

## Test Report

No. CANEC1401925501

Date: 28 Feb 2014

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HUA TIAN TECHNOLOGY (XI'AN) CO., LTD.

NO.105,5TH FENGCHENG ROAD,ECON.&TECH.DEVELOPMENGT ZONE,XI'AN  
CHINA

The following sample(s) was/were submitted and identified on behalf of the clients as :  
QFN48L(0606\*0.75-0.40)

SGS Job No. : CP14-006393 - GZ  
Model No. : QFN48L(0606\*0.75-0.40)  
Client Ref. Info. : SEE REMARK  
Date of Sample Received : 25 Feb 2014  
Testing Period : 25 Feb 2014 - 28 Feb 2014  
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 samples, the results of Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBB), Polybrominated diphenyl ethers (PBDE) comply with the limits as set by RoHS Directive 2011/65/EU Annex II; recasting 2002/95/EC.

Signed for and on behalf of  
SGS-CSTC Ltd.



Oscar Wang  
Approved Signatory



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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	CAN14-019255.001	Black plastic w/"chip"
SN2	CAN14-019255.002	Silvery metal sheet

Remarks :

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

**RoHS Directive 2011/65/EU**

- Test Method :
- (1)With reference to IEC 62321-5:2013, determination of Cadmium by ICP-OES.
  - (2)With reference to IEC 62321-5:2013, determination of Lead by ICP-OES.
  - (3)With reference to IEC 62321-4:2013, determination of Mercury by ICP-OES.
  - (4)With reference to IEC 62321:2008, determination of Hexavalent Chromium by Colorimetric Method using UV-Vis.
  - (5)With reference to IEC 62321:2008, determination of PBBs and PBDEs by GC-MS.

Test Item(s)	Limit	Unit	MDL	001
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	ND
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (CrVI)	1,000	mg/kg	2	ND
Sum of PBBs	1,000	mg/kg	-	ND
Monobromobiphenyl	-	mg/kg	5	ND
Dibromobiphenyl	-	mg/kg	5	ND
Tribromobiphenyl	-	mg/kg	5	ND
Tetrabromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl	-	mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl	-	mg/kg	5	ND
Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1,000	mg/kg	-	ND



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<u>Test Item(s)</u>	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
Monobromodiphenyl ether	-	mg/kg	5	ND
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND
Pentabromodiphenyl ether	-	mg/kg	5	ND
Hexabromodiphenyl ether	-	mg/kg	5	ND
Heptabromodiphenyl ether	-	mg/kg	5	ND
Octabromodiphenyl ether	-	mg/kg	5	ND
Nonabromodiphenyl ether	-	mg/kg	5	ND
Decabromodiphenyl ether	-	mg/kg	5	ND

Notes :

(1) The maximum permissible limit is quoted from the directive 2011/65/EU, Annex II

### RoHS Directive 2011/65/EU

Test Method : (1)With reference to IEC 62321-5:2013, determination of Cadmium by ICP-OES.  
 (2)With reference to IEC 62321-5:2013, determination of Lead by ICP-OES.  
 (3)With reference to IEC 62321-4:2013, determination of Mercury by ICP-OES.  
 (4)With reference to IEC 62321:2008, determination of Hexavalent Chromium by spot test / Colorimetric Method using UV-Vis.

<u>Test Item(s)</u>	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>002</u>
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	13
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (CrVI)	-	-	◇	Negative

Notes :

(1) The maximum permissible limit is quoted from the directive 2011/65/EU, Annex II  
 (2)◇Spot-test:  
 Negative = Absence of CrVI coating, Positive = Presence of CrVI coating;  
 (The tested sample should be further verified by boiling-water-extraction method if the spot test result is Negative or cannot be confirmed.)  
 ◇Boiling-water-extraction:  
 Negative = Absence of CrVI coating  
 Positive = Presence of CrVI coating; the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm2 sample surface area.  
 Information on storage conditions and production date of the tested sample is unavailable and thus result of Cr(VI) represent status of the sample at the time of testing.



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**Halogen**

Test Method : With reference to EN 14582: 2007, analysis was performed by Ion Chromatograph (IC).

<u>Test Item(s)</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>	<u>002</u>
Fluorine (F)	mg/kg	50	ND	ND
Chlorine (Cl)	mg/kg	50	ND	ND
Bromine (Br)	mg/kg	50	ND	ND
Iodine (I)	mg/kg	50	ND	ND



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REMARK:

QFN8L(0202\*0.75-0.50), QFN12L(0202\*0.50-0.40), QFN12L(0303\*0.75-0.50), QFN16L(2.52.5\*0.75-0.50),  
 QFN16L(2.52.5\*0.50-0.50), QFN16L(0303\*0.75-0.50), QFN16L(0303\*0.50-0.50), QFN16L(0303\*0.75-0.50)(B),  
 QFN16L(0303\*0.50-0.50)(B), QFN16L(0404\*0.75-0.65), QFN16L(0404\*0.50-0.65), QFN16L(0404\*0.75-0.65)(B),  
 QFN16L(0404\*0.50-0.65)(B), QFN16L(0404\*0.75-0.50), QFN16L(0404\*0.50-0.50), QFN20L(0303\*0.75-0.40),  
 QFN20L(0303\*0.75-0.40)(B), QFN20L(0303\*0.50-0.40), QFN20L(0303\*0.75-0.50)(B), QFN20L(0404\*0.75-0.50),  
 QFN20L(0404\*0.50-0.50), QFN20L(0404\*0.75-0.50)(B), QFN20L(0404\*0.50-0.50)(B), QFN20L(0606\*0.50-0.80),  
 QFN24L(0404\*0.75-0.50), QFN24L(0404\*0.50-0.50), QFN24L(0404\*0.75-0.50)(B), QFN24L(0404\*0.50-0.50)(B),  
 QFN28L(0404\*0.75-0.40), QFN28L(0404\*0.50-0.40), QFN28L(0405\*0.75-0.40), QFN28L(0405\*0.50-0.40),  
 QFN28L(0405\*0.75-0.50), QFN28L(0505\*0.75-0.50), QFN28L(0505\*0.50-0.50), QFN32L(0404\*0.75-0.40),  
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 QFN32L(0505\*0.75-0.50)(B), QFN32L(0505\*0.50-0.50)(B), QFN40L(0505\*0.75-0.40), QFN40L(0505\*0.75-0.40)  
 (B), QFN40L(0505\*0.50-0.40), QFN40L(0606\*0.75-0.50), QFN40L(0606\*0.50-0.50), QFN42L(093.5\*0.75-0.50),  
 QFN42L(093.5\*0.50-0.50), QFN42L(0505\*0.75-0.40), QFN42L(0505\*0.50-0.40), QFN46L(6.54.5\*0.85-0.40),  
 QFN46L(6.54.5\*0.75-0.40), QFN46L(6.54.5\*0.50-0.40), QFN48L(0606\*0.75-0.40), QFN48L(0606\*0.50-0.40),  
 QFN48L(0606\*0.75-0.40)(B), QFN48L(0606\*0.50-0.40)(B), QFN48L(0606\*0.75-0.40)(C),  
 QFN48L(0606\*0.50-0.40)(C), QFN48L(0707\*0.75-0.50), QFN48L(0707\*0.50-0.50), QFN50L(5.507\*0.75-0.40),  
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 QFN64L(0909\*0.50-0.50)(B), QFN64L(0909\*0.75-0.50)(C), QFN64L(0909\*0.50-0.50)(C),  
 QFN68L(0808\*0.75-0.40), QFN68L(0808\*0.50-0.40), AAQFN8L(0303X0.55-0.65), AAQFN10L(0303X0.30-0.50),  
 VQFN68L(0707\*0.75-0.65), VQFN148L(1212\*0.85-0.50), VQFN256L(1111\*0.50-0.40),  
 FCQFN12L(2.02.5\*0.50-0.50), DFN2L(1.00.6\*0.50-0.65), DFN2L(0303\*0.50-2.415), DFN2L(0909\*0.75-2.415),  
 DFN3L(1.00.6\*0.50-0.65), DFN4L(0202X0.50-1.30), DFN6L(1.51.0\*0.75-0.50), DFN6L(0202\*0.75-0.50),  
 DFN6L(0202\*0.50-0.50), DFN6L(0202\*0.75-0.65), DFN6L(0202\*0.50-0.65), DFN6L(0202\*0.75-0.65)(B),  
 DFN6L(0202\*0.50-0.65)(B), DFN6L(0202\*0.75-0.65)(C), DFN6L(0202\*0.50-0.65)(C), DFN6L(0202\*0.75-0.65)(D),  
 DFN6L(0202\*0.50-0.65)(D), DFN6L(0202\*0.75-0.65)(E), DFN6L(0202\*0.50-0.65)(E), DFN6L(0203\*0.75-0.50),  
 DFN6L(0203\*0.50-0.50), DFN6L(0302\*0.75-0.95), DFN6L(0302\*0.50-0.95), DFN8L(0202\*0.75-0.50),



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DFN8L(0202\*0.50-0.50), DFN8L(0202\*0.75-0.50)(B), DFN8L(0202\*0.50-0.50)(B), DFN8L(0202\*0.75-0.50)(C),  
 DFN8L(0202\*0.50-0.50)(C), DFN8L(0203\*0.75-0.50), DFN8L(0203\*0.50-0.50), DFN8L(0302\*0.75-0.50),  
 DFN8L(0302\*0.50-0.50), DFN8L(0302\*0.75-0.65), DFN8L(0302\*0.50-0.65), DFN8L(0302\*0.75-0.65)(B),  
 DFN8L(0302\*0.50-0.65)(B), DFN8L(0302\*0.75-0.65)(C), DFN8L(0303\*0.75-0.65), DFN8L(0303\*0.50-0.65),  
 DFN8L(0303\*0.75-0.65)(B), DFN8L(0303\*0.50-0.65)(B), DFN8L(0404\*0.75-0.80), DFN8L(0505\*0.75-1.27),  
 DFN8L(0505\*0.50-1.27), DFN8L(057.8\*0.75-1.27), DFN8L(057.8\*0.50-1.27), DFN8L(0506\*0.75-1.27),  
 DFN8L(0506\*0.50-1.27), DFN8L(0506\*0.75-1.27)(B), DFN9L(3.81.0X0.50-0.80), DFN10L(0302\*0.75-0.50),  
 DFN10L(0302\*0.50-0.50), DFN10L(0303\*0.75-0.50), DFN10L(0303\*0.50-0.50), DFN10L(2.51.0\*0.50-0.50),  
 DFN10L(2.51.0\*0.50-0.50)(B), DFN10L(4.12.0\*0.50-0.80), DFN12L(0303\*0.75-0.45), DFN12L(0303\*0.75-0.45)(B),  
 DFN12L(0303\*0.50-0.45), DFN12L(0303X0.50-0.45)(B), DFN14L(0302\*0.75-0.40), DFN14L(0302\*0.50-0.40),  
 DFN14L(0403X0.75-0.50), DFN16L(043.5\*0.75-0.50), DFN16L(043.5\*0.50-0.50), DFN20L(4.53.5\*0.75-0.50),  
 DFN20L(4.53.5\*0.50-0.50), ODFN6L(0202X0.60-0.65), NLGA9L(1.51.5\*0.75-0.50), NLGA9L(1.51.5\*0.75-0.50)  
 (B), NLGA9L(1.51.5\*0.75-0.50)(T), NLGA9L(1.51.5\*0.55-0.50)(C), NLGA12L(2.22.6\*0.75-0.60)

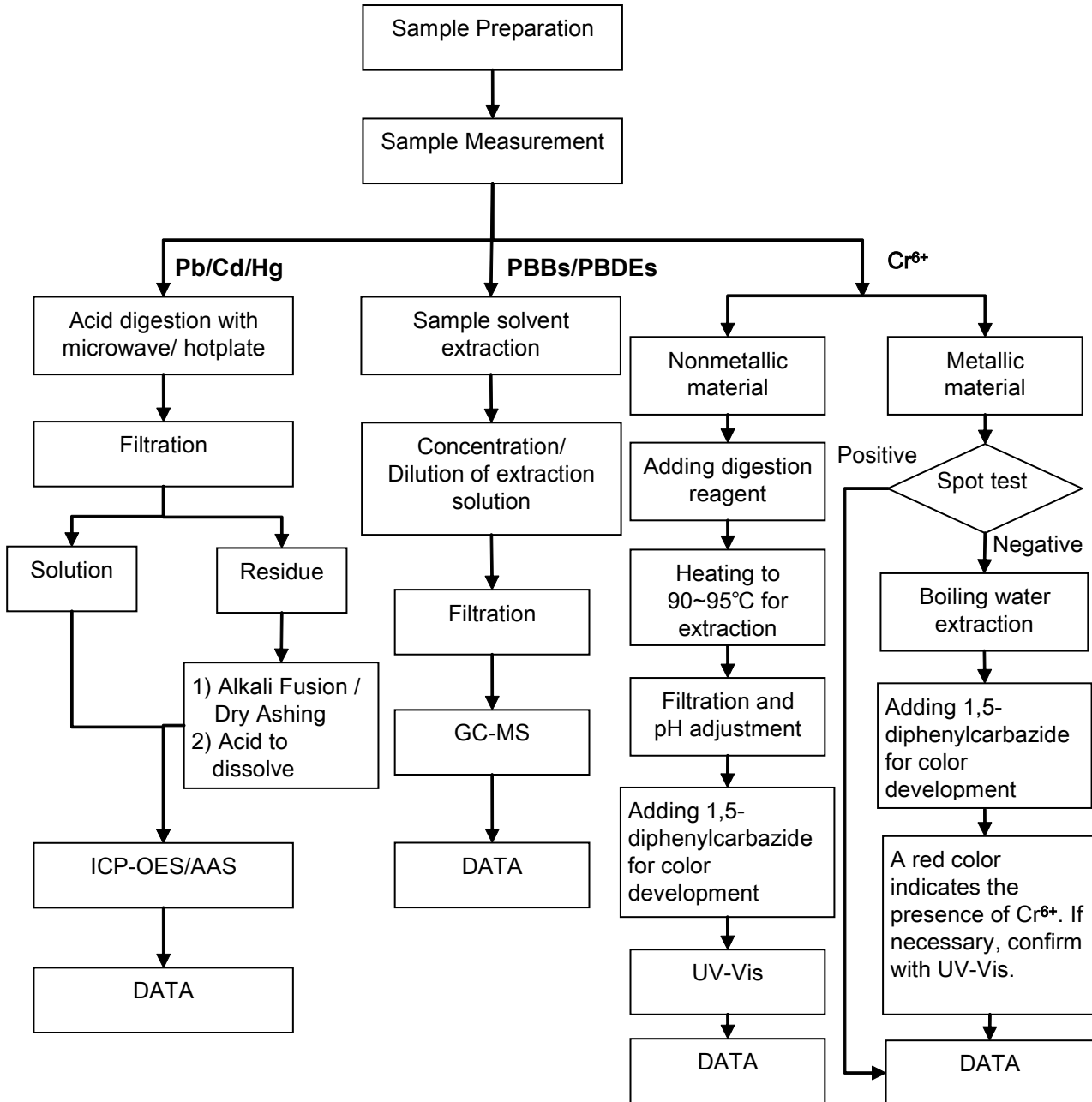


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ATTACHMENTS

RoHS Testing Flow Chart

- 1) Name of the person who made testing: Michael Tso / Cutey Yu
- 2) Name of the person in charge of testing: Adams Yu / Yolanda Wei
- 3) These samples were dissolved totally by pre-conditioning method according to below flow chart (Cr<sup>6+</sup> and PBBs/PBDEs test method excluded).

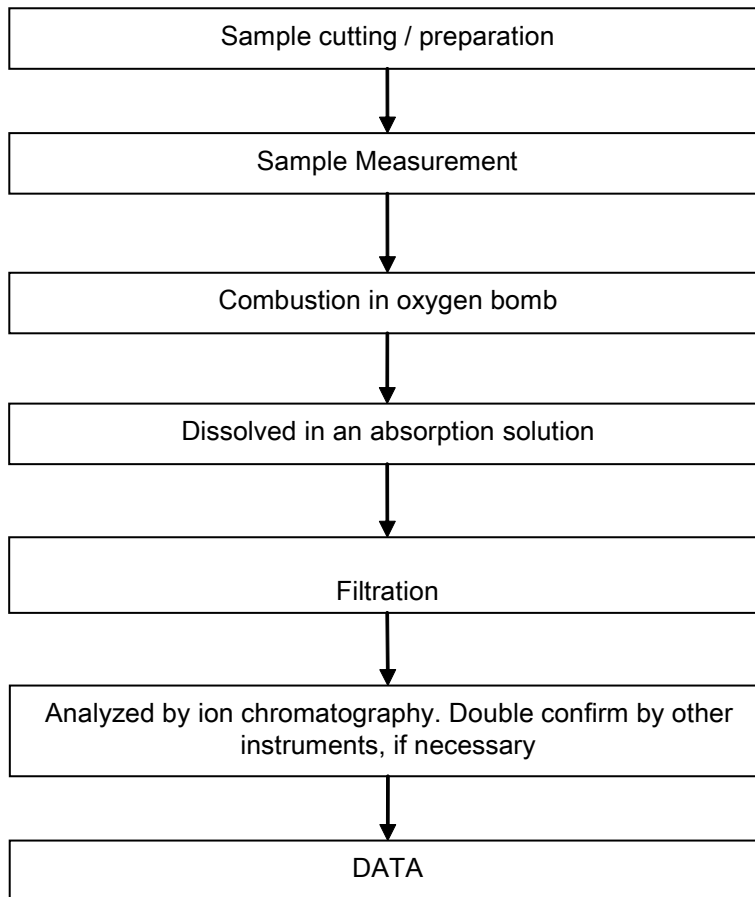


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## ATTACHMENTS

### Halogen Testing Flow Chart

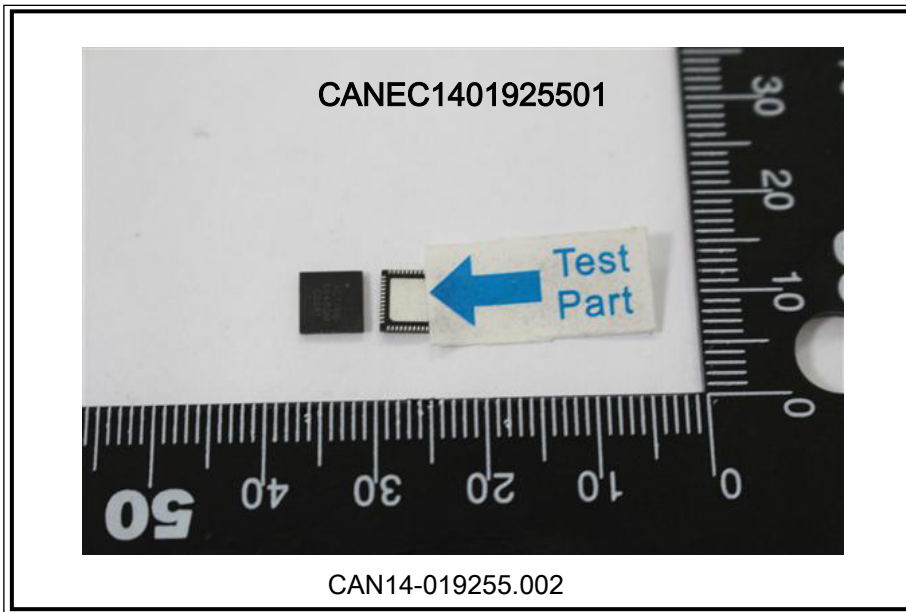
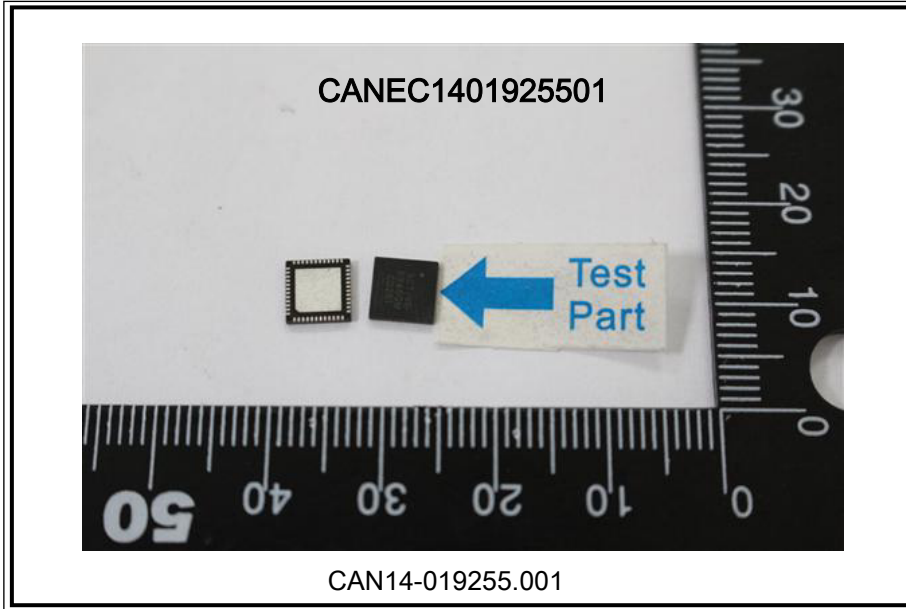
- 1) Name of the person who made testing: Bella Wang
- 2) Name of the person in charge of testing: Adams Yu



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Sample photo:



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