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Professional Test Inc
—专业电测设备制造商—

Test plan for refrigerator main board

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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

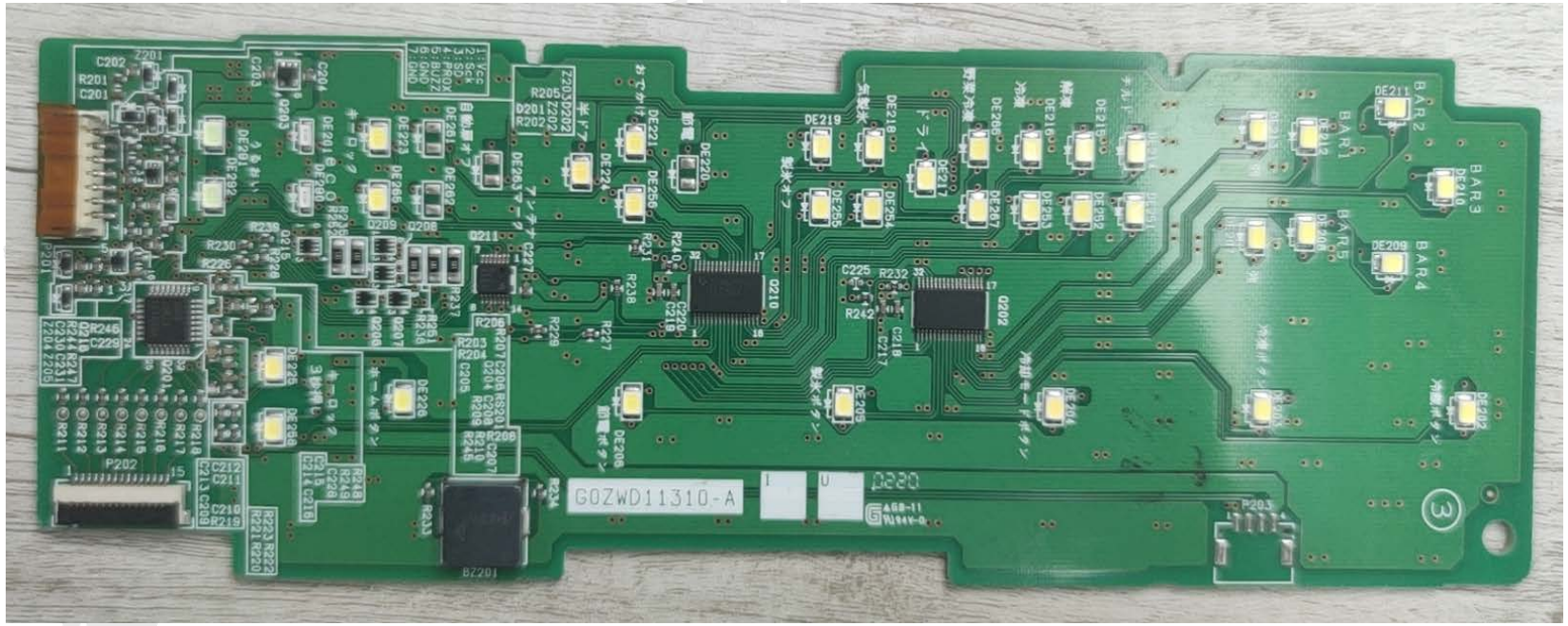
目录/Contents

1 Product and test requirement

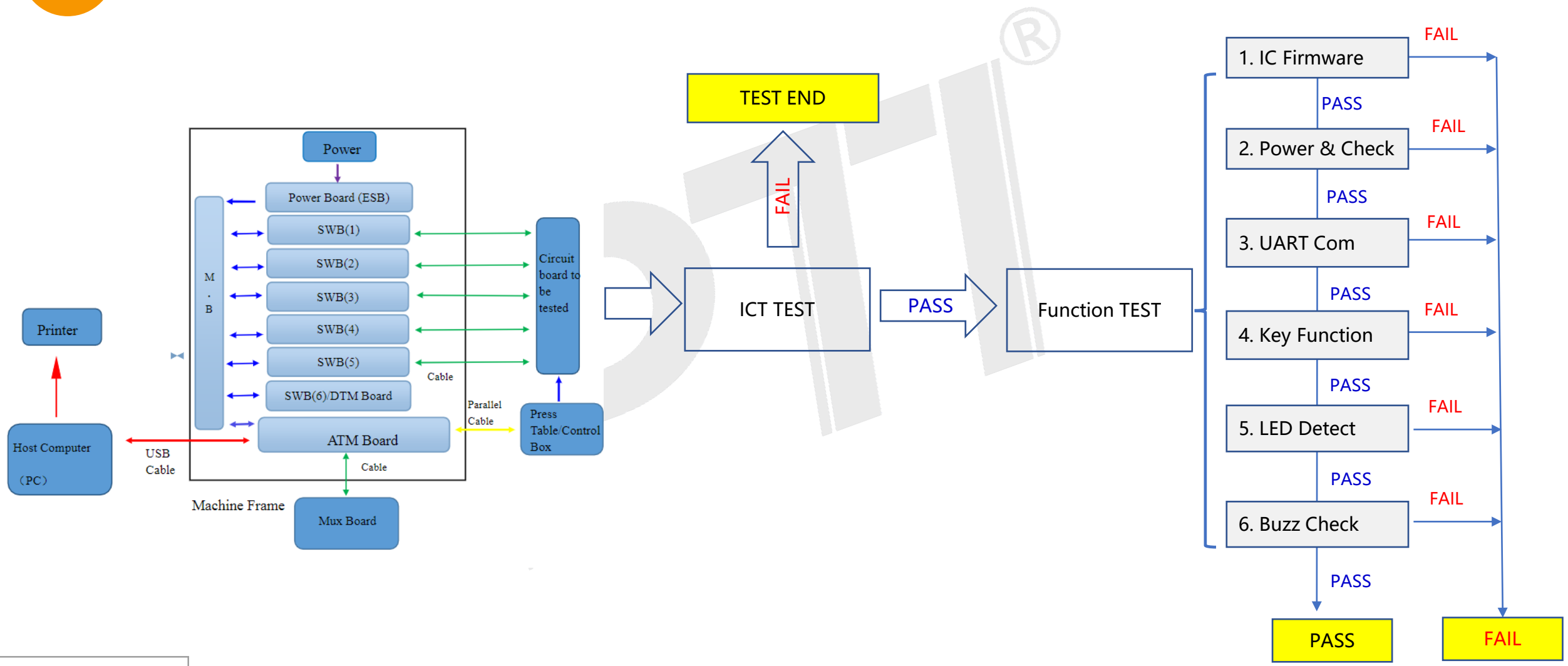
Test Requirement:

1. ICT Test
2. IC Firmware
3. Power and Voltage Check
4. UART Communication
5. Key Function Check
6. LED Detect (37 PCS)
7. Buzz check

Function Test （Main Board）



2.1 Test Plan

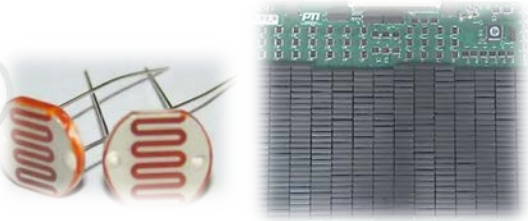

Power
Power Board (ESB)
SWB(1)
SWB(2)
SWB(3)
SWB(4)
SWB(5)
SWB(6)/DTM Board
ATM Board
M
.
B
Cable
Circuit board to be tested
Parallel Cable
Press Table/Control Box
Cable
Machine Frame
Mux Board
Printer
Host Computer
（PC）
USB Cable
TEST END
FAIL
ICT TEST
PASS
Function TEST
1. IC Firmware
2. Power & Check
3. UART Com
4. Key Function
5. LED Detect
6. Buzz Check
FAIL
PASS
PASS
FAIL

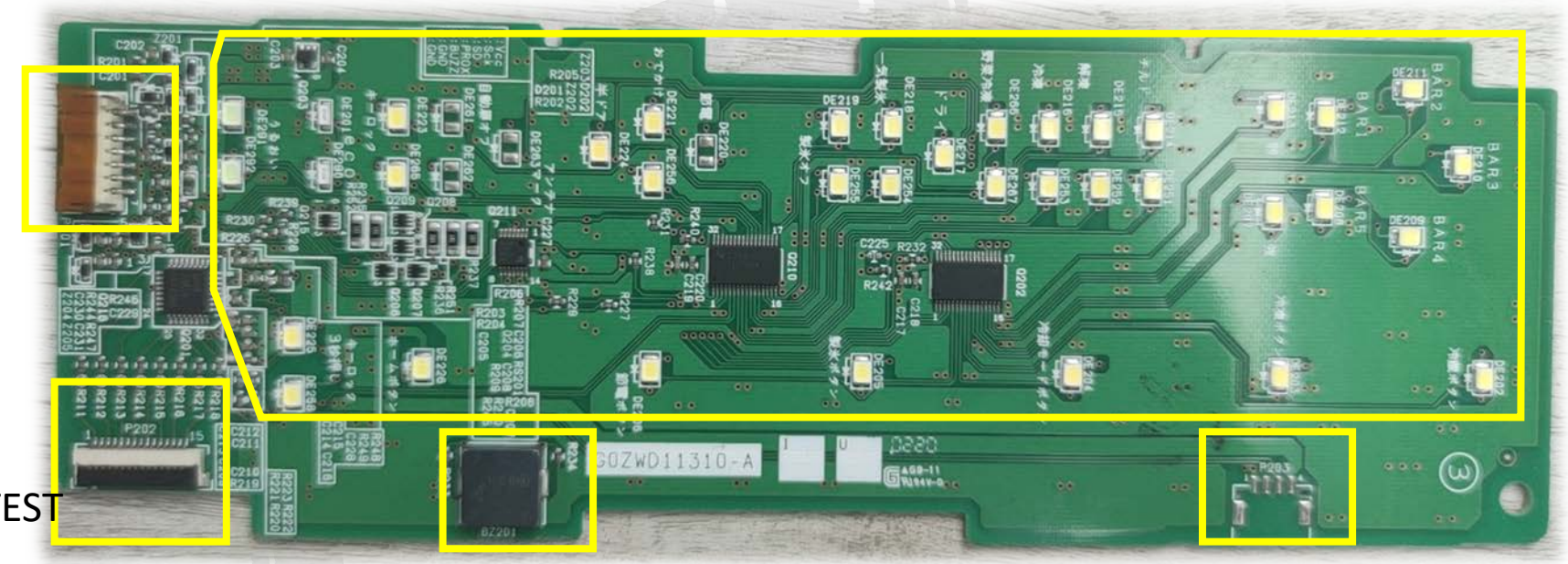
2.2 Test Plan

DTM Board：
1. Power
2. Vol Check
3. UART Com

ATM Board：
Key Function TEST

Sensor + Switch Board：
LED Detect





Buzz sensor：
Buzz Check

Programmer：
IC Firmware

2.3 Test Plan

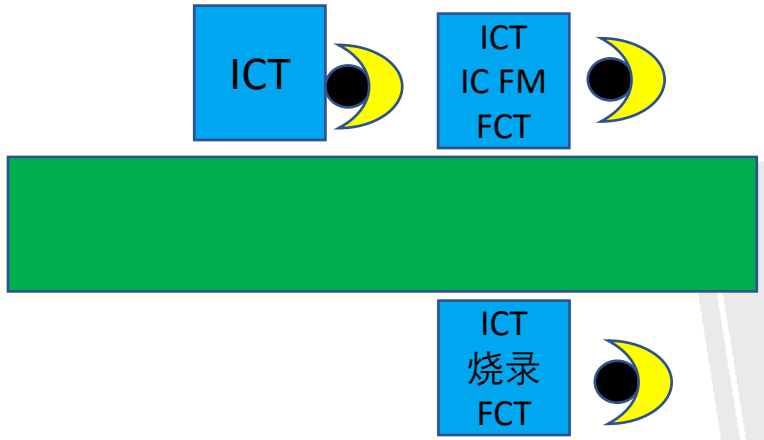
Multi-Function Combination

SN.	Combination	ICT	IC Firmware	FCT
1	ICT	O	-	-
2	IC Firmware	-	O	-
3	FCT	-	-	O
4	ICT+IC Firmware	O	O	-
5	ICT+FCT	O	-	O
6	IC Firmware +FCT	-	O	O
7	ICT+IC Firmware +FCT	O	O	O

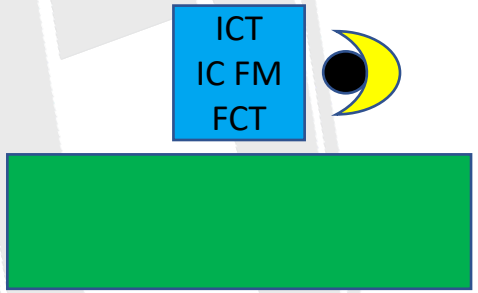
Target: ICT+IC Firmware +FCT

3. 1 Compare with improvement

Before(Operator)： 3 employees

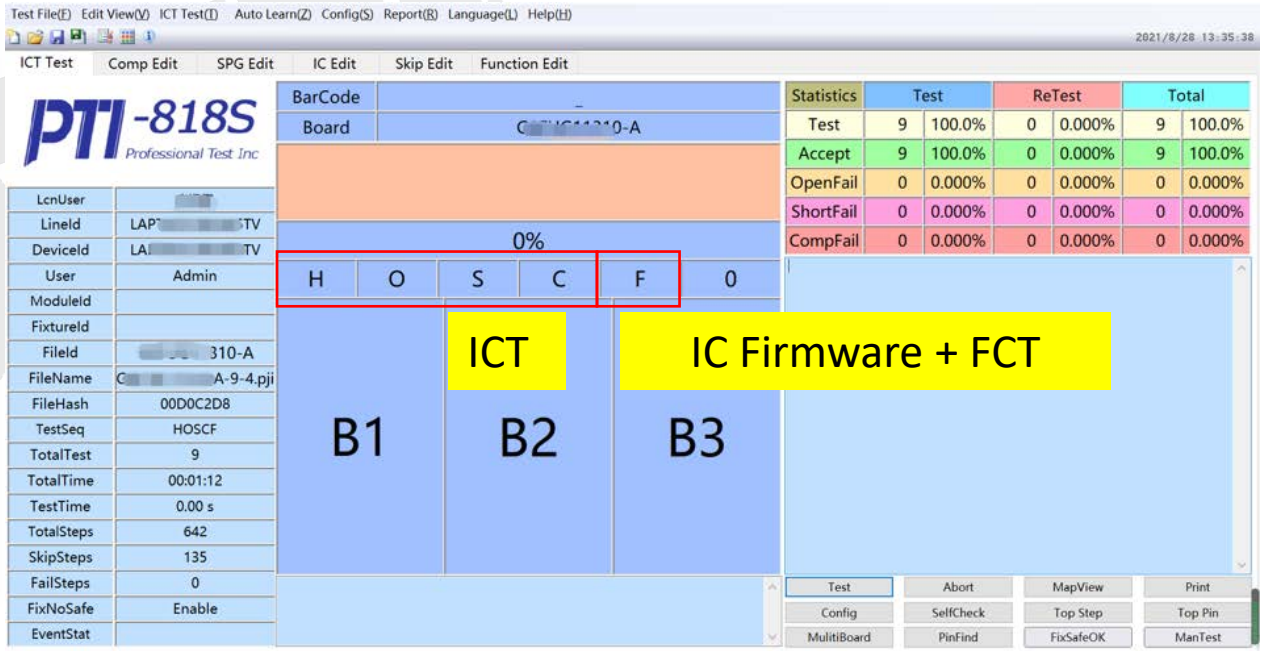


After(Operator)： 1 employess



item	Before	After
employees	3	1
Capacity/Hour	600	600
UPH	200	600

4.1 Program Setting for equipment



4.2 Program Setting For equipment

ICT TEST

Test File(F) Edit View(V) Comp Edit(E) Auto Learn(Z) Config(S) Report(R) Language(L) Help(H)

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ICT Test | Comp Edit | SPG Edit | IC Edit | Skip Edit | Function Edit

ICT TEST

STEP	BX	LC	Flag	Device Name	STDval	ACTval	+%	-%	MD	RG	TM	HiP	LoP	G-1	G-2	G-3	G-4	G-5	TestVal	Dev%	Cell	AVG	DC	O
544	B3	A3		DE290		4V	15%	20%	ZD	+1	1	296	295	0	0	0	0	0				0		
545	B3	A3		DE291		4V	15%	20%	ZD	+1	1	296	297	0	0	0	0	0				0		
546	B3	A3		D201		0.68V	30%	30%	DV	+0	0	301	300	0	0	0	0	0				0		
547	B3	A3		D202		0.68V	30%	30%	DV	+0	0	298	299	0	0	0	0	0				0		
548	B3	A3		Z201		0.65V	30%	30%	DV	+1	4	257	296	0	0	0	0	0				0		
549	B3	A3		Z202		0.78V	30%	30%	DV	+0	0	257	300	0	0	0	0	0				0		
550	B3	A3		Z203		0.78V	30%	30%	DV	+0	0	257	299	0	0	0	0	0				0		
551	B3	A3		Z205		0.78V	30%	30%	DV	+0	0	257	305	0	0	0	0	0				0		
552	B3	A1		Q201:5-1	0.607	1.5V	30%	30%	DV	+1	0	257	335	0	0	0	0	0				0		
553	B3	A1		Q201:5-2	0.779	1.5V	30%	30%	DV	+1	0	257	323	0	0	0	0	0				0		
554	B3	A1		Q201:5-3	0.9	1.5V	30%	30%	DV	+1	0	257	324	0	0	0	0	0				0		
555	B3	A1		Q201:5-4	0.9	1.5V	30%	30%	DV	+1	0	257	325	0	0	0	0	0				0		
556	B3	A1		Q201:5-6	0.929	1.5V	30%	30%	DV	+1	0	257	316	0	0	0	0	0				0		
557	B3	A1		Q201:5-7	0.607	1.5V	30%	30%	DV	+1	0	257	335	0	0	0	0	0				0		

4.3 Program Setting for equipment

☞ IC Firmware + FCT Test

ICT Test | Comp Edit | SPG Edit | IC Edit | Skip Edit | Function Edit

STEP	BX	Description	Module	Type	Function	Delay	Test	Dev%
1	B1	Porgrammer Open	Digital module	SPI	write	0		
2	B1		Soft command	Soft Cmd	Burn results	0		
3	B1	Programmer Connec	Meter	IcWrite(PXX)	NetConnect	0		
4	B1	Open	Meter	IcWrite(PXX)	Open	0		
5	B1		Meter	IcWrite(PXX)	Open	50		
6	B1	Erasing	Meter	IcWrite(PXX)	Run	10		
7	B1	Program Select	Meter	IcWrite(PXX)	Run	10		
8	B1	Program Check	Meter	IcWrite(PXX)	Run	10		
9	B1	Channel Select	Meter	IcWrite(PXX)	Run	20		
10	B1	Result 1	Meter	IcWrite(PXX)	Result	10		
11	B2	Result 2	Meter	IcWrite(PXX)	Result	10		
12	B3	Result 3	Meter	IcWrite(PXX)	Result	10		
13	B1		Meter	IcWrite(PXX)	Stop	10		
14	B1		Meter	IcWrite(PXX)	Disconnect	10		
15	B1		Digital module	GPIO	write	0		
16	B1	B1-B3	Digital module	GPIO	write	0		
17	B1	B1-B3	Digital module	GPIO	write	0		
18	B1	B1-B3	Digital module	GPIO	write	0		
19	B1	Version Check B1	Analog module	voltage measure	differential	0		
20	B1	Version Check B2	Analog module	voltage measure	differential	0		
21	B1	Version Check B3	Analog module	voltage measure	differential	0		

IC Firmware +Result Check + Vol Check

ICT Test | Comp Edit | SPG Edit | IC Edit | Skip Edit | Function Edit

STEP	BX	Description	Module	Type	Function	Delay	Test	Dev%
25	B1	DE266-B3	Analog module	voltage measure	differential	0		
26	B1		Digital module	UART	configure	50		
27	B1		Digital module	UART	write	50		
28	B1		Soft command	Soft Cmd	Delay	1200		
29	B1	DE202	Analog module	voltage measure	differential	0		
30	B1	DE203	Analog module	voltage measure	differential	0		
31	B1	DE204	Analog module	voltage measure	differential	0		
32	B1	DE205	Analog module	voltage measure	differential	0		
33	B1	DE206	Analog module	voltage measure	differential	0		
34	B1	DE226	Analog module	voltage measure	differential	0		
35	B1	DE225	Analog module	voltage measure	differential	0		
36	B1	DE213	Analog module	voltage measure	differential	0		
37	B1	DE212	Analog module	voltage measure	differential	0		
38	B1	DE211	Analog module	voltage measure	differential	0		
39	B1	DE210	Analog module	voltage measure	differential	0		
40	B1	DE209	Analog module	voltage measure	differential	0		
41	B1	DE208	Analog module	voltage measure	differential	0		
42	B1	DE207	Analog module	voltage measure	differential	0		
43	B1	DE214	Analog module	voltage measure	differential	0		
44	B1	DE215	Analog module	voltage measure	differential	0		
45	B1	DE216	Analog module	voltage measure	differential	0		
46	B1	DE266	Analog module	voltage measure	differential	0		

UART Communication + LED Detect

ICT Test | Comp Edit | SPG Edit | IC Edit | Skip Edit | Function Edit

STEP	BX	Description	Module	Type	Function	Delay	Test	Dev%
265	B1	GPIO-7 Battery On	Digital module	GPIO	write	50		
266	B1	GPIO-7 Battery Off	Digital module	GPIO	write	10		
267	B1	DE214	Analog module	voltage measure	differential	5		
268	B1	DE215	Analog module	voltage measure	differential	5		
269	B1	DE214-B2	Analog module	voltage measure	single end	5		
270	B1	DE215-B2	Analog module	voltage measure	single end	5		
271	B1	DE214-B3	Analog module	voltage measure	differential	5		
272	B1	DE215-B3	Analog module	voltage measure	differential	5		
273	B1	GPIO-1HOME On	Digital module	GPIO	write	50		
274	B1	GPIO-1HOME Off	Digital module	GPIO	write	10		
275	B1	GPIO-2	Digital module	GPIO	write	100		
276	B1	GPIO-2	Digital module	GPIO	write	10		
277	B1	BUZZ-B1	Analog module	voltage measure	differential	150		
278	B2	BUZZ-B2	Analog module	voltage measure	differential	10		
279	B3	BUZZ-B3	Analog module	voltage measure	differential	10		
280	B3		Digital module	GPIO	write	0		
281	B3		Digital module	GPIO	write	0		
282	B3		Digital module	GPIO	write	0		

Key Function +LED Detect + Buzz Check

5. 1 Profits for improvement

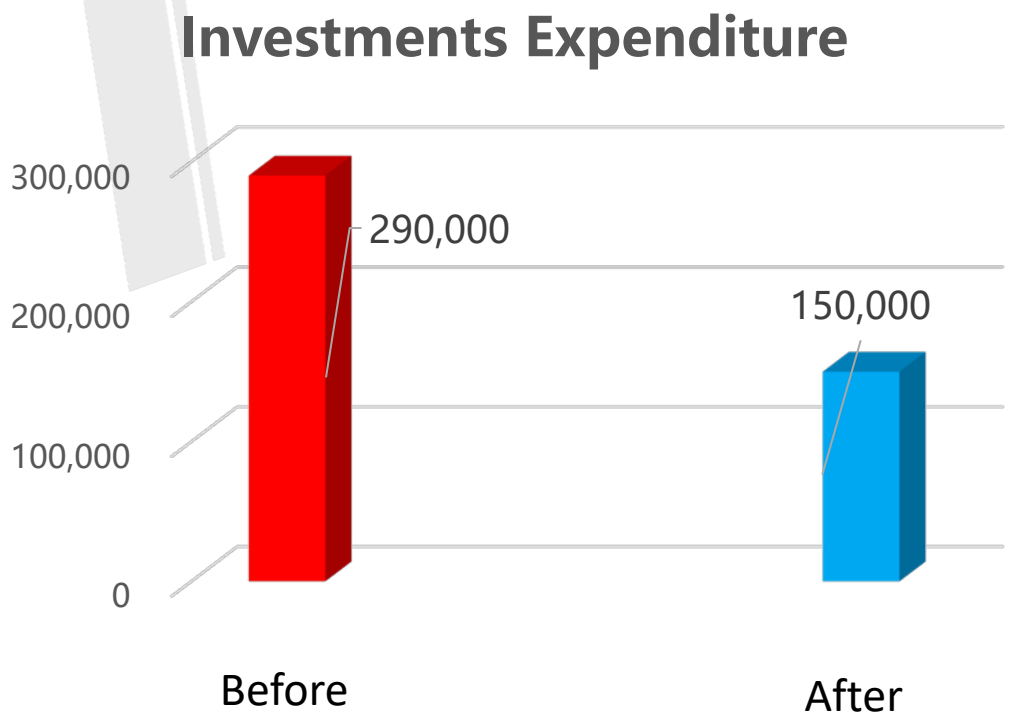
☞ Employee Wages Cost down： 120,000/Year

SN.	Station	Employees	Item	Employees (Total)	Wages/Year
1	ICT	1	Before	3	180,000
2	IC FM+FCT	2			
3	PTI 818S	1	After	1	60,000
4	Estimated Wages(Year)： 6,0000 (1 employee)				

5. Profits for improvement

☞ Equipment investment cost down：140,000/Line

SN.	Station	Price	QTY	Sub Total	Item	Total
1	ICT	70,000	1	70,000	Before	290,000
2	IC Firm +FCT	110,000	2	220,000		
3						
4	PTI 818S	150,000	1	150,000	After	150,000



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谢 谢！

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