

## Test Report

Report No. : TCT201229C005

Date : Jan. 04, 2021

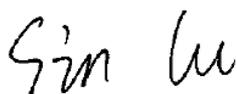
Page No.: 1 of 9

**Applicant:** Shenzhen Shuguan Electronic Technology Co.,Ltd.  
**Address:** 5th floor, building 2, hehe Science Park, dashuikeng community, Fucheng street, Longhua District, Shenzhen City,P.R.C

**The following sample was submitted and identified by/on behalf of the client as:**

**Sample Name:** SGR/SIR/SGPD/SGPT/PD/PT SERIES  
**Model No.:** SGR/SIR/SGPD/SGPT/PD/PT SERIES  
**Sample Received Date:** 2020.12.29  
**Testing Period:** 2020.12.29-2021.01.04  
**Test Requested:** As specified by client, to determine the Pb, Cd, Hg, Cr(VI), PBBs, PBDEs, DBP, BBP, DEHP, DIBP content(s) in the submitted sample.  
**Test Method:** Please refer to the following page(s).  
**Test Result(s):** Please refer to the following page(s).  
**Conclusion:** Base upon the performed tests by submitted sample, the test results comply with the limits as set by Directive (EU) 2015/863 - Amendment of EU RoHS Directive 2011/65/EU (RoHS 2.0) Annex II.

Checked by



Sin Lu

Signed for and on behalf of TCT



Noel Yin

Technical Manager



# Test Report

Report No. : TCT201229C005

Date : Jan. 04, 2021

Page No.: 2 of 9

## Test Results:

### Pb, Cd, Hg, Cr(VI), PBBs, PBDEs, DBP, BBP, DEHP, DIBP Content(s)

Tested Item(s)	Test Method/Instrument	MDL	Unit	Limit	Result
					3
Lead(Pb)	IEC62321-5:2013/ICP-OES	2	mg/kg	1000	N.D.
Cadmium(Cd)	IEC62321-5:2013/ICP-OES	2	mg/kg	100	N.D.
Mercury(Hg)	62321-4:2013+AMD1:2017 /ICP-OES	2	mg/kg	1000	N.D.
Hexavalent Chromium(Cr(VI))	IEC62321-7-2:2017/UV-Vis	2	mg/kg	1000	N.D.
<b>Sum of PBBs</b>	-	-	mg/kg	1000	N.D.
Monobromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.
Dibromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.
Tribromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.
Tetrabromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.
Pentabromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.
Hexabromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.
Heptabromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.
Octabromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.
Nonabromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.
Decabromobiphenyl	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.
<b>Sum of PBDEs</b>	-	-	mg/kg	1000	N.D.
Monobromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.
Dibromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.
Tribromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.
Tetrabromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.
Pentabromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.
Hexabromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.
Heptabromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.
Octabromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.
Nonabromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.
Decabromodiphenyl ether	IEC62321-6:2015/GC-MS	5	mg/kg	-	N.D.
<b>Dibutyl Phthalate (DBP)</b>	IEC62321-8:2017/GC-MS	30	mg/kg	1000	N.D.
<b>Benzylbutyl Phthalate (BBP)</b>	IEC62321-8:2017/GC-MS	30	mg/kg	1000	N.D.
<b>Bis-(2-ethylhexyl) Phthalate (DEHP)</b>	IEC62321-8:2017/GC-MS	30	mg/kg	1000	N.D.
<b>Diisobutyl Phthalate (DIBP)</b>	IEC62321-8:2017/GC-MS	30	mg/kg	1000	N.D.

## Test Report

Report No. : TCT201229C005

Date : Jan. 04, 2021

Page No.: 3 of 9

### Specimen Description:

3. Black LED

- Note:
- MDL = Method Detection Limit
  - N.D. =Not Detected(<MDL)
  - 1mg/kg = 1ppm =0.0001%
  - “-”=Not Regulated
  - Sample for Pb, Cd and Hg testing was completely dissolved.
  - The test report is only used for customer research, teaching, internal quality control, product development, etc., only for internal reference only.

# Test Report

Report No. : TCT201229C005

Date : Jan. 04, 2021

Page No.: 4 of 9

## Pb, Cd, Hg, Cr(VI), PBBs, PBDEs, DBP, BBP, DEHP, DIBP Contents

Test Items	Test Method	MDL	Unit	Results		Limit
				1	2	
Lead(Pb)	M1	2	mg/kg	N.D.	N.D.	1000
Cadmium(Cd)	M1	2	mg/kg	N.D.	N.D.	100
Mercury(Hg)	M2	2	mg/kg	N.D.	N.D.	1000
Hexavalent Chromium(Cr(VI)) ▼	M3	0.10	ug/cm <sup>2</sup>	N.D.	N.D.	-
<b>Sum of PBBs</b>	-	-	mg/kg	N.D.	N.D.	1000
Monobromobiphenyl	M4	5	mg/kg	N.D.	N.D.	-
Dibromobiphenyl	M4	5	mg/kg	N.D.	N.D.	-
Tribromobiphenyl	M4	5	mg/kg	N.D.	N.D.	-
Tetrabromobiphenyl	M4	5	mg/kg	N.D.	N.D.	-
Pentabromobiphenyl	M4	5	mg/kg	N.D.	N.D.	-
Hexabromobiphenyl	M4	5	mg/kg	N.D.	N.D.	-
Heptabromobiphenyl	M4	5	mg/kg	N.D.	N.D.	-
Octabromobiphenyl	M4	5	mg/kg	N.D.	N.D.	-
Nonabromobiphenyl	M4	5	mg/kg	N.D.	N.D.	-
Decabromobiphenyl	M4	5	mg/kg	N.D.	N.D.	-
<b>Sum of PBDEs</b>	-	-	mg/kg	N.D.	N.D.	1000
Monobromodiphenyl ether	M4	5	mg/kg	N.D.	N.D.	-
Dibromodiphenyl ether	M4	5	mg/kg	N.D.	N.D.	-
Tribromodiphenyl ether	M4	5	mg/kg	N.D.	N.D.	-
Tetrabromodiphenyl ether	M4	5	mg/kg	N.D.	N.D.	-
Pentabromodiphenyl ether	M4	5	mg/kg	N.D.	N.D.	-
Hexabromodiphenyl ether	M4	5	mg/kg	N.D.	N.D.	-
Heptabromodiphenyl ether	M4	5	mg/kg	N.D.	N.D.	-
Octabromodiphenyl ether	M4	5	mg/kg	N.D.	N.D.	-
Nonabromodiphenyl ether	M4	5	mg/kg	N.D.	N.D.	-
Decabromodiphenyl ether	M4	5	mg/kg	N.D.	N.D.	-
<b>Dibutyl Phthalate(DBP)</b>	M5	30	mg/kg	N.D.	N.D.	1000
<b>Benzylbutyl Phthalate(BBP)</b>	M5	30	mg/kg	N.D.	N.D.	1000
<b>Bis-(2-ethylhexyl) Phthalate (DEHP)</b>	M5	30	mg/kg	N.D.	N.D.	1000
<b>Diisobutyl Phthalate (DIBP)</b>	M5	30	mg/kg	N.D.	N.D.	1000

## Test Report

Report No. : TCT201229C005

Date : Jan. 04, 2021

Page No.: 5 of 9

### Specimen Description:

1. Silvery color metal
2. Silvery color metal pin

- Note:
- MDL = Method Detection Limit
  - N.D. = Not Detected(<MDL)
  - 1mg/kg = 1ppm = 0.0001%
  - M1: With reference to IEC 62321-5:2013, Analysis was performed by ICP-OES.
  - M2: With reference to IEC 62321-4:2013+AMD1:2017, Analysis was performed by ICP-OES.
  - M3: With reference to IEC 62321-7-1:2015, Analysis was performed by UV-Vis.
  - M4: With reference to IEC 62321-6:2015, Analysis was performed by GC-MS
  - M5: With reference to IEC 62321-8:2017, Analysis was performed by GC-MS
  - "-" = Not Regulated
  - Sample for Pb, Cd and Hg testing was completely dissolved
  - ▼ = a. When the Cr (VI) concentration is > the 0,13  $\mu\text{g}/\text{cm}^2$ , the sample is positive for Cr(VI) and considered to contain Cr(VI).  
b. When the Cr (VI) concentration is N.D.(< the 0,10  $\mu\text{g}/\text{cm}^2$ ), the sample is negative for Cr(VI) and considered a non-Cr(VI) based coating.  
c. When the Cr (VI) concentration is  $\geq$  the 0,10  $\mu\text{g}/\text{cm}^2$  and  $\leq$  the 0,13  $\mu\text{g}/\text{cm}^2$ , the result is considered to be inconclusive - Unavoidable coating variations may influence the determination.

# Test Report

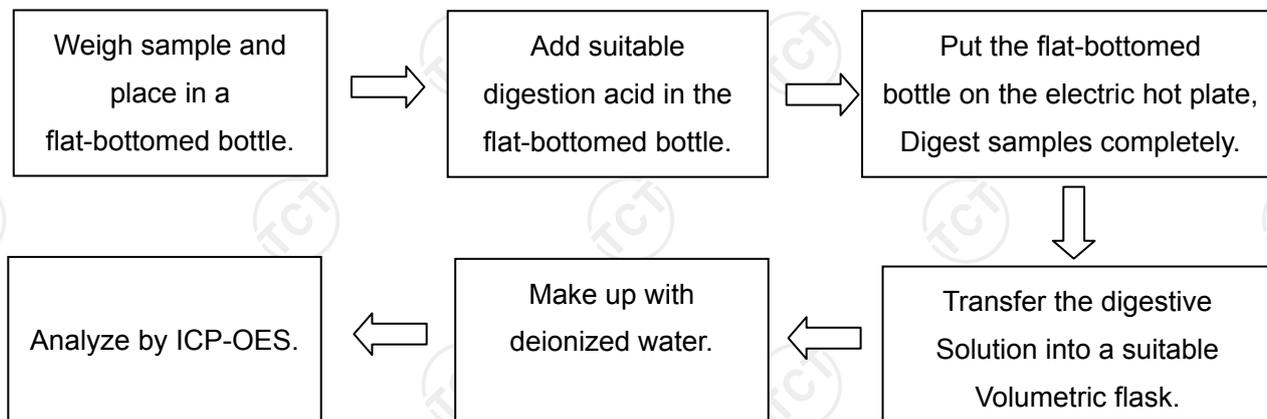
Report No. : TCT201229C005

Date : Jan. 04, 2021

Page No.: 6 of 9

## FLOW CHART

### 1. Test for Pb, Hg, Cd Content



Sample Material	Digestion Acid
Glass	HNO3/HF
Plastic	H2SO4, H2O2, HNO3, HCl
Others	Any acid to total digestion.

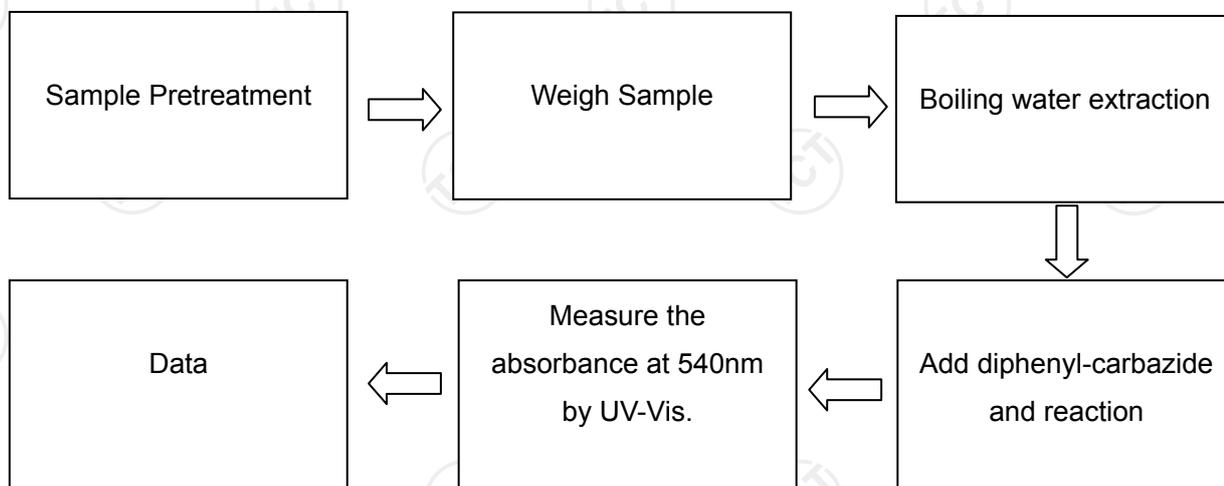
## Test Report

Report No. : TCT201229C005

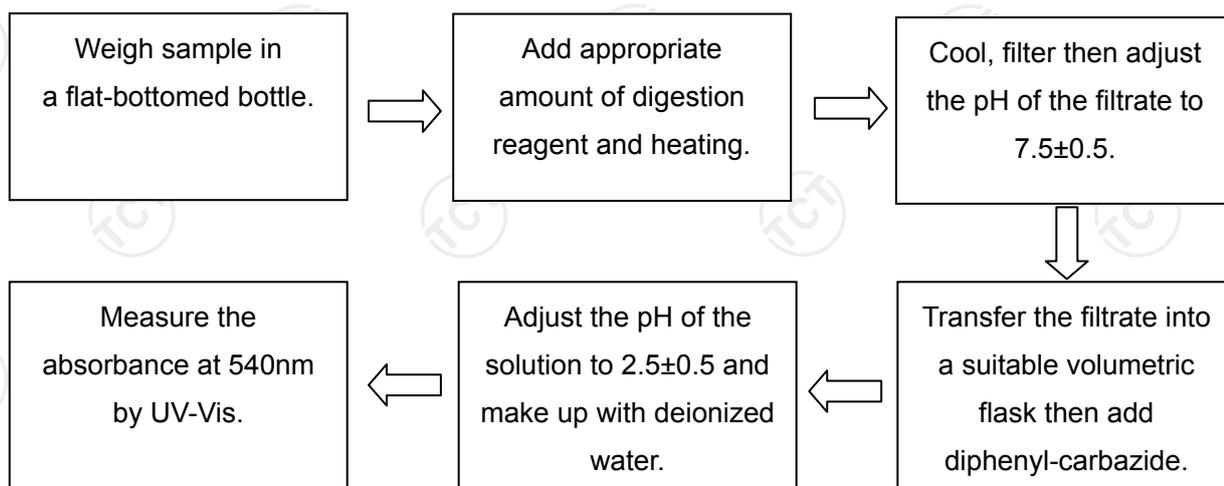
Date : Jan. 04, 2021

Page No.: 7 of 9

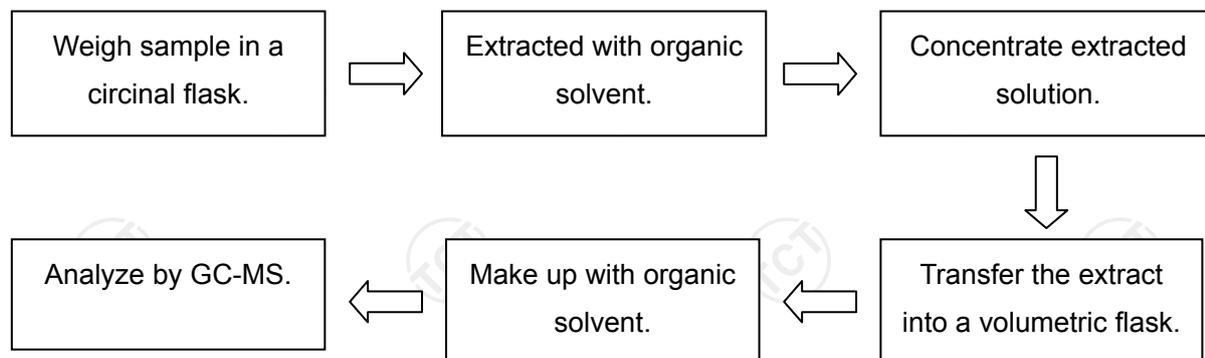
### 2.1 Test for Chromium(VI) Content(Metal)



### 2.2 Test for Chromium(VI) Content(Others)



### 3. Test for PBBs & PBDEs, DBP, BBP, DEHP, DIBP Content



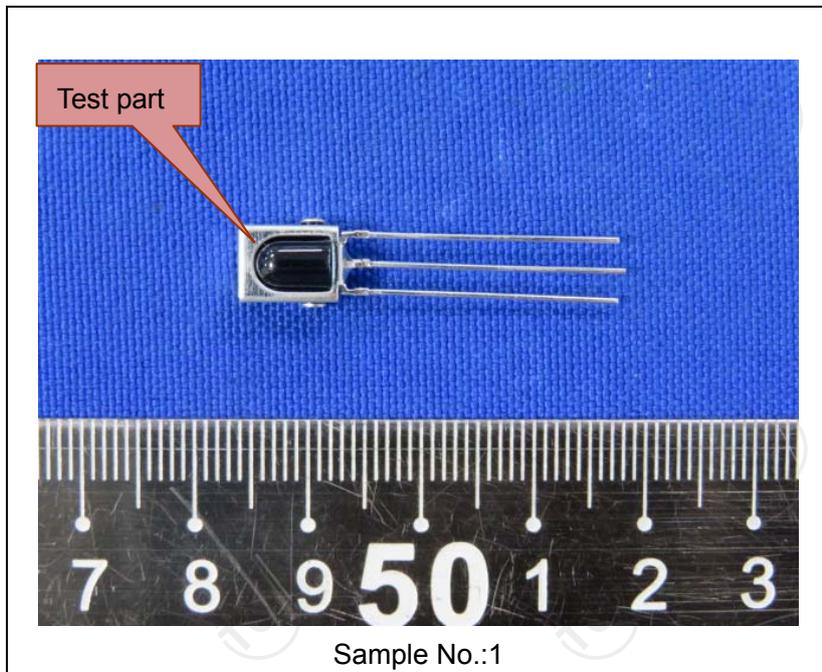
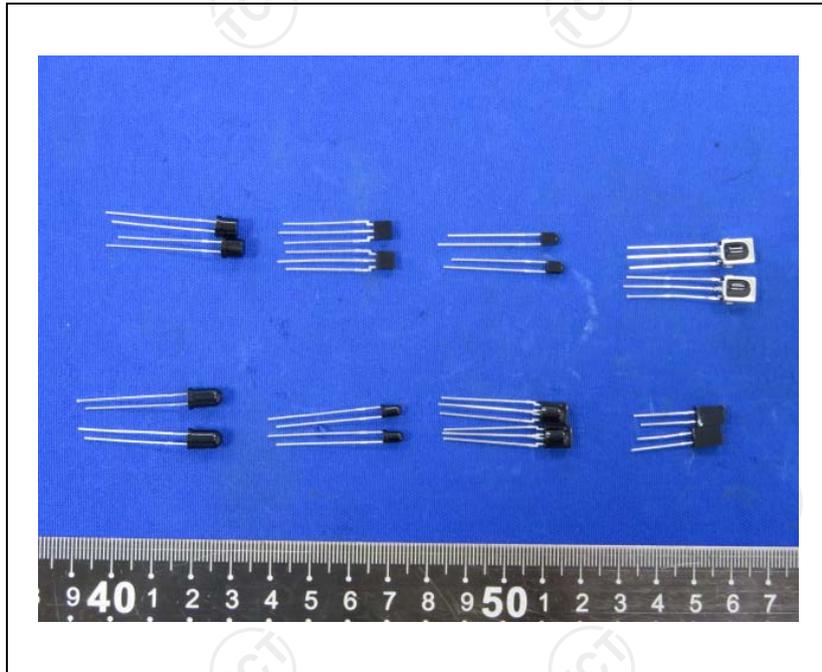
# Test Report

Report No. : TCT201229C005

Date : Jan. 04, 2021

Page No.: 8 of 9

## Photo(s) of the sample(s)



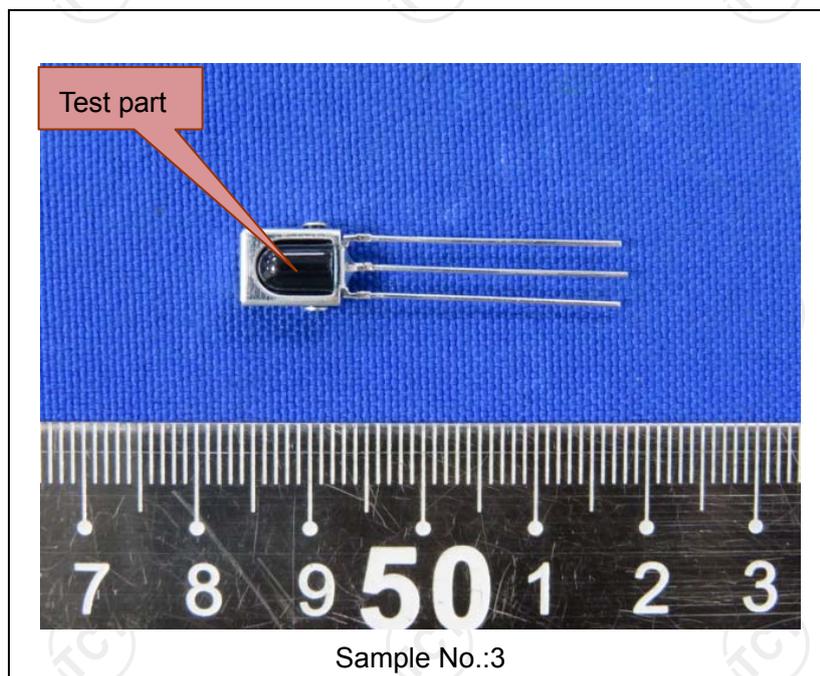
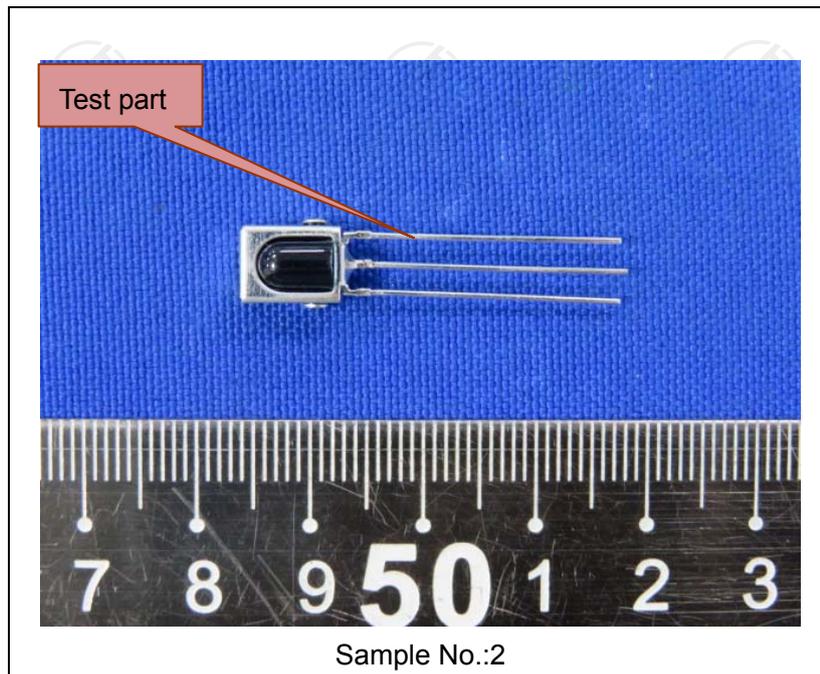
Sample No.:1

## Test Report

Report No. : TCT201229C005

Date : Jan. 04, 2021

Page No.: 9 of 9



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

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