10	ND

### Notes :

(1)The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.

IEC 62321 series is equivalent to EN 62321 series

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- (2) ▼= a. The sample is positive for CrVI if the CrVI concentration is greater than 0.13 µg/cm<sup>2</sup>. The sample coating is considered to contain CrVI
- b. The sample is negative for CrVI if CrVI is ND (concentration less than 0.10 µg/cm<sup>2</sup>). The coating is considered a non-CrVI based coating
- c. The result between 0.10 µg/cm<sup>2</sup> and 0.13 µg/cm<sup>2</sup> is considered to be inconclusive - unavoidable coating variations may influence the determination.

Information on storage conditions and production date of the tested sample is unavailable and thus Cr(VI) results represent status of the sample at the time of testing.



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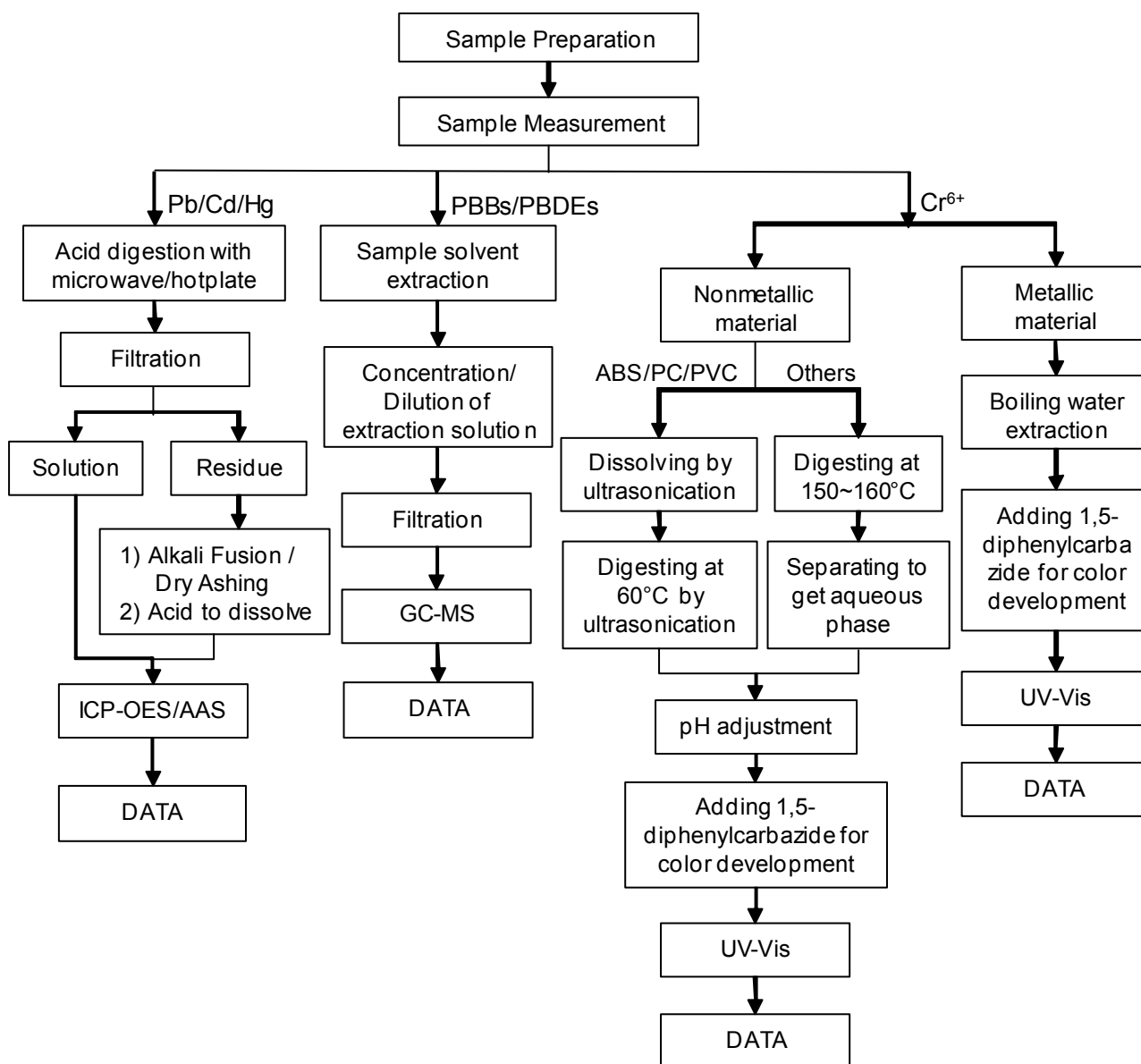
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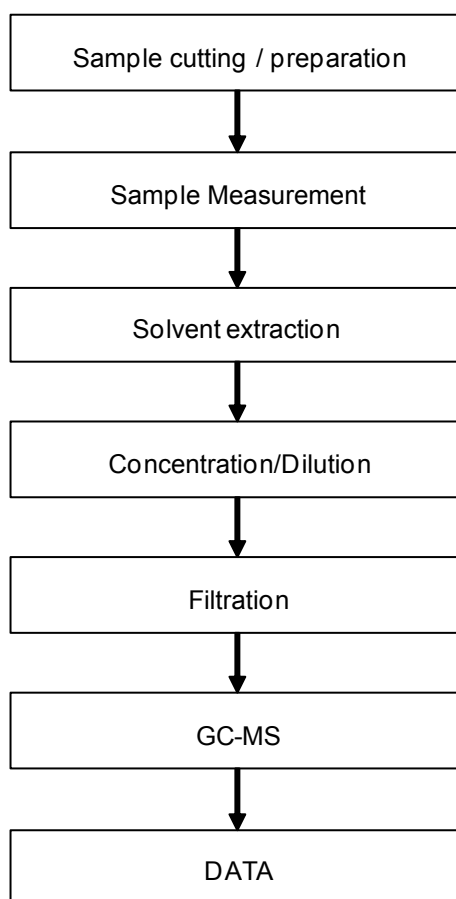
#### Pb/Cd/Hg/Cr<sup>6+</sup>/PBBs/PBDEs Testing Flow Chart

1) These samples were dissolved totally by pre-conditioning method according to below flow chart.  
(Cr<sup>6+</sup> and PBBs/PBDEs test method excluded).



### ATTACHMENTS

### Phthalates Testing Flow Chart



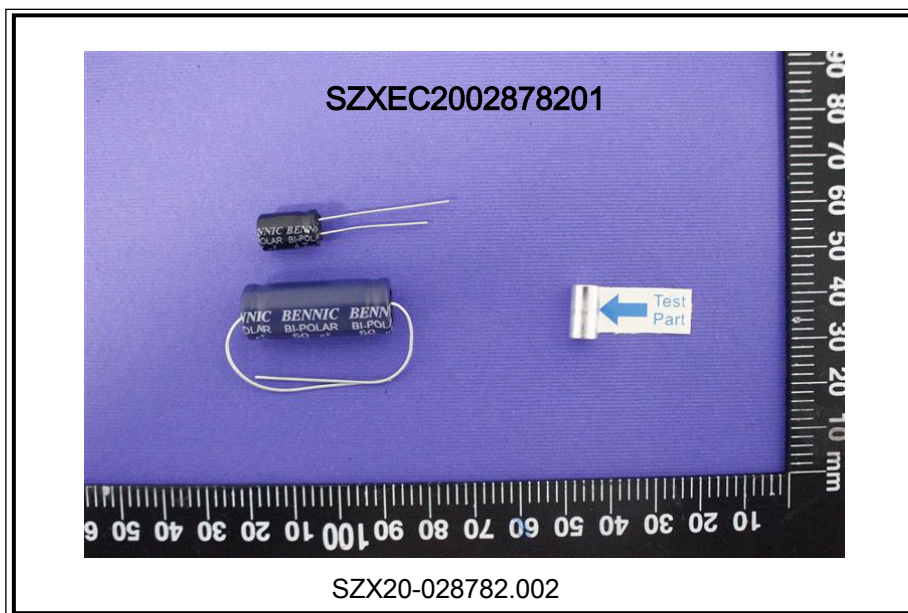
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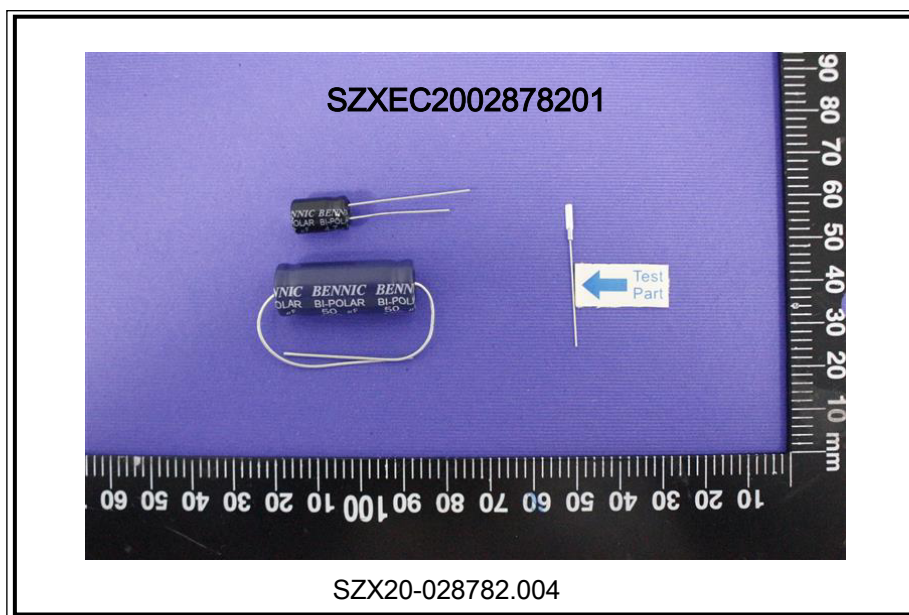
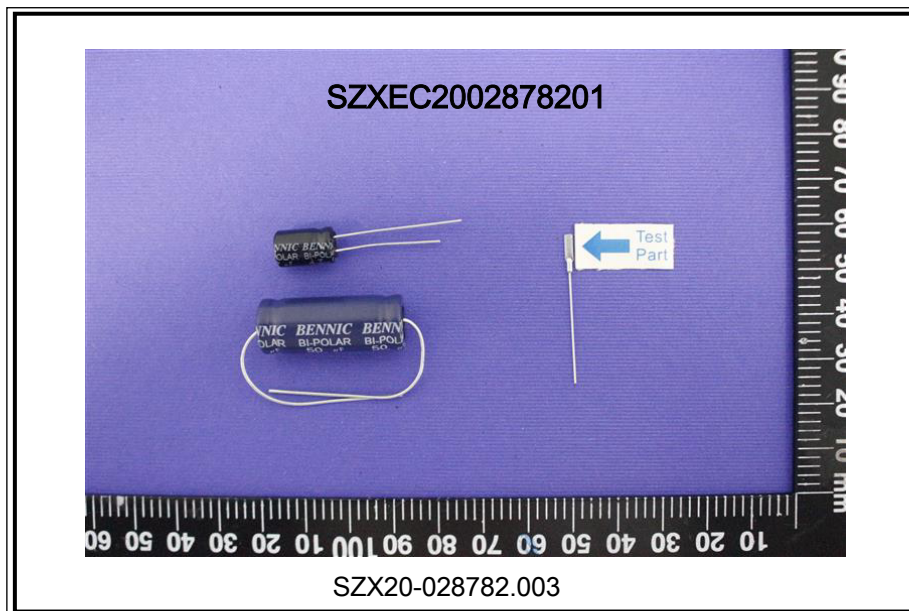
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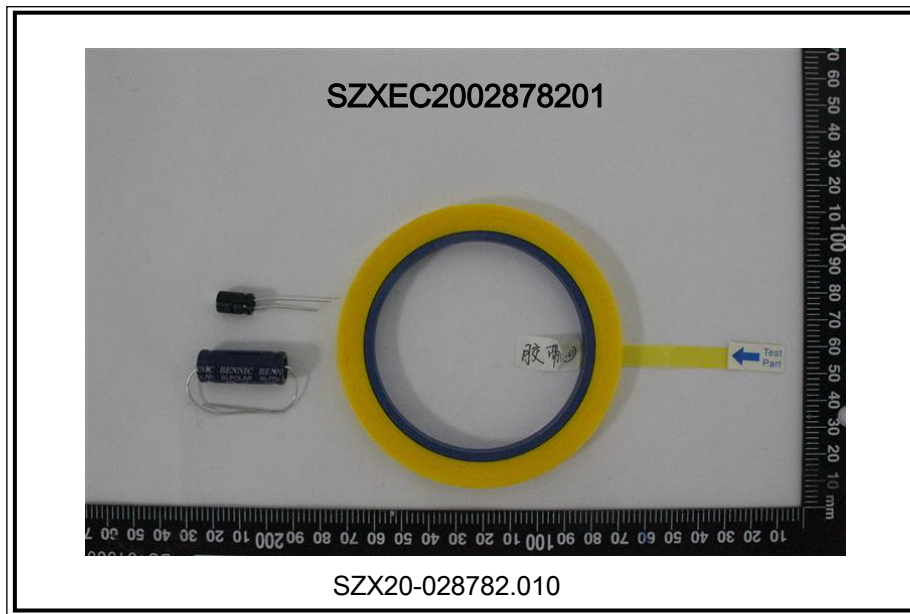
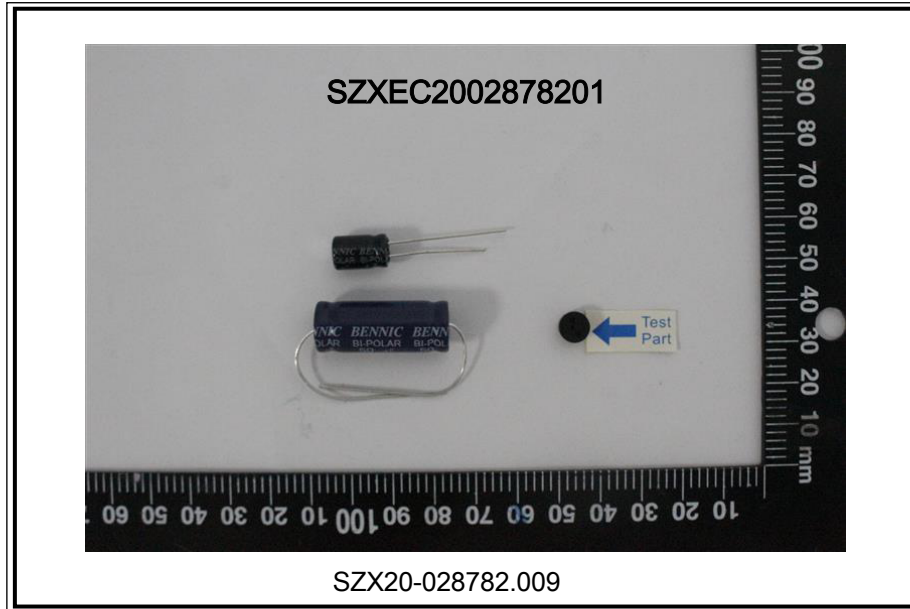












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