EN IEC 62680-1-3 Test Report

B2401N000153-001-COM

For

Type-C Receptacle Connector

Company Name：	SHEN ZHEN ZDT TECHNOLOGY CO.,LTD
Product Name：	USB TYPE C FEMALE 16PIN VERTICAL TYPE SHELL H6.50
Model Name：	CF136-16LB12R-01
Hardware Version：	A0
Issued Date：	2024-02-27

Note:

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of SAICT.

Test Laboratory:

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REPORT HISTORY

Report Number	Revision	Description	Issue Date
B2401N000153-001-COM	V1	First release	2024-02-27

CONTENTS

1. Test Laboratory

1.1. Testing Location

Location：SAICT

Address: Building G, Shenzhen International Innovation Center, No.1006 Shennan Road, Futian District, Shenzhen, Guangdong, P. R. China 518000

1.2. Testing Environment

Normal Temperature:	15-35℃
Relative Humidity:	25-85%RH
Atmospheric pressure	86-106kPa

1.3. Project Data

Testing Start Date: 2024-02-01 Testing End Date: 2024-02-26

1.4. Signature

Zhan WeiLong	Wang Yang	Wei Ming
Prepared this test report	**Reviewed this test report**	**Approved this test report**

2. Client Information

2.1. Applicant Information

Company Name：	SHEN ZHEN ZDT TECHNOLOGY CO.,LTD
Address ：	No43B,NO2 industrial estate, Xitian, Gongming Town, Guangming District, Shenzhen
City：	Shenzhen
Country：	China
Telephone：	0755-29420399

2.2. Manufacturer Information

Company Name：	SHEN ZHEN ZDT TECHNOLOGY CO.,LTD
Address：	No43B,NO2 industrial estate, Xitian, Gongming Town, Guangming District, Shenzhen
City:	Shenzhen
Country：	China
Telephone：	0755-29420399

3. Unit Under Test (UUT) Information

3.1. About UUT

Description：	USB2.0 Type-C Receptacle Connector
Brand Name：	SHEN ZHEN ZDT TECHNOLOGY CO.,LTD
Marking Name：	USB TYPE C FEMALE 16PIN VERTICAL TYPE SHELL H6.50
Model Name：	CF136-16LB12R-01
Hardware Version：	A0

3.2. Statements

1. The [USB TYPE C FEMALE 16PIN VERTICAL TYPE SHELL H6.50], [CF136-16LB12R-01], manufactured by [SHEN ZHEN ZDT TECHNOLOGY CO.,LTD] for conformance test.
[The original report number is ZDT-DG-10251901]

3.3. Sample Coding

Test Group	Number of Plug/Receptacle	Qty of Specimen
Group A-1	UT01aa to UT05aa	5 pcs
Group A-2	UT06aa to UT10aa	5 pcs
Group A-3	UT11aa to UT15aa	5 pcs
Group A-4	UT16aa to UT25aa	10 pcs
Group A-7	UT26aa to UT30aa	5 pcs
Group B-1	UT31aa to UT38aa	8 pcs
Group B-5	UT39aa to UT41aa	3 pcs
Group B-6	UT42aa to UT44aa	3 pcs

4. Reference Documents

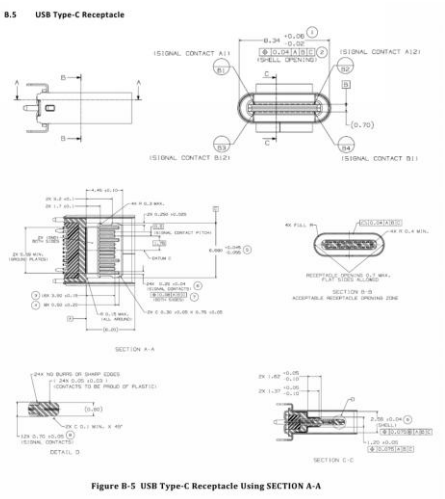
1. EN IEC 62680-1-3:2022, Universal serial bus interfaces for data and power-Part 1-3: Common components – USB Type-C Cable and Connector Specification
2. Universal Serial Bus Type-C Connectors and Cable Assemblies Compliance Document Revision 2.1b:2021

5. USB Type-C Compliance Requirements

5.1. DC Electrical

Clause	Test Item	Test Procedure	Requirement
3.7.8.1	Low Level Contact Resistance (LLCR)	EIA 364-23 The low level contact resistance (LLCR) measurement is made across the plug and receptacle mated contacts and does not include any internal paddle cards or substrates of the plug or receptacle. The test boards shall be provided with the connectors to be tested. • Measure at 20 mV (max) open, circuit at 100 mA.	The following requirements apply to the power and signal contacts: • 40 mΩ (max) initial for VBUS, GND and all other contacts. • 50 mΩ maximum after initial easurement.
3.7.8.2	Dielectric Withstanding Voltage	EIA 364-20 Applicable to both receptacle and plug. • Measurement per Method B.	The dielectric shall withstand 100 VAC (RMS) for one minute at sea level after the environmental stress defined in Table 4-8, Test Group A-7.
3.7.8.3	Insulation Resistance	EIA 364-21 Applicable to both receptacle and plug. See Table 4-8 Test Group A-7.	A minimum of 100 MΩ insulation resistance is required between adjacent contacts of unmated and mated connectors.
3.7.8.4	Contact Current Rating	A current of 5 A shall be applied collectively to VBUS pins (i.e., pins A4, A9, B4, and B9) and 1.25 A shall be applied to the VCONN pin (i.e., B5) as applicable, terminated through the corresponding GND pins (i.e., pins A1, A12, B1, and B12). A minimum current of 0.25 A shall also be applied individually to all the other contacts, as applicable.	The temperature rise of the outside shell surface of the mated pair above the VBUS and GND contacts shall not exceed 30ºC above the ambient temperature.

5.2. Mechanical

Clause	Test Item	Test Procedure	Requirement
3.2.1	Critical Dimensions	 Figure B-5 USB Type-C Receptacle Using SECTION A-A	Table B-5 Receptacle Critical Dimensions for Receptacles Using SECTION A-A in Figure B-5 Description / Dimension / + Tol. / - Tol. 1. Receptacle inside opening / 8.34 / 0.06 / 0.02 2. Receptacle insider opening position tolerance / 0.04 with datum A/B/C / n/a / n/a 3. Receptacle signal pin length / 3.50 / 0.15 / 0.15 4. Pin length delta / 0.50 / 0.20 / 0.20 5. Tongue width / 6.690 / 0.045 / 0.055 6. Contact width / 0.25 / 0.04 / 0.04 7. Contact width position tolerance / 0.08 with datum A/B/C / n/a / n/a 8. Tongue thickness / 0.70 / 0.05 / 0.05 9. Receptacle inside thickness / 2.56 / 0.04 / 0.04 Notes: 1. All values are in millimeters.
3.8.1.1	Insertion force	EIA 364-13 The insertion force test shall be done at a maximum speed of 12.5 mm (0.492") per minute.	Within the range from 5 N to 20 N. This requirement does not apply to the plugs that are used for direct docking without a cable.
3.8.1.2	Extraction force	EIA 364-13 The extraction force test shall be done at a maximum speed of 12.5 mm (0.492") per minute.	Within the range of 8 N to 20 N, measured after a preconditioning of five insertion/extraction cycles (i.e., the sixth extraction). After an additional twenty-five insertion/extraction cycles, the extraction force shall be measured again (i.e., the thirty□second extraction) and the extraction force shall be within: a) 33 % of the initial reading, and b) within the range of 8 N to 20 N. The extraction force shall be within the range of 6 N to 20 N after 10,000 insertion/extraction cycles. This requirement does not apply to the plugs that are used for direct docking without a cable.
3.8.1.3	Durability	EIA 364-09	10,000 cycles minimum. Low level contact resistance and dielectric withstanding voltage shall be checked to be within spec after the 10,000 durability cycles according to Table 4-8, Test Group A-7.
3.8.1.6	4-Axis Continuity	See Appendix D for detailed test fixtures and procedures. Plug and Receptacle: Subject the mating interface to the moments defined in appendix D for at least 10 seconds.	No discontinuities greater than 1 microsecond duration in any of the four orientations tested.

5.3. Environmental

Clause	Test Item	Test Procedure	Requirement
3.8.2	Temperature life	EIA 364-17, Method A. 105º C without applied voltage for 120 hours. 105º C without applied voltage for 72 hours when used as preconditioning.	Low level contact resistance meets spec before and after the Temperature Life test.
3.8.2	Vibration	EIA 364-28 Test Condition VII, Test Letter D	No evidence of physical damages and no discontinuity longer than 1 microsecond. Low level contact resistance meets spec before and after the Vibration test.
3.8.2	Cyclic temperature and humidity	EIA 364-31	Low level contact resistance meets spec before and after the Cyclic Temperature and Humidity test.
3.8.2	Thermal shock	EIA 364-32, Test Condition I 10 Cycles –55°C and +85°C.	No evidence of any physical damage. Low level contact resistance meets spec before and after the Thermal Shock test.
3.8.2	Mixed flowing gas	IA 364-65,Class II A Samples should be placed in an environmentally controlled 'test chamber' that is monitored by a gas analyzing system for controlled concentrations of the specified gas mixture. Test coupons shall also be used and the weight gain reported. Test duration is 7 days.	Low level contact resistance meets spec before and after the Mixed Flowing Gas test.

6. Test Procedure

For the DC electrical, Mechanical and Environmental compliance requirements of Type-C connector, refer to the grouping and test methods in the EIA364.1000.01 standard to implement the test.

Group A-1	
No.	**Test Item**
A-1-1	Low level contact resistance
A-1-2	Durability (preconditioning)
A-1-3	Temperature life
A-1-4	Low level contact resistance
A-1-5	Reseating
A-1-6	Low level contact resistance
Group A-2	
No.	**Test Item**
A-2-1	Low level contact resistance
A-2-2	Durability (preconditioning)
A-2-3	Thermal shock
A-2-4	Low level contact resistance
A-2-5	Cyclic temperature and humidity
A-2-6	Low level contact resistance
A-2-7	Reseating
A-2-8	Low level contact resistance
Group A-3	
No.	**Test Item**
A-3-1	Low level contact resistance

A-3-2	Durability (preconditioning)
A-3-3	Temperature life (preconditioning)
A-3-4	Low level contact resistance
A-3-5	Vibration
A-3-6	Low level contact resistance
Group A-4	
No.	**Test Item**
A-4-1	Low level contact resistance
A-4-2	Durability (preconditioning)
A-4-3	Temperature life (preconditioning)
A-4-4	Low level contact resistance
A-4-5	Mixed flowing gas
A-4-6	Low level contact resistance
A-4-7	Thermal disturbance
A-4-8	Low level contact resistance
A-4-9	Reseating
A-4-10	Low level contact resistance
Group A-7	
No.	**Test Item**
A-7-1	Dielectric withstanding voltage
A-7-2	Low level contact resistance
A-7-3	Durability (preconditioning)
A-7-4	Insertion force
A-7-5	Extraction force

A-7-6	Durability
A-7-7	Extraction force
A-7-8	Durability
A-7-9	Extraction force
A-7-10	Low level contact resistance
A-7-11	Dielectric withstanding voltage
A-7-12	Insulation Resistance
Group B-1	
No.	**Test Item**
B-1-4	4-Axis Continuity
Group B-5	
No.	**Test Item**
B-5-1	Critical Dimensions
Group B-6	
No.	**Test Item**
B-6-1	Contact Current Rating

7. Test Result Summary

Test Item	Clause	Result	Test data references the original report (ZDT-DG-10251901)
Construction	3.2.1 (6)	Pass	
Critical Dimensions	3.2.1 (8)	Pass	
Low level contact resistance	3.7.8.1	Pass	A-1-4;A-1-6; A-2-4;A-2-6;A-2-8; A-3-4;A-3-6; A-4-4;A-4-6;A-4-8;A-4-10 A-7-10
Dielectric withstanding voltage	3.7.8.2	Pass	A-7-1;A-7-10
Insulation Resistance	3.7.8.3	Pass	A-7-11
Contact Current Rating	3.7.8.4	Pass	B-6-1
Insertion force	3.8.1.1	Pass	
Extraction force	3.8.1.2	Pass	A-7-6;A-7-8
Durability	3.8.1.3	Pass	A-1-2;A-2-2;A-3-2;A-4-2
Reseating	3.8.1.3	Pass	A-1-5;A-2-7;A-4-9
4-Axis Continuity	3.8.1.6	Pass	B-1-3
Temperature life	3.8.2	Pass	A-1-3;A-3-3;A-4-3
Thermal shock	3.8.2	Pass	A-2-3
Cyclic temperature and humidity	3.8.2	Pass	A-2-5
Vibration	3.8.2	Pass	A-3-5
Mixed flowing gas	3.8.2	Pass	A-4-5
Thermal disturbance	3.8.2	Pass	A-4-7

8. Test Detail

8.1. Clause 3.2.1 (6) Construction

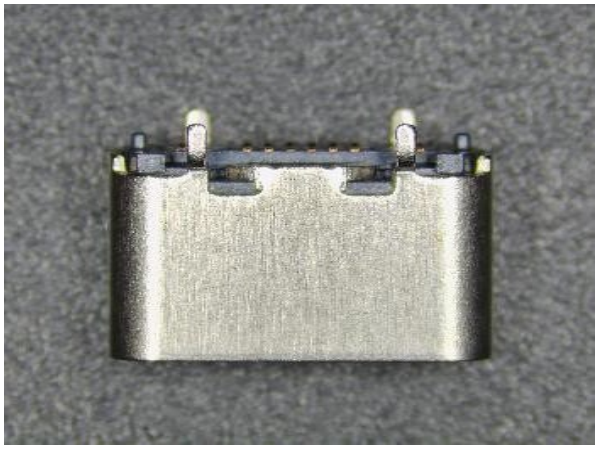
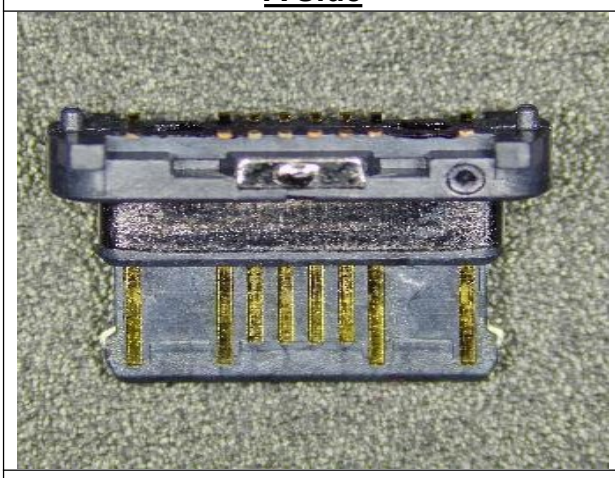
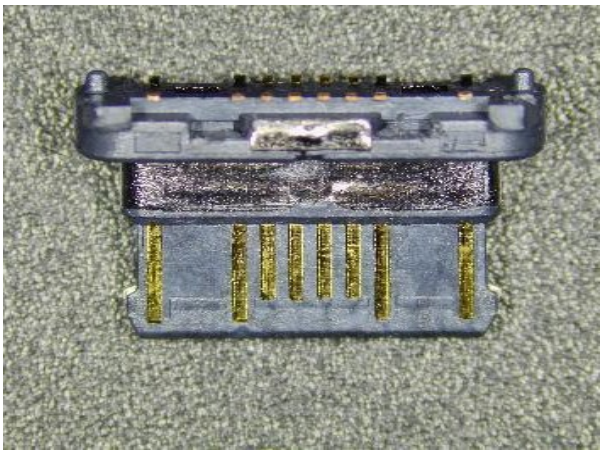
Construction			
Testing Period	**Measure environment**	**Test Engineer**	**Test Result**
2024/02/01	Temp. 21.5 ℃/ 70.2 %RH	Huang Siwei	**Pass**

EMC ground return path			
Description	Sample Coding		
	UT69aa	UT70aa	UT71aa
1.EMC spring	N	N	N
2.EMC pad	Y	Y	Y
3.Solid bumps	N	N	N
4.Distance between the bumps	N/A	N/A	N/A
Result	Pass	Pass	Pass
Note: Receptacle configurations with a conductive shell. The requirements apply to the receptacle contact dimensions shown in ALTERNATE SECTION A-A Figure B-5. Receptacle configuration with respect to mounting surface: Vertical.			

Number of pins: 16

A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
√	N/A	N/A	√	√	√	√	√	√	N/A	N/A	√
B12	**B11**	**B10**	**B9**	**B8**	**B7**	**B6**	**B5**	**B4**	**B3**	**B2**	**B1**
√	N/A	N/A	√	√	√	√	√	√	N/A	N/A	√

Tongue photograph

	
A Side	**B Side**
	
A Side	**B Side**

8.2. Clause 3.2.1 (8) Critical Dimensions

B-5-1 Critical Dimensions			
Testing Period	**Measure environment**	**Test Engineer**	**Test Result**
2024/02/01	Temp. 21.5 ℃/ 70.2 %RH	Huang Siwei	**Pass**

Test data: (Unit:mm)			
B-5-1 Critical Dimensions – Receptacle			
Description	Sample Coding		
	UT69aa	UT70aa	UT71aa
1.Receptacle inside opening (8.32～8.40)	8.369	8.363	8.366
2.Receptacle insider opening position tolerance (0.04 with datum A/B/C)	0.003	0.022	0.025
3.Receptacle signal pin length （3.35～3.65）	3.478	3.440	3.449
4.Pin length delta (0.30～0.70)	0.515	0.515	0.511
5.Tongue width (6.635～6.735)	6.6694	6.6817	6.6754
6.Contact width (0.21～0.29)	0.254	0.228	0.229
7.Contact width position tolerance (0.08 with datum A/B/C)	0.032	0.055	0.054
8. Tongue thickness （0.65～0.75）	0.725	0.735	0.730
9.Receptacle inside thickness (2.52～2.60)	2.549	2.541	2.546
Decision result	Pass	Pass	Pass

8.3. Clause 3.7.8.1 Low level contact resistance

A-1-1 Low level contact resistance			
Testing Period	**Measure environment**	**Test Engineer**	**Test Result**
2024/02/23	Temp. 23.5 ℃/ 70.9 %RH	Zhan Weilong	**Pass**
Test condition	Mated；Maximum open circuit voltage 20 mV；Test current 100 mA.		
Criteria	≤40 mΩ（Initial）		

A-1-1 Low Level Contact Resistance (mΩ)												
Sample Coding	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
UT01aa	18.5	N/A	N/A	20.5	20.3	20.3	20.3	20.4	19.0	N/A	N/A	20.0
UT02aa	18.0	N/A	N/A	19.4	19.2	20.4	20.7	20.3	18.0	N/A	N/A	19.3
UT03aa	18.7	N/A	N/A	20.4	21.8	21.8	20.6	20.6	19.0	N/A	N/A	20.3
UT04aa	18.7	N/A	N/A	20.7	20.7	20.3	21.4	20.5	19.1	N/A	N/A	21.2
UT05aa	19.1	N/A	N/A	20.2	20.4	20.9	21.2	21.0	20.5	N/A	N/A	21.5
Sample Coding	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
UT01aa	20.9	N/A	N/A	19.6	20.1	20.3	20.2	20.4	20.4	N/A	N/A	18.4
UT02aa	20.0	N/A	N/A	18.4	18.8	19.4	19.2	19.3	19.0	N/A	N/A	17.2
UT03aa	20.7	N/A	N/A	18.9	19.8	19.5	19.5	19.6	21.4	N/A	N/A	18.4
UT04aa	20.8	N/A	N/A	19.1	20.4	20.9	21.5	20.4	21.1	N/A	N/A	18.0
UT05aa	21.2	N/A	N/A	19.4	21.1	22.0	21.7	21.6	21.7	N/A	N/A	18.6

A-1-4 Low level contact resistance			
Testing Period	**Measure environment**	**Test Engineer**	**Test Result**
2019/08/09	Temp. 23.6 ℃/ 68.2 %RH	Jack Tan	**Pass**
Test condition	Mated；Maximum open circuit voltage 20 mV；Test current 100 mA.		
Criteria	≤50 mΩ		

A-1-4 Low Level Contact Resistance (mΩ)												
Sample Coding	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
UT01aa	24.0	25.0	25.4	22.8	22.8	24.7	24.1	23.3	22.1	25.3	26.2	21.8
UT02aa	22.6	25.2	25.2	22.3	23.6	26.3	25.0	26.1	23.0	25.0	25.1	22.8
UT03aa	22.6	26.0	23.8	23.0	22.5	24.3	25.4	24.2	21.1	23.8	25.3	22.0
UT04aa	22.2	24.7	25.0	23.2	25.5	26.1	26.0	25.3	22.6	24.8	26.8	21.5
UT05aa	23.4	25.3	24.9	22.4	24.2	25.8	25.6	24.7	22.7	26.3	26.1	22.2
Sample Coding	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
UT01aa	23.8	25.2	25.8	24.4	26.6	24.5	25.8	24.4	23.8	25.2	24.0	22.6
UT02aa	22.6	24.3	26.4	23.2	25.8	26.3	26.1	25.7	23.0	24.1	24.8	22.7
UT03aa	23.0	25.9	26.1	22.8	22.3	25.1	24.8	23.6	22.9	24.8	26.0	21.1
UT04aa	22.8	25.3	26.9	23.0	22.9	26.5	25.2	25.6	22.4	25.3	24.8	22.4
UT05aa	23.0	25.0	26.2	23.4	25.6	26.0	25.5	23.2	22.6	25.1	25.3	21.4
Test data references the original report (ZDT-DG-10251901)												

A-1-6 Low level contact resistance			
Testing Period	**Measure environment**	**Test Engineer**	**Test Result**
2019/08/09	Temp. 23.6 ℃/ 68.2 %RH	Jack Tan	**Pass**
Test condition	Mated；Maximum open circuit voltage 20 mV；Test current 100 mA.		
Criteria	≤50 mΩ		

A-1-6 Low Level Contact Resistance (mΩ)												
Sample Coding	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
UT01aa	23.4	24.7	26.1	23.7	22.8	24.6	25.1	23.9	23.1	25.4	25.3	22.3
UT02aa	23.6	24.1	24.8	22.4	24.0	25.7	25.4	25.2	23.2	25.8	26.3	23.5
UT03aa	22.9	25.3	24.5	23.1	22.9	25.2	26.1	24.2	22.0	24.3	25.8	22.2
UT04aa	22.7	25.2	25.2	23.6	26.2	25.3	25.5	25.7	23.2	25.5	26.1	22.0
UT05aa	24.2	24.3	25.0	23.0	25.0	25.2	24.9	24.1	22.7	25.7	26.2	23.0
Sample Coding	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
UT01aa	24.3	26.4	26.3	23.8	24.2	25.4	25.6	25.2	23.9	26.5	25.9	22.7
UT02aa	22.7	25.7	26.3	24.0	23.7	24.6	24.9	26.4	23.5	25.8	24.6	21.8
UT03aa	23.2	24.7	25.4	23.4	22.4	24.9	25.0	24.0	23.2	25.3	25.6	22.1
UT04aa	22.9	25.5	24.3	23.5	23.0	25.2	26.4	25.6	23.3	26.8	25.3	22.7
UT05aa	23.2	24.9	25.2	23.6	23.6	26.1	24.2	24.2	22.6	25.9	26.2	22.3
Test data references the original report (ZDT-DG-10251901)												

A-2-1 Low level contact resistance			
Testing Period	**Measure environment**	**Test Engineer**	**Test Result**
2024/02/23	Temp. 23.5 ℃/ 70.9 %RH	Zhan Weilong	**Pass**
Test condition	Mated；Maximum open circuit voltage 20 mV；Test current 100 mA.		
Criteria	≤40 mΩ（Initial）		

A-2-1 Low Level Contact Resistance (mΩ)												
Sample Coding	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
UT06aa	17.9	N/A	N/A	19.8	19.7	19.8	19.8	19.8	17.8	N/A	N/A	19.2
UT07aa	20.1	N/A	N/A	21.2	21.5	23.3	22.7	22.4	20.2	N/A	N/A	21.4
UT08aa	16.7	N/A	N/A	20.2	19.8	20.0	19.8	19.9	18.3	N/A	N/A	19.2
UT09aa	20.0	N/A	N/A	20.7	21.3	20.9	20.7	21.3	20.9	N/A	N/A	21.9
UT10aa	18.2	N/A	N/A	19.5	19.7	20.4	19.8	20.2	18.5	N/A	N/A	20.3
Sample Coding	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
UT06aa	19.8	N/A	N/A	18.8	19.4	20.0	19.3	19.2	19.4	N/A	N/A	17.3
UT07aa	22.6	N/A	N/A	19.9	20.6	24.1	21.6	21.0	21.6	N/A	N/A	18.3
UT08aa	19.9	N/A	N/A	18.9	19.5	19.4	19.5	19.6	19.4	N/A	N/A	17.8
UT09aa	21.7	N/A	N/A	20.3	21.6	22.3	21.6	21.7	22.5	N/A	N/A	19.6
UT10aa	20.0	N/A	N/A	18.7	20.7	21.1	20.4	20.0	20.1	N/A	N/A	17.4

A-2-4 Low level contact resistance			
Testing Period	**Measure environment**	**Test Engineer**	**Test Result**
2019/08/09	Temp. 23.6 ℃/ 68.2 %RH	Jack Tan	**Pass**
Test condition	Mated；Maximum open circuit voltage 20 mV；Test current 100 mA.		
Criteria	≤50 mΩ		

A-2-4 Low Level Contact Resistance (mΩ)												
Sample Coding	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
UT06aa	21.6	23.9	24.0	22.0	24.3	25.8	24.8	23.0	21.4	25.8	24.8	21.5
UT07aa	21.3	24.0	25.0	21.6	22.4	24.4	25.2	26.4	21.4	24.8	24.6	22.1
UT08aa	22.2	24.1	25.0	21.2	23.2	23.6	24.8	23.2	22.5	25.7	23.7	21.8
UT09aa	22.6	23.1	26.0	21.2	23.2	23.6	24.7	24.4	21.0	24.6	25.1	21.4
UT10aa	21.5	23.3	25.0	21.2	25.0	23.9	24.5	25.5	21.8	26.3	24.0	21.7
Sample Coding	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
UT06aa	22.3	23.9	24.3	21.4	22.9	22.5	23.9	24.0	22.3	25.2	23.3	21.6
UT07aa	21.8	23.9	25.1	21.3	22.3	24.3	23.5	25.1	20.9	25.8	24.9	22.0
UT08aa	22.2	24.8	24.0	21.2	23.7	25.6	24.3	24.0	21.4	25.0	25.4	22.0
UT09aa	21.5	24.0	25.2	21.8	23.2	23.7	23.8	23.6	23.0	25.6	24.2	21.3
UT10aa	22.5	25.3	26.2	21.6	22.4	24.8	23.9	24.4	21.2	25.4	24.6	21.9
Test data references the original report (ZDT-DG-10251901)												

A-2-6 Low level contact resistance			
Testing Period	**Measure environment**	**Test Engineer**	**Test Result**
2019/08/09	Temp. 23.6 ℃/ 68.2 %RH	Jack Tan	**Pass**
Test condition	Mated；Maximum open circuit voltage 20 mV；Test current 100 mA.		
Criteria	≤50 mΩ		

A-2-6 Low Level Contact Resistance (mΩ)												
Sample Coding	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
UT06aa	21.5	23.1	24.7	21.6	22.4	27.0	24.1	22.7	21.9	23.3	24.8	21.7
UT07aa	21.9	24.4	25.7	21.6	22.3	23.6	23.5	23.2	21.0	24.5	24.2	21.7
UT08aa	21.9	23.4	23.9	21.6	24.8	23.2	24.4	24.3	21.8	24.9	26.0	21.5
UT09aa	22.8	23.6	24.1	21.4	21.8	23.3	24.7	25.1	21.5	25.6	24.3	21.8
UT10aa	22.6	25.2	25.4	21.2	22.1	25.3	24.3	25.0	21.5	25.6	24.8	22.5
Sample Coding	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
UT06aa	22.5	24.7	25.2	21.5	25.4	23.1	23.4	23.2	21.7	24.4	24.2	21.6
UT07aa	23.8	23.9	26.6	20.8	21.4	23.3	23.4	24.3	21.4	25.8	25.4	21.3
UT08aa	22.2	24.7	24.1	21.0	22.3	25.2	24.0	24.2	21.5	25.8	25.0	21.0
UT09aa	22.2	24.2	24.9	21.2	22.1	21.4	23.0	23.0	20.5	24.9	23.4	21.4
UT10aa	21.8	25.2	26.1	21.3	25.5	25.6	24.2	24.4	22.5	26.2	25.3	22.8
Test data references the original report (ZDT-DG-10251901)												

A-2-8 Low level contact resistance			
Testing Period	**Measure environment**	**Test Engineer**	**Test Result**
2019/08/09	Temp. 23.6 ℃/ 68.2 %RH	Jack Tan	**Pass**
Test condition	Mated；Maximum open circuit voltage 20 mV；Test current 100 mA.		
Criteria	≤50 mΩ		

A-2-8 Low Level Contact Resistance (mΩ)												
Sample Coding	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
UT06aa	21.9	24.2	24.6	21.5	23.2	23.9	24.9	23.1	21.7	23.9	23.8	21.0
UT07aa	22.2	24.5	25.0	21.4	21.3	23.4	23.1	23.7	22.2	24.8	23.6	21.7
UT08aa	22.6	25.3	24.6	21.4	24.8	25.0	24.9	25.6	21.0	25.0	25.0	21.8
UT09aa	21.7	22.9	24.7	21.1	21.9	24.1	23.3	24.0	21.3	25.0	23.8	22.5
UT10aa	22.2	25.7	26.2	21.5	21.6	24.8	24.0	25.0	22.2	26.1	24.5	22.4
Sample Coding	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
UT06aa	22.0	24.1	24.8	21.1	24.5	25.2	23.5	24.8	22.0	24.6	23.5	20.8
UT07aa	21.6	24.3	23.9	21.3	21.4	24.7	23.7	24.8	21.0	25.7	24.1	22.2
UT08aa	22.7	26.8	25.3	21.4	22.6	24.6	26.4	26.8	20.7	25.8	24.9	21.3
UT09aa	21.9	23.9	25.2	21.1	23.0	23.3	23.4	23.2	20.8	24.7	23.6	21.0
UT10aa	22.8	26.0	26.5	22.2	23.0	25.8	26.0	25.4	20.9	25.0	24.0	21.7
Test data references the original report (ZDT-DG-10251901)												

A-3-1 Low level contact resistance			
Testing Period	**Measure environment**	**Test Engineer**	**Test Result**
2024/02/23	Temp. 23.5 ℃/ 70.9 %RH	Zhan Weilong	**Pass**
Test condition	Mated；Maximum open circuit voltage 20 mV；Test current 100 mA.		
Criteria	≤40 mΩ（Initial）		

A-3-1 Low Level Contact Resistance (mΩ)												
Sample Coding	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
UT11aa	13.1	N/A	N/A	13.7	13.6	13.7	13.5	13.4	13.8	N/A	N/A	14.8
UT12aa	13.1	N/A	N/A	13.4	13.6	13.8	14.4	13.7	14.0	N/A	N/A	14.5
UT13aa	16.0	N/A	N/A	16.8	16.7	16.5	17.3	18.1	17.6	N/A	N/A	21.3
UT14aa	15.6	N/A	N/A	17.2	16.7	16.9	17.4	20.4	17.5	N/A	N/A	17.4
UT15aa	16.2	N/A	N/A	16.5	16.3	16.5	17.6	16.7	16.8	N/A	N/A	17.7
Sample Coding	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
UT11aa	14.1	N/A	N/A	13.0	14.2	14.4	14.4	14.3	15.8	N/A	N/A	14.1
UT12aa	14.3	N/A	N/A	14.1	14.6	14.9	15.1	14.7	15.2	N/A	N/A	14.6
UT13aa	17.4	N/A	N/A	16.4	18.0	17.7	20.0	17.6	18.2	N/A	N/A	17.1
UT14aa	17.3	N/A	N/A	17.3	17.9	17.7	17.9	17.8	17.9	N/A	N/A	16.8
UT15aa	16.9	N/A	N/A	14.5	18.1	18.2	17.5	17.8	18.1	N/A	N/A	15.5

A-3-4 Low level contact resistance			
Testing Period	**Measure environment**	**Test Engineer**	**Test Result**
2019/08/09	Temp. 23.6 ℃/ 68.2 %RH	Jack Tan	**Pass**
Test condition	Mated；Maximum open circuit voltage 20 mV；Test current 100 mA.		
Criteria	≤50 mΩ		

A-3-4 Low Level Contact Resistance (mΩ)												
Sample Coding	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
UT11aa	21.9	24.8	26.5	22.8	23.5	25.8	26.1	24.6	21.1	23.7	25.7	22.4
UT12aa	22.8	24.8	27.2	22.9	25.4	26.3	24.8	24.0	20.9	24.9	24.4	21.7
UT13aa	22.8	23.4	24.1	22.5	23.4	26.1	25.3	23.8	21.6	25.0	24.1	21.4
UT14aa	22.8	24.6	24.4	22.2	23.3	25.9	25.1	24.3	21.9	26.2	25.0	21.6
UT15aa	22.0	26.5	26.8	22.0	22.7	26.8	26.1	25.7	22.2	24.2	23.7	21.5
Sample Coding	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
UT11aa	22.2	24.2	25.5	22.5	23.6	25.4	24.0	24.5	23.3	26.5	25.2	22.1
UT12aa	21.9	25.7	25.3	21.7	22.5	25.6	23.8	25.0	21.3	25.6	25.2	21.8
UT13aa	22.0	24.8	23.5	22.2	23.2	26.3	27.2	23.2	21.7	24.6	25.0	21.5
UT14aa	22.0	24.3	26.4	22.8	22.8	26.5	26.8	23.8	22.3	25.7	24.8	21.4
UT15aa	22.1	23.3	23.9	22.5	23.5	25.2	24.5	23.6	22.0	25.6	24.2	21.6
Test data references the original report (ZDT-DG-10251901)												

A-3-6 Low level contact resistance			
Testing Period	**Measure environment**	**Test Engineer**	**Test Result**
2019/08/09	Temp. 23.6 ℃/ 68.2 %RH	Jack Tan	**Pass**
Test condition	Mated；Maximum open circuit voltage 20 mV；Test current 100 mA.		
Criteria	≤50 mΩ		

A-3-6 Low Level Contact Resistance (mΩ)												
Sample Coding	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
UT11aa	22.4	24.6	25.5	22.4	22.5	25.2	23.6	25.8	22.0	24.4	24.0	21.5
UT12aa	22.5	23.6	25.2	23.0	23.2	25.3	23.6	26.2	21.5	24.3	23.7	21.8
UT13aa	22.3	23.0	24.7	21.5	24.0	25.8	23.4	24.2	21.2	23.8	23.6	21.9
UT14aa	21.9	24.4	24.8	21.8	24.4	25.1	24.8	23.2	21.3	25.0	25.4	21.9
UT15aa	21.7	25.2	24.7	21.2	21.6	24.8	23.7	23.5	21.2	23.5	24.0	21.5
Sample Coding	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
UT11aa	21.5	23.8	24.5	21.4	22.0	23.8	23.6	22.1	21.6	25.2	23.6	21.8
UT12aa	21.4	23.6	24.6	22.3	23.5	24.6	23.4	25.5	22.6	25.8	24.2	21.5
UT13aa	22.5	23.8	24.6	22.3	22.2	24.4	24.1	22.8	21.2	25.1	24.4	21.3
UT14aa	21.5	24.2	25.4	21.6	21.9	23.1	24.2	23.2	21.5	25.7	25.0	21.7
UT15aa	22.4	23.8	25.0	21.7	25.1	24.9	24.8	22.8	21.7	24.6	23.8	21.4
Test data references the original report (ZDT-DG-10251901)												

A-4-1 Low level contact resistance			
Testing Period	**Measure environment**	**Test Engineer**	**Test Result**
2024/02/23	Temp. 23.5 ℃/ 70.9 %RH	Zhan Weilong	**Pass**
Test condition	Mated；Maximum open circuit voltage 20 mV；Test current 100 mA.		
Criteria	≤40 mΩ（Initial）		

A-4-1 Low Level Contact Resistance (mΩ)												
Sample Coding	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
UT16aa	18.0	N/A	N/A	19.3	19.9	19.9	20.0	20.2	18.5	N/A	N/A	19.5
UT17aa	18.5	N/A	N/A	19.9	19.9	20.3	20.1	20.0	18.3	N/A	N/A	18.9
UT18aa	18.9	N/A	N/A	20.3	20.7	20.9	21.0	21.4	19.2	N/A	N/A	21.2
UT19aa	18.9	N/A	N/A	20.5	20.0	20.4	21.0	20.6	19.6	N/A	N/A	21.5
UT20aa	18.1	N/A	N/A	19.4	19.9	19.5	20.0	20.1	18.2	N/A	N/A	19.5
UT21aa	18.4	N/A	N/A	19.5	20.0	20.0	19.8	19.9	18.5	N/A	N/A	19.7
UT22aa	18.6	N/A	N/A	20.2	20.3	21.9	20.6	20.3	19.5	N/A	N/A	19.9
UT23aa	18.2	N/A	N/A	19.7	20.1	20.5	20.1	20.2	18.9	N/A	N/A	19.8
UT24aa	18.0	N/A	N/A	20.4	20.7	21.9	21.8	21.5	18.6	N/A	N/A	19.3
UT25aa	17.8	N/A	N/A	19.0	19.0	18.8	19.0	18.9	18.7	N/A	N/A	19.4
Sample Coding	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
UT16aa	20.2	N/A	N/A	18.8	19.8	19.9	19.9	19.7	19.9	N/A	N/A	17.5
UT17aa	19.8	N/A	N/A	19.4	19.2	19.9	19.8	19.6	19.3	N/A	N/A	18.4
UT18aa	21.4	N/A	N/A	19.6	21.0	21.4	20.6	20.8	20.2	N/A	N/A	18.3
UT19aa	20.4	N/A	N/A	19.0	21.2	21.9	22.4	21.5	20.9	N/A	N/A	18.5
UT20aa	20.8	N/A	N/A	18.9	19.7	20.1	19.7	22.3	21.6	N/A	N/A	17.5
UT21aa	19.8	N/A	N/A	18.9	19.9	20.2	19.8	20.3	19.9	N/A	N/A	18.6
UT22aa	20.7	N/A	N/A	18.8	20.1	20.4	20.0	20.0	19.7	N/A	N/A	17.7
UT23aa	20.8	N/A	N/A	18.7	19.9	20.9	20.0	20.3	20.7	N/A	N/A	18.0
UT24aa	22.0	N/A	N/A	20.1	19.7	19.8	20.4	20.9	19.0	N/A	N/A	17.5
UT25aa	20.0	N/A	N/A	18.5	19.7	19.9	20.0	19.8	19.7	N/A	N/A	17.7

A-4-4 Low level contact resistance			
Testing Period	**Measure environment**	**Test Engineer**	**Test Result**
2019/08/09	Temp. 23.6 ℃/ 68.2 %RH	Jack Tan	**Pass**
Test condition	Mated；Maximum open circuit voltage 20 mV；Test current 100 mA.		
Criteria	≤50 mΩ		

A-4-4 Low Level Contact Resistance (mΩ)												
Sample Coding	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
UT16aa	22.5	25.0	26.8	22.5	22.9	24.4	24.4	25.8	21.9	24.3	24.9	21.7
UT17aa	21.8	24.6	24.6	21.6	22.8	26.1	25.4	26.2	22.4	24.5	26.7	22.9
UT18aa	22.4	23.5	27.0	21.9	22.7	26.2	26.8	25.4	22.8	26.1	24.1	22.6
UT19aa	22.3	24.4	26.3	22.5	22.6	24.2	25.9	26.5	22.3	26.2	26.0	22.9
UT20aa	21.7	23.6	24.6	22.3	23.7	25.6	25.4	24.3	20.9	26.2	24.8	22.1
UT21aa	22.7	25.8	25.3	22.6	24.1	25.7	25.2	26.3	22.2	26.5	25.5	22.3
UT22aa	22.3	25.5	24.6	22.2	25.0	25.8	26.8	24.7	22.1	26.0	25.1	22.2
UT23aa	22.7	25.5	25.1	21.9	24.0	26.4	24.2	24.3	22.4	26.6	24.9	22.5
UT24aa	22.4	26.2	24.9	22.4	23.5	24.5	26.0	26.6	22.3	26.4	25.1	22.2
UT25aa	23.1	25.9	26.2	21.8	23.7	25.9	26.1	25.5	21.6	24.1	25.0	21.5
Sample Coding	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
UT16aa	22.5	24.0	26.5	23.1	25.2	25.5	27.0	25.6	22.5	25.4	25.3	22.1
UT17aa	22.4	24.1	25.5	22.2	24.8	26.5	25.6	25.2	22.5	25.8	25.5	21.6
UT18aa	22.5	24.0	27.5	21.9	22.4	24.8	25.0	24.8	23.2	27.5	24.2	21.1
UT19aa	22.5	24.6	25.3	22.8	23.4	24.6	24.8	23.7	21.5	25.3	25.3	21.9
UT20aa	21.9	24.3	27.0	21.8	22.9	26.8	26.9	24.2	23.4	25.7	23.7	21.1
UT21aa	22.0	25.2	25.9	22.3	22.7	26.0	25.1	24.9	22.4	26.2	25.3	22.1
UT22aa	22.5	25.3	26.0	21.6	23.9	25.9	24.9	25.8	22.2	25.3	24.8	21.7
UT23aa	22.4	24.7	25.2	22.0	25.4	25.0	25.1	26.7	23.5	25.9	25.0	21.2
UT24aa	21.6	25.0	24.6	22.1	23.8	26.3	27.4	28.0	21.7	25.6	25.0	21.6
UT25aa	22.3	24.8	26.1	21.9	25.2	27.2	25.6	25.2	22.2	25.0	24.7	22.5
Test data references the original report (ZDT-DG-10251901)												

A-4-6 Low level contact resistance			
Testing Period	**Measure environment**	**Test Engineer**	**Test Result**
2019/08/09	Temp. 23.6 ℃/ 68.2 %RH	Jack Tan	**Pass**
Test condition	Mated；Maximum open circuit voltage 20 mV；Test current 100 mA.		
Criteria	≤50 mΩ		

A-4-6 Low Level Contact Resistance (mΩ)												
Sample Coding	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
UT16aa	22.4	25.8	26.4	22.7	23.0	25.1	24.4	24.0	23.1	29.1	27.3	21.9
UT17aa	23.2	25.2	27.8	22.9	23.8	24.6	26.2	27.6	23.5	25.9	26.0	23.1
UT18aa	22.8	26.7	27.4	23.1	23.2	26.1	25.4	27.3	21.9	23.8	25.6	23.0
UT19aa	22.6	27.5	27.8	22.6	25.6	25.7	24.6	27.7	22.1	25.3	26.8	22.8
UT20aa	23.2	26.5	27.3	23.2	24.7	24.9	25.3	26.8	23.3	26.7	26.2	22.6
UT21aa	22.6	26.3	28.7	22.9	25.8	28.2	31.5	28.5	22.7	25.9	26.9	22.4
UT22aa	23.2	24.8	26.3	22.5	23.3	26.3	25.8	24.4	21.3	24.7	22.2	23.2
UT23aa	22.3	25.1	25.6	21.8	25.3	26.1	26.7	28.3	21.7	25.6	26.2	23.0
UT24aa	22.5	23.5	27.0	22.3	23.0	24.9	24.8	23.9	21.2	26.3	25.7	22.4
UT25aa	23.1	24.6	26.8	22.1	23.0	25.3	25.5	25.3	22.6	25.8	25.1	22.3
Sample Coding	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
UT16aa	23.8	23.5	25.8	21.8	24.2	25.7	25.9	25.3	23.3	26.0	25.8	22.3
UT17aa	23.4	23.9	27.0	22.6	23.8	26.1	27.3	26.7	23.1	25.5	26.3	21.4
UT18aa	23.9	24.4	26.6	23.1	22.9	24.4	26.8	23.9	22.8	26.1	25.4	21.9
UT19aa	23.8	24.6	27.4	23.2	23.1	24.2	25.3	25.9	21.8	24.6	26.1	21.5
UT20aa	23.4	25.0	26.8	22.8	23.2	26.1	27.4	23.5	22.4	24.8	25.4	21.6
UT21aa	23.8	24.2	27.0	22.7	25.2	25.6	26.0	26.1	21.6	25.3	25.8	21.8
UT22aa	25.6	25.6	23.0	23.2	24.3	25.5	24.9	22.2	21.7	24.8	26.9	22.2
UT23aa	23.5	25.2	26.8	23.0	24.2	26.4	26.3	23.9	21.4	22.7	25.9	21.9
UT24aa	22.3	24.7	25.4	22.1	23.0	24.2	24.3	23.3	21.3	25.5	24.8	21.3
UT25aa	22.4	25.3	26.3	22.7	24.8	25.8	24.0	22.8	21.3	26.1	25.2	21.6
Test data references the original report (ZDT-DG-10251901)												

A-4-8 Low level contact resistance			
Testing Period	**Measure environment**	**Test Engineer**	**Test Result**
2019/08/09	Temp. 23.6 ℃/ 68.2 %RH	Jack Tan	**Pass**
Test condition	Mated；Maximum open circuit voltage 20 mV；Test current 100 mA.		
Criteria	≤50 mΩ		

A-4-8 Low Level Contact Resistance (mΩ)												
Sample Coding	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
UT16aa	22.3	24.2	24.6	21.8	24.0	23.9	25.3	23.4	22.5	24.4	24.8	21.4
UT17aa	22.4	25.0	25.7	21.7	21.6	23.9	23.6	24.3	22.5	25.4	24.1	22.1
UT18aa	22.6	25.5	24.8	21.4	25.6	25.8	25.6	25.8	21.2	25.9	25.0	22.0
UT19aa	22.1	23.2	25.5	21.3	22.6	24.5	23.6	24.1	21.8	25.8	24.5	22.7
UT20aa	22.5	26.5	26.7	22.1	22.5	25.2	24.2	25.4	22.6	26.5	24.6	22.3
UT21aa	22.8	24.6	24.8	21.9	23.9	24.4	25.2	24.1	22.5	24.5	23.9	21.6
UT22aa	22.8	25.3	25.5	21.6	22.1	24.1	23.1	24.0	22.3	25.4	24.2	22.1
UT23aa	23.3	26.2	25.3	21.6	25.3	25.7	25.3	26.4	22.0	25.6	25.3	22.8
UT24aa	22.0	23.0	24.9	21.9	22.7	25.0	24.0	24.2	21.8	25.9	24.4	23.2
UT25aa	22.2	26.5	26.4	22.0	22.2	25.6	25.0	25.5	22.5	26.6	25.2	22.6
Sample Coding	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
UT16aa	22.6	24.9	25.1	21.6	25.0	25.9	24.5	25.1	22.8	24.6	24.1	21.6
UT17aa	22.6	25.2	24.6	21.9	21.6	25.7	24.6	25.6	21.3	26.3	24.9	22.5
UT18aa	23.5	27.6	25.8	22.2	23.5	25.0	25.1	24.6	21.6	26.7	25.0	21.6
UT19aa	22.4	24.8	25.2	21.8	23.6	23.7	23.6	24.2	20.8	24.8	24.3	21.1
UT20aa	23.5	26.1	27.1	22.8	23.4	25.9	26.8	25.6	21.5	25.9	24.6	21.8
UT21aa	22.4	24.6	24.3	21.8	24.9	25.7	23.7	25.0	22.7	25.0	23.8	20.9
UT22aa	21.8	25.2	24.0	21.6	22.3	25.3	24.1	25.8	21.2	25.8	24.1	22.5
UT23aa	23.0	27.1	25.9	22.1	22.8	25.2	26.6	26.2	21.4	26.0	25.8	21.5
UT24aa	22.0	24.1	25.8	21.2	23.1	24.3	24.2	23.4	21.2	25.4	24.2	21.7
UT25aa	23.7	26.9	27.3	22.7	23.3	26.2	26.4	26.1	21.3	26.0	24.4	22.6
Test data references the original report (ZDT-DG-10251901)												

A-4-10 Low level contact resistance			
Testing Period	**Measure environment**	**Test Engineer**	**Test Result**
2019/08/09	Temp. 23.6 ℃/ 68.2 %RH	Jack Tan	**Pass**
Test condition	Mated；Maximum open circuit voltage 20 mV；Test current 100 mA.		
Criteria	≤50 mΩ		

A-4-10 Low Level Contact Resistance (mΩ)												
Sample Coding	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
UT16aa	22.5	25.6	26.8	23.2	24.0	25.2	26.1	25.2	21.9	24.4	26.7	23.1
UT17aa	23.3	25.2	27.4	21.9	25.8	26.3	25.7	24.6	21.7	25.3	25.2	22.0
UT18aa	22.6	23.9	25.0	22.7	23.5	26.4	25.5	24.4	22.0	25.7	24.4	22.0
UT19aa	21.8	25.4	24.6	22.6	23.4	25.8	26.0	24.4	22.2	27.1	25.9	22.3
UT20aa	22.7	27.5	27.2	22.6	22.9	24.1	26.2	25.9	22.2	24.5	24.5	21.9
UT21aa	22.3	24.0	24.7	22.1	24.8	25.2	25.2	23.2	21.6	26.5	25.1	21.7
UT22aa	22.1	24.4	25.1	22.0	23.2	24.5	25.5	27.1	21.9	25.6	24.9	22.2
UT23aa	22.5	24.9	25.2	21.3	24.0	24.4	25.4	23.2	22.9	26.5	24.6	22.4
UT24aa	22.9	23.3	26.3	21.2	23.5	24.1	25.5	24.4	21.9	25.6	25.8	21.9
UT25aa	22.3	23.9	25.4	21.9	25.2	24.3	24.8	25.9	22.6	27.0	24.3	22.4
Sample Coding	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
UT16aa	22.6	25.1	25.8	23.4	24.5	26.2	24.0	24.7	23.3	26.1	25.7	21.8
UT17aa	22.8	26.4	25.4	22.4	23.3	25.9	24.5	25.5	21.4	25.7	25.6	22.4
UT18aa	22.5	25.0	24.0	22.6	23.9	26.8	26.5	24.2	22.1	24.6	25.4	22.1
UT19aa	22.7	24.4	27.0	23.5	23.4	27.2	26.4	23.9	22.8	26.0	25.3	21.9
UT20aa	22.7	23.7	24.8	22.8	24.3	25.9	25.3	24.2	22.8	25.7	24.5	21.6
UT21aa	22.3	24.8	24.8	21.6	23.0	23.4	24.3	24.2	23.1	26.1	23.5	21.8
UT22aa	22.1	24.6	26.0	22.0	22.8	25.3	24.3	25.4	21.2	26.1	25.8	22.0
UT23aa	23.1	25.7	24.7	21.5	23.7	26.1	25.1	24.8	21.5	25.4	25.9	22.5
UT24aa	22.4	24.8	25.2	22.6	23.8	23.9	24.7	24.1	22.7	25.7	24.9	21.5
UT25aa	22.7	25.8	26.9	22.6	23.0	25.6	24.8	24.7	21.4	25.5	25.2	21.9
Test data references the original report (ZDT-DG-10251901)												

A-7-2 Low level contact resistance			
Testing Period	**Measure environment**	**Test Engineer**	**Test Result**
2024/02/26	Temp. 22.2 ℃/ 50.5 %RH	Su Kun	**Pass**
Test condition	Mated；Maximum open circuit voltage 20 mV；Test current 100 mA.		
Criteria	≤40 mΩ（Initial）		

Test data:

A-7-2 Low Level Contact Resistance (mΩ)

Sample Coding	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
UT26aa	18.2	N/A	N/A	19.7	19.3	19.4	19.4	19.4	18.8	N/A	N/A	19.7
UT27aa	18.7	N/A	N/A	19.4	19.5	19.9	19.5	19.8	18.7	N/A	N/A	19.9
UT28aa	18.6	N/A	N/A	19.6	19.8	20.1	19.9	20.3	19.2	N/A	N/A	19.9
UT29aa	17.6	N/A	N/A	18.5	19.1	19.1	19.7	19.6	17.8	N/A	N/A	19.2
UT30aa	19.0	N/A	N/A	19.9	19.7	19.5	19.2	19.7	18.9	N/A	N/A	19.7
Sample Coding	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
UT26aa	19.9	N/A	N/A	18.6	20.0	20.2	20.1	20.2	19.8	N/A	N/A	17.7
UT27aa	19.8	N/A	N/A	18.8	19.9	20.1	20.2	19.8	20.2	N/A	N/A	18.6
UT28aa	20.2	N/A	N/A	19.4	20.1	20.1	20.2	20.4	20.1	N/A	N/A	18.9
UT29aa	19.5	N/A	N/A	18.2	19.2	19.3	19.5	19.7	19.3	N/A	N/A	17.0
UT30aa	19.7	N/A	N/A	19.0	20.1	20.7	20.4	20.7	20.1	N/A	N/A	18.9

A-7-10 Low level contact resistance			
Testing Period	**Measure environment**	**Test Engineer**	**Test Result**
2019/08/09	Temp. 23.6 ℃/ 68.2 %RH	Jack Tan	**Pass**
Test condition	Mated；Maximum open circuit voltage 20 mV；Test current 100 mA.		
Criteria	≤40 mΩ（Initial）		

A-7-10 Low Level Contact Resistance (mΩ)												
Sample Coding	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
UT26aa	21.7	23.6	24.6	21.9	24.0	24.3	23.9	24.6	21.5	24.3	24.0	21.8
UT27aa	21.4	23.8	24.6	21.7	22.2	23.5	24.2	23.7	22.7	24.7	24.3	21.6
UT28aa	22.1	23.6	24.6	22.0	22.8	23.7	25.2	24.3	22.3	24.8	25.0	22.8
UT29aa	22.0	23.6	24.7	21.4	21.8	24.4	24.3	23.9	23.0	24.7	25.8	22.0
UT30aa	25.8	23.5	24.1	23.7	22.0	23.7	24.8	24.0	21.6	25.3	25.5	22.8
Sample Coding	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
UT26aa	21.5	23.0	24.5	21.5	22.6	21.9	24.6	24.4	22.3	24.6	23.6	21.2
UT27aa	21.6	24.5	24.5	22.0	22.5	24.0	24.6	23.2	22.1	25.8	23.6	22.1
UT28aa	22.7	24.5	25.1	21.9	21.8	24.3	24.4	23.6	22.4	24.7	24.6	21.8
UT29aa	21.5	25.0	25.1	22.7	22.6	24.6	23.8	26.0	25.0	24.3	23.8	21.0
UT30aa	23.3	23.4	24.5	21.8	23.2	26.4	25.2	24.6	21.7	24.6	25.6	23.0
Test data references the original report (ZDT-DG-10251901)												

8.4. Clause 3.7.8.2 Dielectric withstanding voltage

A-7-1 Dielectric withstanding voltage			
Testing Period	**Measure environment**	**Test Engineer**	**Test Result**
2019/08/09	Temp. 23.6 ℃/ 68.2 %RH	Jack Tan	**Pass**
Test condition	Mated；100 VAC (RMS), 1 min. The test voltage shall be applied between adjacent contacts.		
Criteria	A failure is the occurrence of adisruptive discharge as evidenced by flashover (surface discharge), sparkover (air discharge), breakdown (puncture discharge) or leakage in excess of 5 mA		
Test data references the original report (ZDT-DG-10251901)			

A-7-11 Dielectric withstanding voltage			
Testing Period	**Measure environment**	**Test Engineer**	**Test Result**
2019/08/09	Temp. 23.6 ℃/ 68.2 %RH	Jack Tan	**Pass**
Test condition	Mated；100 VAC (RMS), 1 min. The test voltage shall be applied between adjacent contacts.		
Criteria	A failure is the occurrence of adisruptive discharge as evidenced by flashover (surface discharge), sparkover (air discharge), breakdown (puncture discharge) or leakage in excess of 5 mA		
Test data references the original report (ZDT-DG-10251901)			

8.5. Clause 3.7.8.3 Insulation Resistance

A-7-12 Insulation Resistance			
Testing Period	**Measure environment**	**Test Engineer**	**Test Result**
2019/08/09	Temp. 23.6 ℃/ 68.2 %RH	Jack Tan	**Pass**
Test condition	Mated and Unmated, 500 Vdc, 2min. The test voltage shall be applied between adjacent contacts.		
Criteria	≥100MΩ		

A-7-12 Insulation Resistance (GΩ)					
Sample Coding / Test contacts	UT26aa	UT27aa	UT28aa	UT29aa	UT30aa
A4 to A5	N/A	N/A	N/A	N/A	N/A
A5 to A6	N/A	N/A	N/A	N/A	N/A
A6 to A7	N/A	N/A	N/A	N/A	N/A
B4 to B5	N/A	N/A	N/A	N/A	N/A
B5 to B6	N/A	N/A	N/A	N/A	N/A
Note: Followed by the specific resistance value.					
Test data references the original report (ZDT-DG-10251901)					

8.6. Clause 3.7.8.4 Contact Current Rating

B-6-1 Contact Current Rating			
Testing Period	**Measure environment**	**Test Engineer**	**Test Result**
2019/08/09	Temp. 23.6 ℃/ 68.2 %RH	Jack Tan	**Pass**
Test condition	1、5A applied collectively to VBUS pins（i.e.,pins A4,A9,B4,and B9）. 2、1.25A applied to the Vconn pin（i.e.,B5）,terminated. 3、0.25 A applied individually to all the other contacts.		
Criteria	The temperature rise shall not exceed 30°C at the outside surface of the shell.		

Test data:			
B-6-1 Contact Current Rating			
Sample Coding	Ambient temperature (℃)	Thermocouple temperature (℃)	Temperature rise (℃)
UT72aa	N/A	N/A	19.5
UT73aa	N/A	N/A	20.0
UT74aa	N/A	N/A	18.2
Note: Temperature rise of sample = Thermocouple temperature - Ambient temperature.			
Test data references the original report (ZDT-DG-10251901)			

8.7. Clause 3.8.1.1 Insertion force

A-7-4 Insertion Force			
Testing Period	**Measure environment**	**Test Engineer**	**Test Result**
2024/02/26	Temp. 22.2 ℃/ 50.5 %RH	Su Kun	**Pass**
Test condition	Speed：12.5mm/min；Insertion depth：4.2mm.		
Criteria	Insertion force:5N～20N		

Test data:					
A-7-4 Insertion Force					
Sample Coding	UT26aa	UT27aa	UT28aa	UT29aa	UT30aa
Insertion force (N)	13.3	15.4	13.8	12.5	13.9

8.8. Clause 3.8.1.1 Extraction force

A-7-5 Extraction Force			
Testing Period	**Measure environment**	**Test Engineer**	**Test Result**
2024/02/26	Temp. 22.2 ℃/ 50.5 %RH	Su Kun	**Pass**
Test condition	Speed：12.5mm/min；Extraction depth：4.2mm.		
Criteria	Extraction force：8N～20N(Initial reading)		

A-7-7 Extraction Force			
Testing Period	**Measure environment**	**Test Engineer**	**Test Result**
2019/08/09	Temp. 23.6 ℃/ 68.2 %RH	Jack Tan	**Pass**
Test condition	Speed：12.5mm/min；Extraction depth：4.2mm.		
Criteria	Extraction force：8N～20N；33% of the initial reading.		
Test data references the original report (ZDT-DG-10251901)			

A-7-9 Extraction Force			
Testing Period	**Measure environment**	**Test Engineer**	**Test Result**
2019/08/09	Temp. 23.6 ℃/ 68.2 %RH	Jack Tan	**Pass**
Test condition	Speed：12.5mm/min；Extraction depth：4.2mm.		
Criteria	Extraction force：6N～20N.		
Test data references the original report (ZDT-DG-10251901)			

Test data:					
A-7-5 Extraction Force					
Sample Coding	UT26aa	UT27aa	UT28aa	UT29aa	UT30aa
Extraction force (N)	14.6	18.0	12.6	12.0	14.7

Test data:					
A-7-7 Extraction Force					
Sample Coding	UT26aa	UT27aa	UT28aa	UT29aa	UT30aa
Extraction force (N)	15.5	16.4	17.4	13.2	16.9
$\frac{\lvert (A\text{-}7\text{-}7)-(A\text{-}7\text{-}5) \rvert * 100\%}{(A\text{-}7\text{-}5)}$	6.16%	9.76%	27.59%	9.09%	13.02%
A-7-9 Extraction Force					
Sample Coding	UT26aa	UT27aa	UT28aa	UT29aa	UT30aa
Extraction force (N)	9.5	7.8	9.4	8.4	8.4
Test data references the original report (ZDT-DG-10251901)					

A-7 Mechanical CurveSample

Sample UT26aa

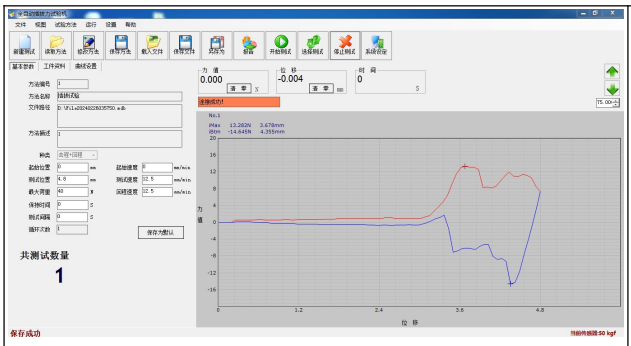


Fig.1 Insertion Force

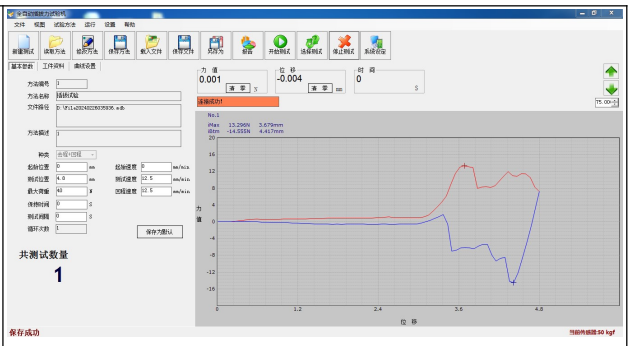


Fig.2 Initial Extraction Force

Sample UT27aa

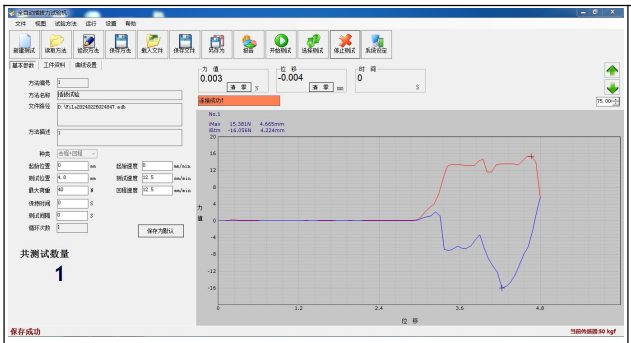


Fig.3 Insertion Force

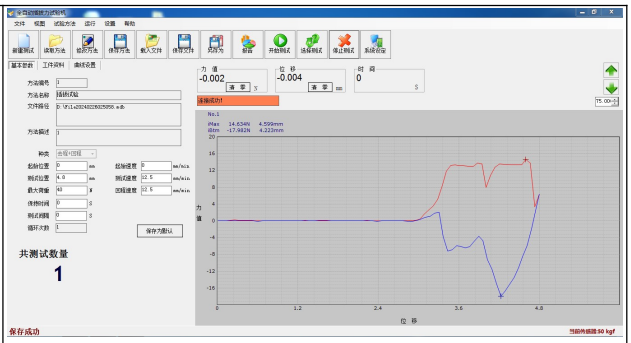


Fig.4 Initial Extraction Force

Sample UT28aa

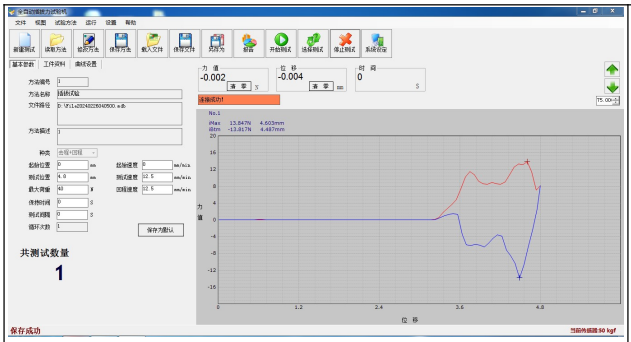


Fig.5 Insertion Force

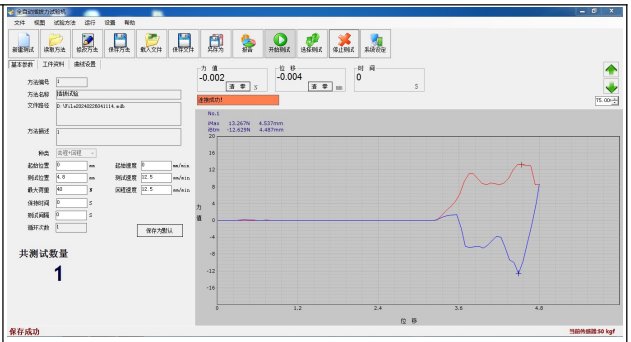


Fig.6 Initial Extraction Force

Sample UT29aa

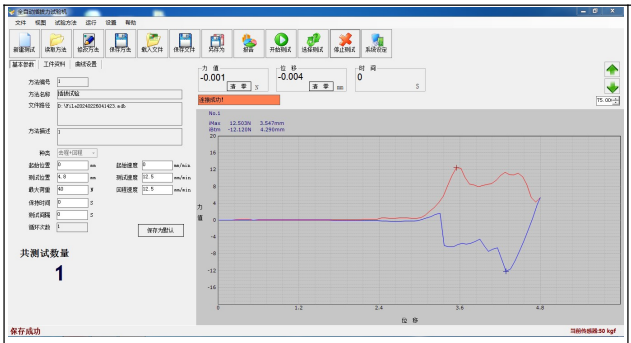


Fig.7 Insertion Force

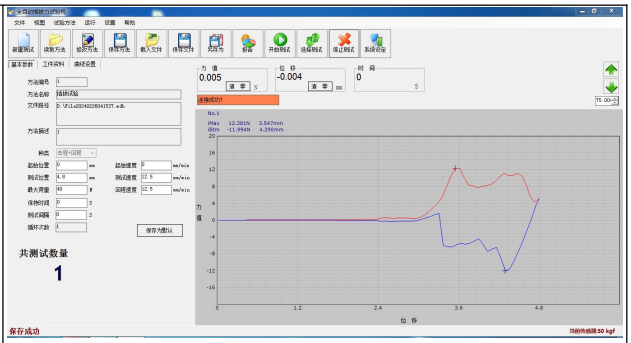


Fig.8 Initial Extraction Force

Sample UT30aa

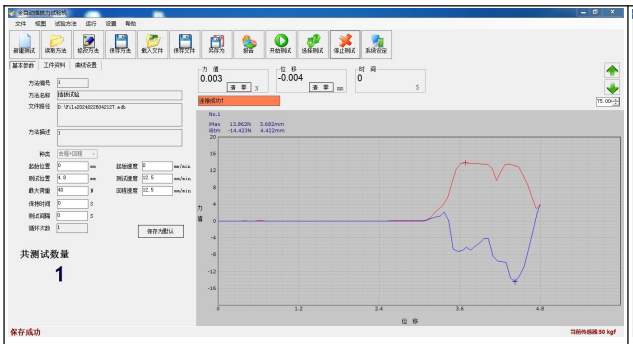


Fig.9 Insertion Force

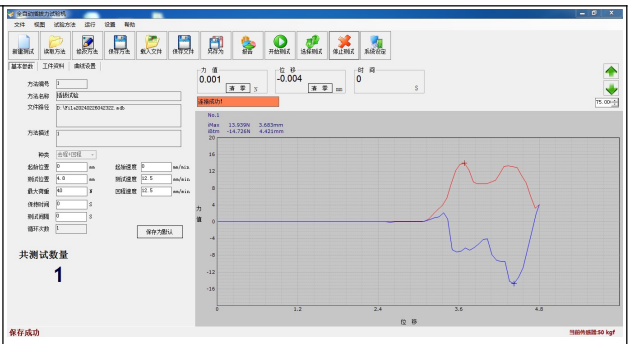


Fig.10 Initial Extraction Force

8.9. Clause 3.8.1.3 Durability

A-1-2 Durability			
Testing Period	**Measure environment**	**Test Engineer**	**Test Result**
2019/08/09	Temp. 23.6 ℃/ 68.2 %RH	Jack Tan	**Pass**
Test condition	Auto cycle；cycle rate: 500±50/h；Number of cycles: 50.		
Criteria	No evidence of physical damages.		
Test data references the original report (ZDT-DG-10251901)			

A-2-2 Durability			
Testing Period	**Measure environment**	**Test Engineer**	**Test Result**
2019/08/09	Temp. 23.6 ℃/ 68.2 %RH	Jack Tan	**Pass**
Test condition	Auto cycle；cycle rate: 500±50/h；Number of cycles: 50.		
Criteria	No evidence of physical damages.		
Test data references the original report (ZDT-DG-10251901)			

A-3-2 Durability			
Testing Period	**Measure environment**	**Test Engineer**	**Test Result**
2019/08/09	Temp. 23.6 ℃/ 68.2 %RH	Jack Tan	**Pass**
Test condition	Auto cycle；cycle rate: 500±50/h；Number of cycles: 50.		
Criteria	No evidence of physical damages.		
Test data references the original report (ZDT-DG-10251901)			

A-4-2 Durability			
Testing Period	**Measure environment**	**Test Engineer**	**Test Result**
2019/08/09	Temp. 23.6 ℃/ 68.2 %RH	Jack Tan	**Pass**
Test condition	Auto cycle；cycle rate: 500±50/h；Number of cycles: 50.		
Criteria	No evidence of physical damages.		
Test data references the original report (ZDT-DG-10251901)			

A-7-3 Durability			
Testing Period	**Measure environment**	**Test Engineer**	**Test Result**
2019/08/09	Temp. 23.6 ℃/ 68.2 %RH	Jack Tan	**Pass**
Test condition	Manual mating/unmating 4 cycles.		
Criteria	No evidence of physical damages.		
Test data references the original report (ZDT-DG-10251901)			

A-7-6 Durability			
Testing Period	**Measure environment**	**Test Engineer**	**Test Result**
2019/08/09	Temp. 23.6 ℃/ 68.2 %RH	Jack Tan	**Pass**
Test condition	Manual mating/unmating 25 cycles.		
Criteria	No evidence of physical damages.		
Test data references the original report (ZDT-DG-10251901)			

A-7-8 Durability			
Testing Period	**Measure environment**	**Test Engineer**	**Test Result**
2019/08/09	Temp. 23.6 ℃/ 68.2 %RH	Jack Tan	**Pass**
Test condition	Auto cycle，cycle rate：500±50/h；Number of cycles：10000. 2468 cycles (normal) + 2500 cycles (Rotate the receptacle 180º) + 2500 cycles (normal) + 2500 cycles (Rotate the receptacle 180º)		
Criteria	No evidence of physical damages.		
Test data references the original report (ZDT-DG-10251901)			

8.10. Clause 3.8.1.3 Reseating

A-1-5 Re-seating			
Testing Period	**Measure environment**	**Test Engineer**	**Test Result**
2019/08/09	Temp. 23.6 ℃/ 68.2 %RH	Jack Tan	**Pass**
Test condition	Manual mating/unmating 3 cycles.		
Criteria	No evidence of physical damages.		
Test data references the original report (ZDT-DG-10251901)			

A-2-7 Re-seating			
Testing Period	**Measure environment**	**Test Engineer**	**Test Result**
2019/08/09	Temp. 23.6 ℃/ 68.2 %RH	Jack Tan	**Pass**
Test condition	Manual mating/unmating 3 cycles.		
Criteria	No evidence of physical damages.		
Test data references the original report (ZDT-DG-10251901)			

A-4-9 Re-seating			
Testing Period	**Measure environment**	**Test Engineer**	**Test Result**
2019/08/09	Temp. 23.6 ℃/ 68.2 %RH	Jack Tan	**Pass**
Test condition	Manual mating/unmating 3 cycles.		
Criteria	No evidence of physical damages.		
Test data references the original report (ZDT-DG-10251901)			

8.11. Clause 3.8.1.6 4-Axis Continuity

B-1-4 4-Axis Continuity			
Testing Period	**Measure environment**	**Test Engineer**	**Test Result**
2019/08/09	Temp. 23.6 ℃/ 68.2 %RH	Jack Tan	**Pass**
Test condition	Mated，8N Force at 15 mm from receptacle shell mating edge. Duration：10 seconds；Direction：0, 90, 180, 270.		
Criteria	No discontinuities greater than 1.0 microsecond during 10 seconds at each axis.		
Test data references the original report (ZDT-DG-10251901)			

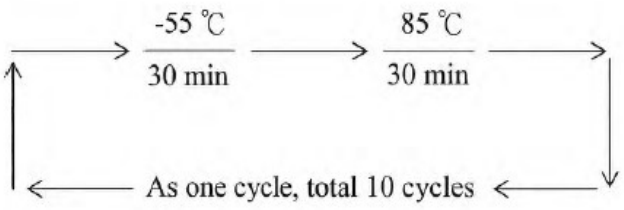
8.12. Clause 3.8.2 Temperature life

A-1-3 Temperature Life			
Testing Period	**Measure environment**	**Test Engineer**	**Test Result**
2019/08/09	Temp. 23.6 ℃/ 68.2 %RH	Jack Tan	**Pass**
Test condition	Mated；Temperature：105±2℃；Duration：120h.		
Criteria	No evidence of physical damages.		
Test data references the original report (ZDT-DG-10251901)			

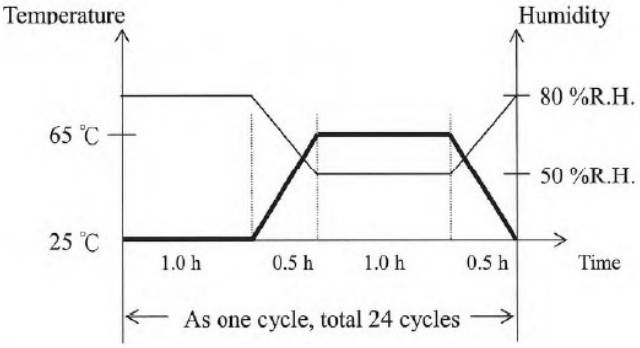
A-3-3 Temperature Life			
Testing Period	**Measure environment**	**Test Engineer**	**Test Result**
2019/08/09	Temp. 23.6 ℃/ 68.2 %RH	Jack Tan	**Pass**
Test condition	Mated；Temperature：105±2℃；Duration：72h.		
Criteria	No evidence of physical damages.		
Test data references the original report (ZDT-DG-10251901)			

A-4-3 Temperature Life			
Testing Period	**Measure environment**	**Test Engineer**	**Test Result**
2019/08/09	Temp. 23.6 ℃/ 68.2 %RH	Jack Tan	**Pass**
Test condition	Mated；Temperature：105±2℃；Duration：72h.		
Criteria	No evidence of physical damages.		
Test data references the original report (ZDT-DG-10251901)			

8.13. Clause 3.8.2 Thermal shock

A-2-3 Thermal Shock			
Testing Period	**Measure environment**	**Test Engineer**	**Test Result**
2019/08/09	Temp. 23.6 ℃/ 68.2 %RH	Jack Tan	**Pass**
Test condition	Mated； -55^{0}_{-5}℃ to 85^{+3}_{0}℃, 10 cycles. High/low temperature transfer time within 5 min. 		
Criteria	No evidence of physical damages.		
Test data references the original report (ZDT-DG-10251901)			

8.14. Clause 3.8.2 Cyclic temperature and humidity

A-2-5 Cyclic temperature and humidity			
Testing Period	**Measure environment**	**Test Engineer**	**Test Result**
2019/08/09	Temp. 23.6 ℃/ 68.2 %RH	Jack Tan	**Pass**
Test condition	Mated； Temperature of 25℃ ±3℃ relative humidity of 80% ±3% to Temperature of 65℃ ±3℃ relative humidity of 50% ±3% ，Thermal ramp time 0.5 hour ，maintain 1 hour，24 cycles。  		
Criteria	No evidence of physical damages.		
Test data references the original report (ZDT-DG-10251901)			

8.15. Clause 3.8.2 Vibration

A-3-5 Vibration			
Testing Period	**Measure environment**	**Test Engineer**	**Test Result**
2023/08/10	Temp. 22.5 ℃/ 72.7 %RH	Su Kun	**Pass**
Test condition	Mated；random vibration； Frequency:20-500Hz； 15min./axis for 3 axis (X,Y,Z)； Power spectral density:0.02g^2/Hz, Acceleration:3.1grms.		
Criteria	No evidence of physical damages. No discontinuities of 1us or greater duration happened		
Test data references the original report (ZDT-DG-10251901)			

8.16. Clause 3.8.2 Mixed flowing gas

A-4-5 Mixed flowing gas			
Testing Period	**Measure environment**	**Test Engineer**	**Test Result**
2023/08/07-2023/08/14	Temp. 22.7 ℃/ 82.5 %RH	Huang Siwei	**Pass**
Test condition	CL2:(10±3) ppb； No2:(200±50) ppb； H2S:(10±5) ppb SO2:(100±20) ppb； Temperature:(30±1)℃； Humidity:(70±2)%RH 1/3 days and then unmated for 2/3 days. The others are exposed mated for full 7 days test period.		
Criteria	No evidence of physical damages.		
Test data references the original report (ZDT-DG-10251901)			

8.17. Clause 3.8.2 Thermal disturbance

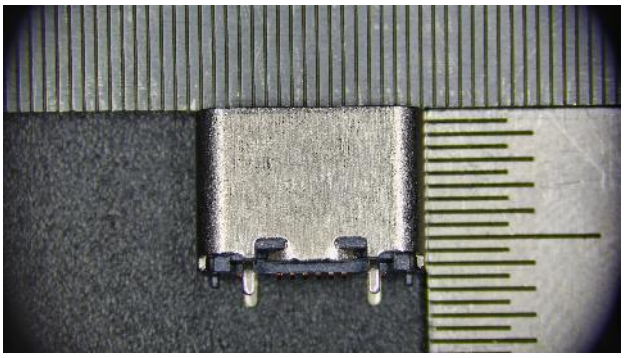
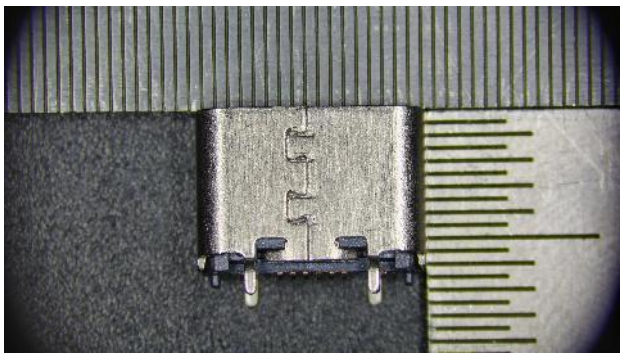
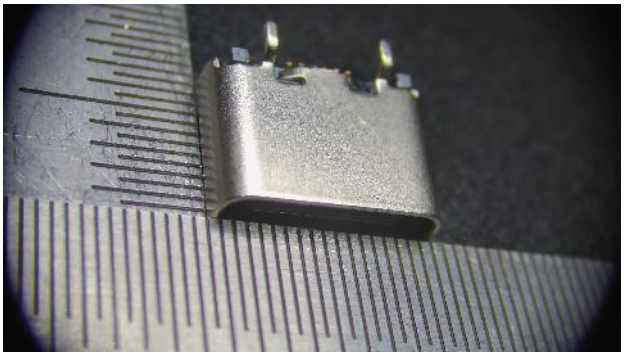
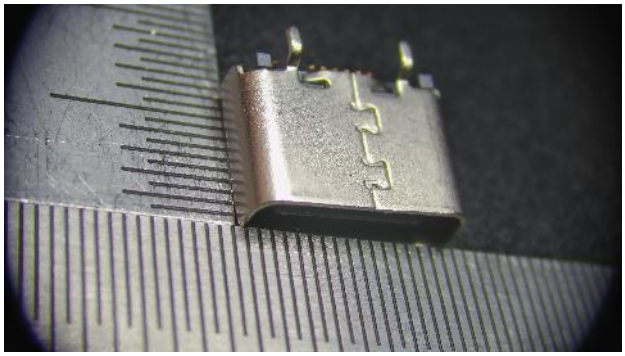
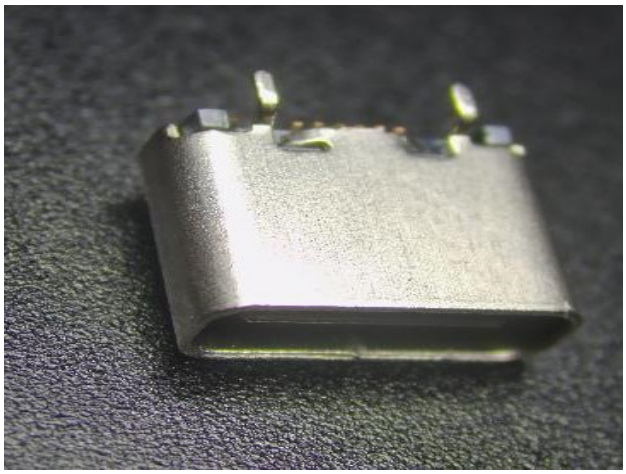
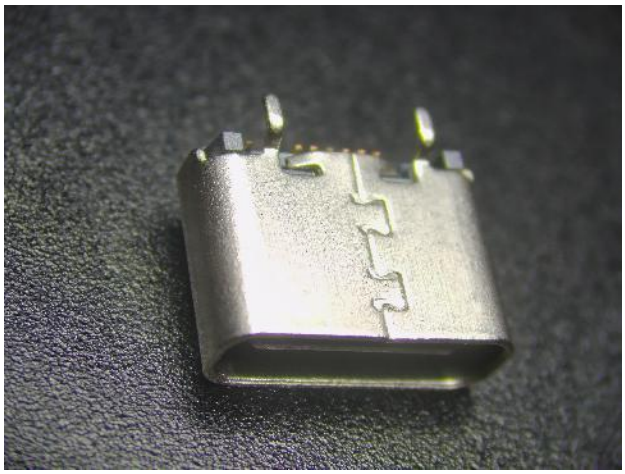
A-4-7 Thermal disturbance			
Testing Period	**Measure environment**	**Test Engineer**	**Test Result**
2023/08/14-2023/08/15	Temp. 23.8 ℃/ 77.5 %RH	Huang Siwei	**Pass**
Test condition	Mated Cycle the connector or socket between 15 °C ± 3 °C and 85 °C ± 3 °C, as measured on the part. Ramps should be a minimum of 2 °C per minute, and dwell times should insure that the contacts reach the temperature extremes (a minimum of 5 minutes). Humidity is not controlled. Perform 10 such cycles.		
Criteria	No evidence of physical damages.		
Test data references the original report (ZDT-DG-10251901)			

9. Test Equipments Utilized

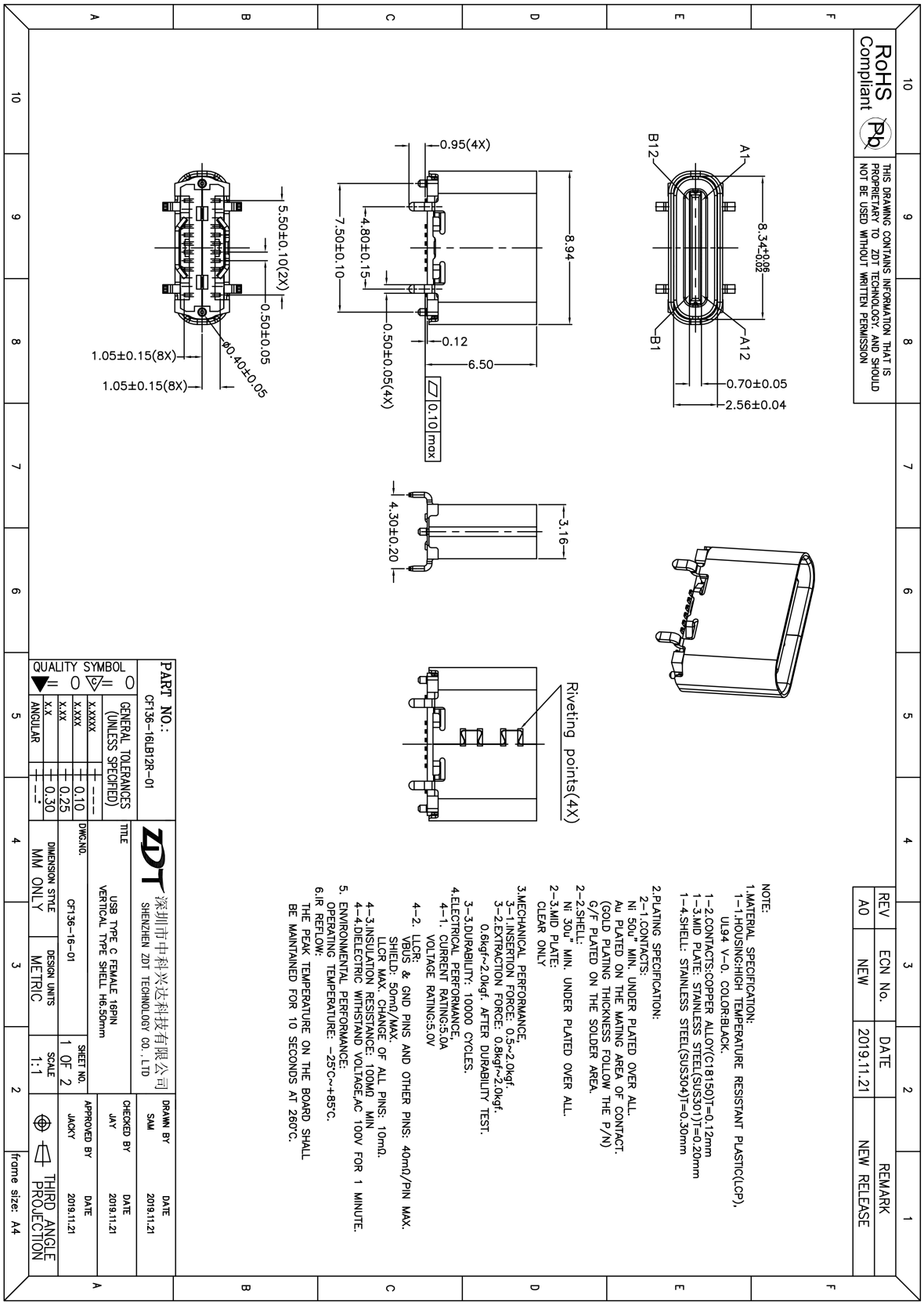
Name	Model	Serial number	Calibration Date	Expire Date
Oven Machine（ESPEC）	LC-213	1010170285	2023.11.24	2024.11.23
Thermal Shock Chamber(ESPEC)	TSE-12-A	161003228	2023.12.05	2024.12.04
Temperature & Humidity Chamber	GPL-2	0010-003613	2023.11.24	2024.11.23
Mixed Flow Gas Chamber(Yamasaki)	GH-180/VL	705	2023.12.05	2024.12.04
Vibration machine	V455-PAL1000 L	1020385-1	2023.11.24	2024.11.23
Durability Tester	YH-8816USDT	17068816077	2023.11.27	2024.11.26
Durability Tester	YH-8816USDT	17068816079	2023.11.27	2024.11.26
4-axis Tester	YH-8812WEXT	17068812429	2023.11.27	2024.11.26
4-axis Tester	YH-8812WEXT	17068812430	2023.11.27	2024.11.26
Microscope	MM-400/L	3413948	2023.11.27	2024.11.26
Micro-ohmmeter	RM3545	170938239	2023.11.27	2024.11.26
Electronic load meter	63610-80-20	636001001093	2023.11.27	2024.11.26
Electronic load meter	63610-80-20	636001001094	2023.11.27	2024.11.26
DC power supply	9202B	652E22230	2023.11.27	2024.11.26
Temperature rise test system	GP10	S5T909482	2023.11.27	2024.11.26
Moment disconnection tester	NM11B	20010112	2023.11.29	2024.11.28

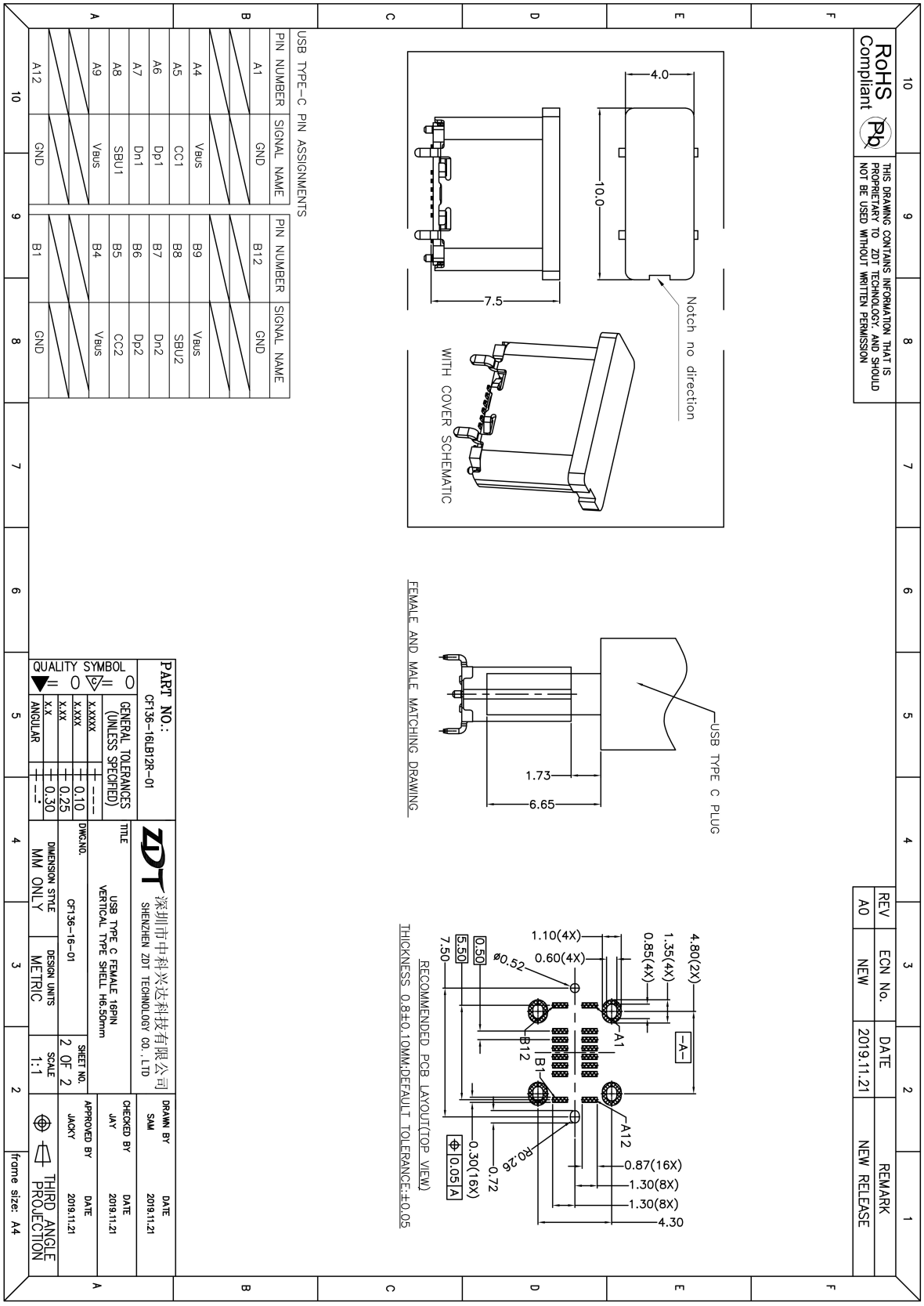
Electrical Safety Analyzer	**TOS9201**	**XK002479**	**2023.11.27**	**2024.11.26**
AVO meter	**87VC**	**37980325WS**	**2023.11.27**	**2024.11.26**

ANNEX A: UUT photograph

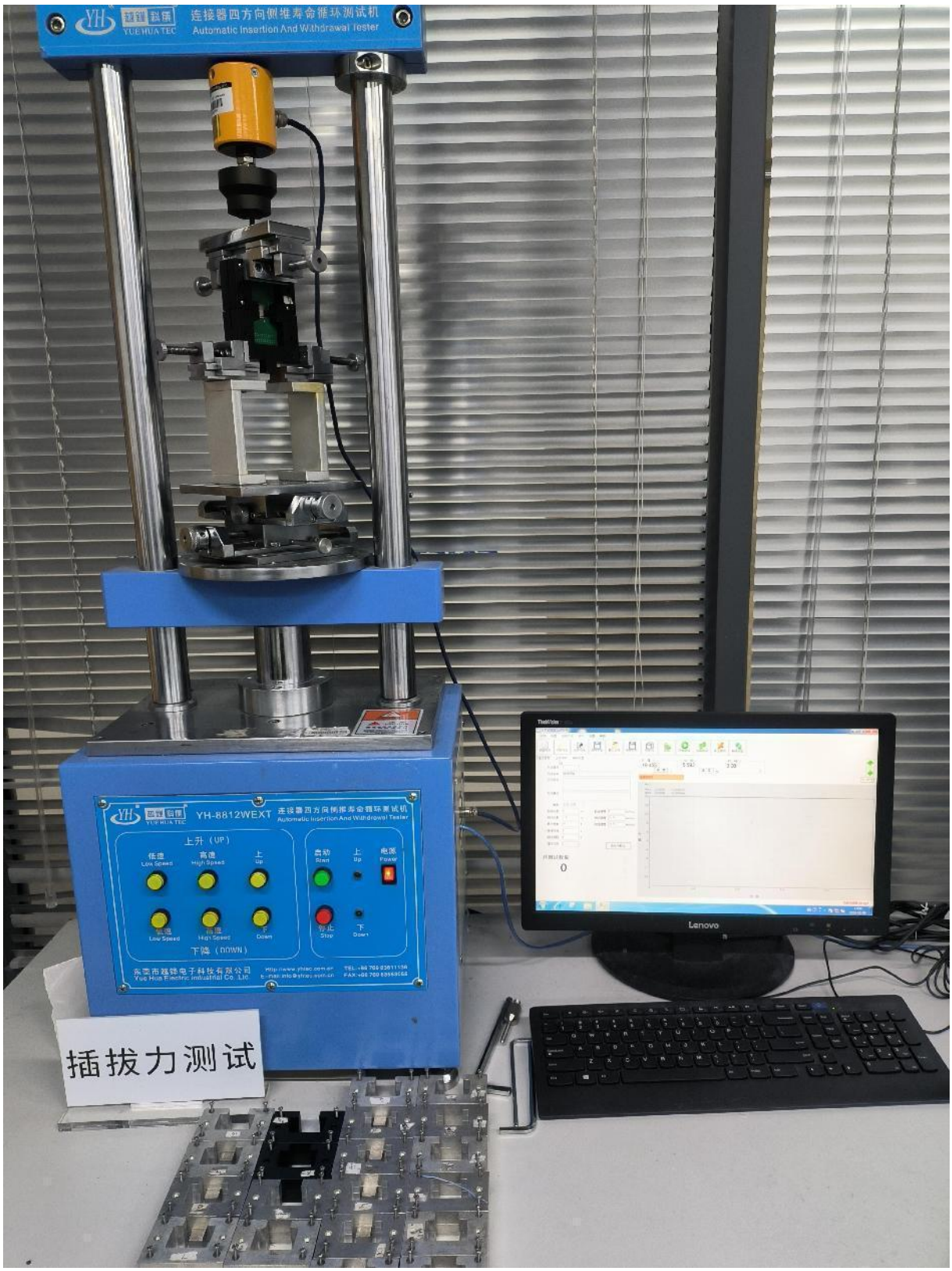
	
Top	Buttom
	
Top	Buttom
	
Receptacle	Receptacle

ANNEX B: Drawing





ANNEX C: Insertion Force & Extraction Force Test Layout

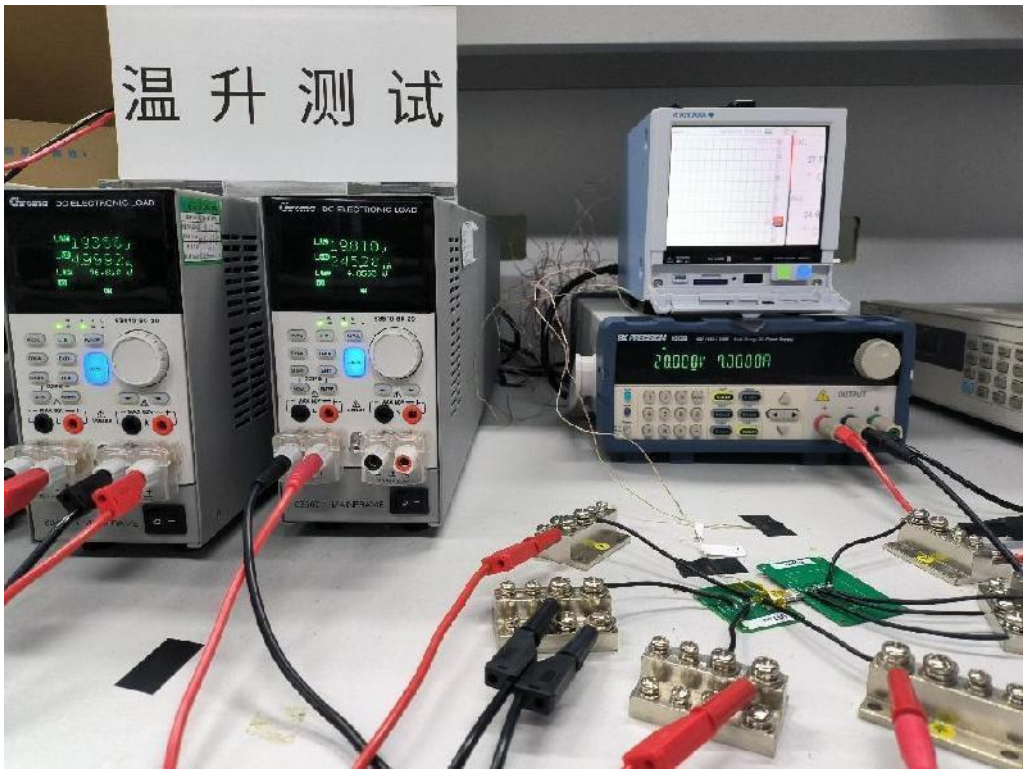


ANNEX D: Durability Test Layout

ANNEX E: Dielectric withstanding voltage Test Layout

ANNEX F: Vibration Test Layout

ANNEX G: Contact Current Rating Test Layout



END OF REPORT