

PTI[®] 派捷
Professional Test Inc

— 专业电测设备制造商 —

ICT+FCT Test Transformation Case

广东派捷智能装备有限公司
深圳市派捷电子科技有限公司

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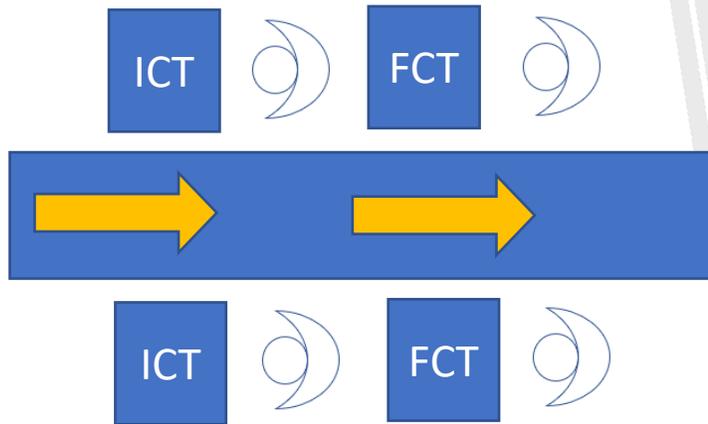
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1. BACKGROUND

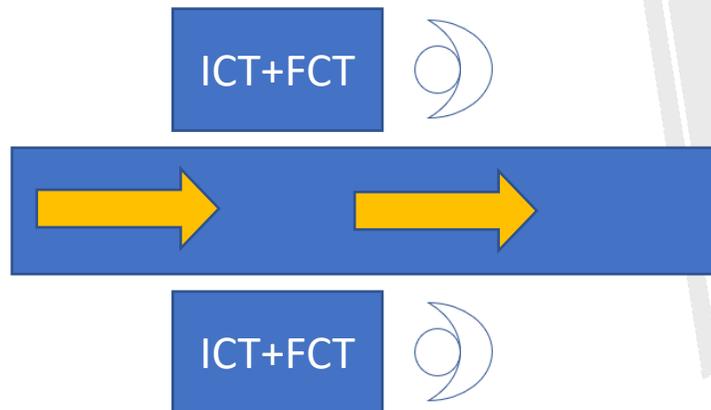
1. The customer's original production line has 2 ICT (J brand) and 2 FCT test machines (customized), which requires 4 operators to produce normally.
2. FCT can only power on the DUT and measure 8 sets of voltage values.
3. Test record is not bound to the bar code, so quality traceability cannot be carried out.



Before	ICT(J brand)	FCT (customized)
Equipment	2	2
Operator	2	2
Test Speed(S/PCS/EQM)	13	18
Test Capacity(PCS/H/EQM)	277	200
Total Test Capacity (PCS/H)	$277*2=554$	$200*2=400$
Devices Covered	LCR, Diode, Transistor, FET...	Voltage conversion module circuit
Test Record	Unable to bind barcode	Unable to bind barcode

2. PURPOSE

1. Integrate ICT and FCT tests in the same section, only 2 operators are required.
2. In addition to power-on and voltage measurement, it is also necessary to test related circuit modules such as relays and digital devices.
3. Binding test records with barcodes, customers can query the test records according to the barcodes.

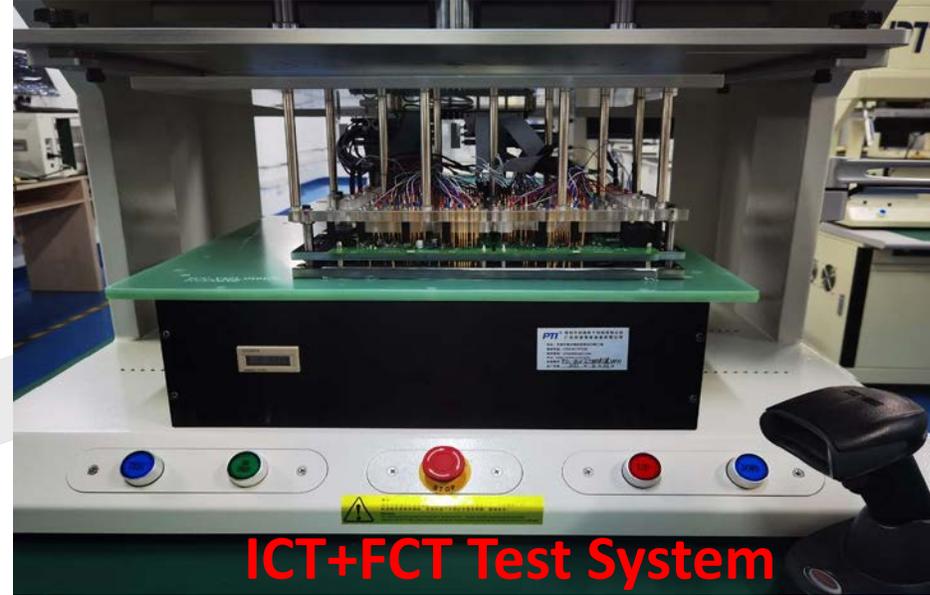


After	ICT+FCT (PTI-818S)
Equipment	2
Operator	2
Test Speed(S/PCS/EQM)	20
Test Capacity(PCS/H/EQM)	180
Total Test Capacity (PCS/H)	180*2=360
Devices Covered	In addition to basic components, the test also covers relays, voltage conversion modules and logic circuit modules
Test Record	The test record is bound to the barcode for easy query

3.1 DESCRIPTION

This case integrates customer ICT test and FCT test in the same fixture to test on PTI-818S test equipment. The test items include:

- HV Detect (H)
- Open Test (O)
- Short Test (S)
- Component (C)
- Function (F)



ICT+FCT Test System

ICT Test		Comp Edit	SPG Edit	IC Edit	Skip Edit	Function Split																																		
PTI-818S Professional Test Inc		BarCode	-		Statistic	Test	ReTest	Total																																
Board		ZLZX2B		Test	64	100.0%	0	0.000%	64	100.0%																														
<table border="1"> <tr><td>LnUser</td><td>客服调试机</td></tr> <tr><td>Version</td><td>2.10.2231.0</td></tr> <tr><td>Board</td><td>ZLZX2B</td></tr> <tr><td>FileName</td><td>ZLZX2B.pji</td></tr> <tr><td>FileHash</td><td>BE768DE1</td></tr> <tr><td>TestSeq</td><td>HOSCF</td></tr> <tr><td>TotalTest</td><td>64</td></tr> <tr><td>TotalTime</td><td>00:17:40</td></tr> <tr><td>TestTime</td><td>18.67 s</td></tr> <tr><td>TotalSteps</td><td>1209</td></tr> <tr><td>SkipSteps</td><td>322</td></tr> <tr><td>FailSteps</td><td>0</td></tr> <tr><td>User</td><td>Admin</td></tr> <tr><td>DeviceName</td><td>IN-TQH2B6KV01</td></tr> <tr><td>UserGroup</td><td>GroupApp</td></tr> </table>		LnUser	客服调试机	Version	2.10.2231.0	Board	ZLZX2B	FileName	ZLZX2B.pji	FileHash	BE768DE1	TestSeq	HOSCF	TotalTest	64	TotalTime	00:17:40	TestTime	18.67 s	TotalSteps	1209	SkipSteps	322	FailSteps	0	User	Admin	DeviceName	IN-TQH2B6KV01	UserGroup	GroupApp	<div style="text-align: center; font-size: 2em; color: green;">Accept</div> <div style="text-align: center; font-size: 1.5em; color: green;">100%</div> <div style="text-align: center; font-size: 1.2em; border: 2px solid red; display: inline-block; padding: 2px;">H O S C F</div> <div style="text-align: center; font-size: 1.5em; color: green;">PASS</div>		OpenFa	0	0.000%	0	0.000%	0	0.000%
		LnUser	客服调试机																																					
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ShortFa	0	0.000%	0	0.000%	0	0.000%																																		
CompFa	0	0.000%	0	0.000%	0	0.000%																																		
File: ZLZX2B.pji		Date: 2021-06-09 09:05:02		Board: 1		Barcode:		Test: PASS																																
Board: 1		Barcode:		Test: PASS																																				

3.2 DESCRIPTION

In the FCT test, in addition to powering the board and measuring the voltage. This project also adds BMS module function test, the relay test, which effectively improves the test coverage of DUT.

ICT Test	Comp Edit	SPG Edit	IC Edit	Skip Edit	Function Edit			
STEP	BX	Description	Module	Type	Function	Delay	Test	Dev%
1	B1		Power module	configure	24V	10	0.000	0.0%
2	B1		Power module	power on	24V	500	23.97	-0.113%
3	B1		Power module	voltage check	24V	100	23.98	-0.083%
4	B1		Analog module	voltage measure	differential	10	23.78	-0.917%
5	B1		Analog module	voltage measure	differential	20	5.083	1.66%
6	B1		Analog module	voltage measure	differential	10	3.285	-0.455%
7	B1		Analog module	voltage measure	differential	10	3.301	0.030%
8	B1		Analog module	voltage measure	differential	500	13.43	11.9%
9	B1		Analog module	voltage measure	differential	10	11.91	-0.75%
10	B1		Analog module	voltage measure	differential	10	4.979	-0.42%
11	B1		Analog module	voltage measure	differential	10	4.991	-0.18%
12	B1		Power module	configure	HVCV	10	0.000	0.0%
13	B1		Power module	power on	HVCV	100	24.33	1.39%
14	B1		Power module	voltage check	HVCV	100	24.34	1.42%
15	B1		Digital module	GPIO	write	0	1.000	0.0%
16	B1		Digital module	GPIO	write	0	1.000	0.0%
17	B1		Analog module	voltage measure	differential	100	0.143	-85.7%
18	B1		Digital module	GPIO	write	0	1.000	0.0%
19	B1		Digital module	GPIO	write	0	1.000	0.0%

Type: voltage check
 Function: 24V
 Chnl: A
 Connect to ATM:
 Vol(V): 24
 Cur(mA): 1000
 StdVal: 24
 +%: 10
 -%: 10
 Delay: 100
 FN Ri:

Supply 24V to DUT

Measuring voltage

Test BMS function

ICT Test	Comp Edit	SPG Edit	IC Edit	Skip Edit	Function Edit			
STEP	BX	Description	Module	Type	Function	Delay	Test	Dev%
117	B1		Analog module	CompTest	ResTest	10	9999	999%
118	B1		Digital module	DIO	write	0	82.00	0.0%
119	B1		Digital module	DIO	write	0	210.0	0.0%
120	B1		Analog module	CompTest	ResTest	50	2.591	-74.1%
121	B1		Analog module	CompTest	ResTest	10	3.768	-62.3%
122	B1		Digital module	DIO	write	0	146.0	0.0%
123	B1		Digital module	DIO	write	0	18.00	0.0%
124	B1		Analog module	CompTest	ResTest	50	9999	999%
125	B1		Analog module	CompTest	ResTest	10	9999	999%
126	B1		Digital module	DIO	write	0	274.0	0.0%
127	B1		Analog module	CompTest	ResTest	50	2.518	-74.8%
128	B1		Digital module	DIO	write	0	18.00	0.0%
129	B1		Analog module	CompTest	ResTest	50	9999	999%
130	B1		Digital module	DIO	write	10	530.0	0.0%
131	B1		Digital module	GPIO	write	0	1.000	0.0%
132	B1		Analog module	CompTest	ResTest	50	2.410	-75.9%
133	B1		Analog module	CompTest	ResTest	10	1.346	-86.5%
134	B1		Analog module	CompTest	ResTest	10	0.999	-90%
135	B1		Analog module	CompTest	ResTest	10	1.195	-88.1%
136	B1		Analog module	CompTest	ResTest	10	0.921	-90.8%
137	B1		Analog module	CompTest	ResTest	10	1.214	-87.9%
138	B1		Analog module	CompTest	ResTest	10	1.238	-87.6%
139	B1		Analog module	CompTest	ResTest	10	1.024	-89.8%
140	B1		Digital module	DIO	write	10	18.00	0.0%
141	B1		Analog module	CompTest	ResTest	50	9999	999%
142	B1		Analog module	CompTest	ResTest	10	9999	999%
143	B1		Analog module	CompTest	ResTest	10	9999	999%
144	B1		Analog module	CompTest	ResTest	10	9999	999%
145	B1		Analog module	CompTest	ResTest	10	9999	999%
146	B1		Analog module	CompTest	ResTest	10	9999	999%
147	B1		Analog module	CompTest	ResTest	10	9999	999%
148	B1		Analog module	CompTest	ResTest	10	9999	999%
149	B1		Digital module	GPIO	write	0	1.000	0.0%

Type: GPIO
 Function: write
 StdVal:
 +%:
 -%:
 Delay: 0
 A:
 B:
 G:
 Mode:
 Gpio: 11
 GpioOut: 0
 FETVol:

Relay test

4. SUMMARY

NO.	ITEM	BEFORE	AFTER	REMARK
1	Operator	8	4	Day shift and night shift
2	Test Capacity(PCS/Day)	6400	5760	The equipment has a daily production time of 16 hours
3	Single capacity (PCS/Day)	800	1440	
4	Employee salary expenditure/year	$8*5000*12=480,000$	$4*5000*12=240,000$	5000/person
5	Test Coverage	80%	90%	
6	Test Record	Unable to bind barcode	The test record is bound to the barcode for easy query	

Summary: After the transformation, the single-person productivity of the employee has increased by 80%, and the employee's salary expenditure has been saved by 240,000/year. The test coverage rate has been increased by 10%, and the test records are bound to the barcode, which makes the quality of the product more reliable and traceable.

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Thank you!



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