



SOUTH CHINA NATIONAL CENTER OF METROLOGY  
GUANGDONG INSTITUTE OF METROLOGY



# TEST REPORT

No. XNZ2020170

Name of Sample: Medical Intelligent Insulation Monitor/ Insulation  
fault locator/Signal Generator

Model / Type: AIM-M200/AIL150/ASG150, AIM-M100, AIM-M10

Sample Number: JYZ20050800005/JYZ20050800001/JYZ20050800010

Applicant: Acrel Co.,Ltd

Manufacturer: Acrel Co.,Ltd

Test Type: Commissioned Test

Date Issued: Jun 16,2020



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## (1) Basic Information

Name of Sample	Medical Intelligent Insulation Monitor/Insulation fault locator/Signal Generator	Trade Mark	—
Model / Type	AIM-M200/AIL150/ASG150; AIM-M100,AIM-M10	Class	—
Sample No.	JYZ20050800005,JYZ20050800001, JYZ20050800010	Sample quantity	1
Applicant	Acrel Co.,Ltd		
Applicant Address	No.253, Yulv Road, Jiading District, Shanghai, China		
Manufacturer	Acrel Co.,Ltd		
Test Site	Environment and EMC Lab of Dongguan Branch		
Test Conditions	Temperature: (24~30) °C Humidity: (53~70) %RH		
Date Received	May. 27, 2020	Commission No.	WT20201193
Test Date	May. 27, 2020 to Jun. 15, 2020	Test Type	Commission
Test Item	1. Test of response values and response sensitivity of the sample and climatic environmental conditions; 2. Test of response time $t_{an}$ ; 3. Test of peak value of the measuring voltage $U_m$ ; 4. Test of peak value of the measuring current $I_m$ ; 5. Test of internal d.c. resistance $R_i$ and internal impedance $Z_i$ ; 6. Test of facilities for indicating the insulation resistance $R_f$ ; 7. Test of permanently admissible nominal voltage $U_n$ ; 8. Test of permanently admissible extraneous voltage $U_{fg}$ ; 9. Test of supply voltage $U_s$ ; 10. Test of the local transformer monitoring warning(LTMW); 11. Test of the remote transformer monitoring warning(RTMW); 12. Voltage tests; 13. Inspection of the marking and operating instructions; 14. Shock and vibration test; 15. Test of the IP requirements; 16. Test of the locating current $I_L$ ; 17. Test of the locating current $I_L$ .		
Test Standard	1.IEC 61557-1:2019(Edition 3.0)Electrical safety in low voltage distribution systems up to 1000V AC and 1500V DC - Equipment for testing, measuring or monitoring of protective measures - Part 1: General requirements 2.IEC 61557-8:2014(Edition 3.0)Electrical safety in low voltage distribution systems up to 1000V a.c. and 1500V d.c. - Equipment for testing, measuring or monitoring of protective measures - Part 8: Insulation monitoring devices for IT systems 3.IEC 61557-9:2014(Edition 3.0)Electrical safety in low voltage distribution systems up to 1000V a.c. and 1500V d.c. - Equipment for testing, measuring or monitoring of protective measures - Part 9: Equipment for insulation fault location in IT systems		
Conclusion	PASS		
Remarks	—		


Tested by:

王海涛

Checked by:



Approved by:



**(2) Test Results Summary**

No.	Test Item	Sample No.	Pass (P)	Fail (F)
1	Test of response values and response sensitivity of the sample and climatic environmental conditions	JYZ20050800005/JYZ20050800001 /JYZ20050800010	P	
2	Test of response time $t_{an}$	JYZ20050800005/JYZ20050800001 /JYZ20050800010	P	
3	Test of peak value of the measuring voltage $U_m$	JYZ20050800005/JYZ20050800001 /JYZ20050800010	P	
4	Test of peak value of the measuring current $I_m$	JYZ20050800005/JYZ20050800001 /JYZ20050800010	P	
5	Test of internal d.c. resistance $R_i$ and internal impedance $Z_i$	JYZ20050800005/JYZ20050800001 /JYZ20050800010	P	
6	Test of facilities for indicating the insulation resistance $R_F$	JYZ20050800005/JYZ20050800001 /JYZ20050800010	P	
7	Test of permanently admissible nominal voltage $U_n$	JYZ20050800005/JYZ20050800001 /JYZ20050800010	P	
8	Test of permanently admissible extraneous voltage $U_{fg}$	JYZ20050800005/JYZ20050800001 /JYZ20050800010	P	
9	Test of supply voltage $U_s$	JYZ20050800005/JYZ20050800001 /JYZ20050800010	P	
10	Test of the local transformer monitoring warning(LTMW)	JYZ20050800005/JYZ20050800001 /JYZ20050800010	P	
11	Test of the remote transformer monitoring warning(RTMW)	JYZ20050800005/JYZ20050800001 /JYZ20050800010	P	
12	Voltage tests	JYZ20050800005/JYZ20050800001 /JYZ20050800010	P	
13	Inspection of the marking and operating instructions	JYZ20050800005/JYZ20050800001 /JYZ20050800010	P	
14	Shock and vibration test	JYZ20050800005/JYZ20050800001 /JYZ20050800010	P	
15	Test of the IP requirements	JYZ20050800005/JYZ20050800001 /JYZ20050800010	P	
16	Test of the locating current $I_L$	JYZ20050800005/JYZ20050800001 /JYZ20050800010	P	
17	Test of the locating current $I_L$	JYZ20050800005/JYZ20050800001 /JYZ20050800010	P	

(3) Sample Photo



**(4) Main Metrology Instrument and Test Equipment**

No.	Name of Instrument/Model	Serial No.	Certificate No. /Due Date	Technical Characteristic
1	Damp dry cycle test chamber /WHTH-1000-40-880	WH-130110002	RZD201913364 /2021-12-10	$\pm 2^{\circ}\text{C}$ , $\pm 3\%\text{RH}$
2	Megohm-meter Verification Device/ GZX92E	88274	DYQ201907225 /2020-12-26	Class: 0.2
3	Electronic stopwatch /SW8019	BY01	WSP202000349 /2021-03-05	$\pm 0.5\text{s/d}$
4	D probe /ZLT-I04T	I04T1611	CJC201909151 /2020-06-22	$\Phi 1\text{mm}$
5	Digital multimeter /34461A	MY53224109	DBS202000233 /2021-02-27	DCV: $U_{\text{rel}}=0.001\%$ DCI: $U_{\text{rel}}=0.015\%$ ACV: $U_{\text{rel}}=0.01\%$ ACI: $U_{\text{rel}}=0.02\%$ ( $k=2$ )
6	Shock test equipment/KRD11-50	12008	SSD202002052 /2021-04-14	$80\text{m/s}^2\sim 4000\text{ms}^2$ $1.5\text{ms}\sim 40\text{ms}$
	Vibration test equipment /MPA12/L620M	SH1201003	SSD202002051 /2021-04-14	$\pm 10\%$
7	Digital caliper /(0~150)mm/0.01mm	K15G148544	CDJ202000988 /2021-03-08	MPE: $\pm 0.03\text{mm}$
8	Standard test finger /ZLT-I02T	I02T1617	CJC202009058 /2021-06-02	$\Phi 12_{-0.05}^0\text{mm}$
9	D probe /ZLT-I04T	I04T1611	CJC202009055 /2021-06-02	$\Phi 1_0^{+0.05}\text{mm}$

**(5) Test Result**

**1. Test of response values and response sensitivity of the sample**

**1.1. Reference conditions for tests in operation**

(1) Technical requirement: The sample works normally, the relative percentage uncertainty of sample is not less than  $\pm 10\%$  or  $\pm 10k\Omega$ .

(2) Test method:

IEC 61557-1:2007 item 6, IEC 61557-8:2014 item 6.1 and 6.2, IEC 61557-9:2014 item 6.1 and 6.2

Exposed to the cold temperature:  $-5^{\circ}\text{C}$ ;

Exposed to the cold duration: 96h;

Exposed to the dry heat temperature:  $+45^{\circ}\text{C}$ ;

Exposed to the dry heat duration: 96h.

(3) Test equipment: WHTH-1000-40-880, GZX92E

(4) Test result(JYZ20050800005,JYZ20050800001,JYZ20050800010):

Test condition	Standard value (kΩ)	Indication value (kΩ)	Error		Limit of Error	
			(%)	(kΩ)	(%)	(kΩ)
$U_n = 198\text{V}$ $f = 50\text{Hz}$ $U_s = 24\text{V}$ $T = -5^{\circ}\text{C}$ $C_e = 1\mu\text{F}$	50	51	+2.0	+1	$\pm 10$	$\pm 10$
	200	196	-2.0	-4	$\pm 10$	$\pm 10$
	400	396	-1.0	-4	$\pm 10$	$\pm 10$
	600	596	-0.7	-4	$\pm 10$	$\pm 10$
	800	796	-0.5	-4	$\pm 10$	$\pm 10$
	990	963	-2.7	-27	$\pm 10$	$\pm 10$

Test condition	Standard value (kΩ)	Indication value (kΩ)	Error		Limit of Error	
			(%)	(kΩ)	(%)	(kΩ)
$U_n = 230\text{V}$ $f = 50\text{Hz}$ $U_s = 24\text{V}$	50	52	+4.0	+2	$\pm 10$	$\pm 10$
	200	198	-1.0	-2	$\pm 10$	$\pm 10$
	400	398	-0.5	-2	$\pm 10$	$\pm 10$

$T = -5^{\circ}\text{C}$ $C_e = 1\mu\text{F}$	600	598	-0.3	-2	$\pm 10$	$\pm 10$
	800	798	-0.3	-2	$\pm 10$	$\pm 10$
	990	968	-2.2	-22	$\pm 10$	$\pm 10$

Test condition	Standard value (k $\Omega$ )	Indication value (k $\Omega$ )	Error		Limit of Error	
			(%)	(k $\Omega$ )	(%)	(k $\Omega$ )
$U_n = 264.5\text{V}$ $f = 50\text{Hz}$ $U_s = 24\text{V}$ $T = -5^{\circ}\text{C}$ $C_e = 1\mu\text{F}$	50	51	+2.0	+1	$\pm 10$	$\pm 10$
	200	197	-1.5	-3	$\pm 10$	$\pm 10$
	400	397	-0.8	-3	$\pm 10$	$\pm 10$
	600	595	-0.8	-5	$\pm 10$	$\pm 10$
	800	795	-0.6	-5	$\pm 10$	$\pm 10$
	990	971	-1.9	-19	$\pm 10$	$\pm 10$

Test condition	Standard value (k $\Omega$ )	Indication value (k $\Omega$ )	Error		Limit of Error	
			(%)	(k $\Omega$ )	(%)	(k $\Omega$ )
$U_n = 198\text{V}$ $f = 50\text{Hz}$ $U_s = 24\text{V}$ $T = +45^{\circ}\text{C}$ $C_e = 1\mu\text{F}$	50	51	+2.0	+1	$\pm 10$	$\pm 10$
	200	197	-1.5	-3	$\pm 10$	$\pm 10$
	400	397	-0.8	-3	$\pm 10$	$\pm 10$
	600	594	-1.0	-6	$\pm 10$	$\pm 10$
	800	795	-0.6	-5	$\pm 10$	$\pm 10$
	990	966	-2.4	-24	$\pm 10$	$\pm 10$

Test condition	Standard value (k $\Omega$ )	Indication value (k $\Omega$ )	Error		Limit of Error	
			(%)	(k $\Omega$ )	(%)	(k $\Omega$ )
$U_n = 230\text{V}$ $f = 50\text{Hz}$	50	51	+2.0	+1	$\pm 10$	$\pm 10$
	200	196	-2.0	-4	$\pm 10$	$\pm 10$



$U_s = 24V$	400	396	-1.0	-4	$\pm 10$	$\pm 10$
$T = +45^\circ C$	600	596	-0.7	-4	$\pm 10$	$\pm 10$
$C_e = 1\mu F$	800	791	-1.1	-9	$\pm 10$	$\pm 10$
	990	964	-2.6	-26	$\pm 10$	$\pm 10$

Test condition	Standard value (k $\Omega$ )	Indication value (k $\Omega$ )	Error		Limit of Error	
			(%)	(k $\Omega$ )	(%)	(k $\Omega$ )
$U_n = 264.5V$ $f = 50Hz$ $U_s = 24V$ $T = +45^\circ C$ $C_e = 1\mu F$	50	52	+4.0	+2	$\pm 10$	$\pm 10$
	200	196	-2.0	-4	$\pm 10$	$\pm 10$
	400	396	-1.0	-4	$\pm 10$	$\pm 10$
	600	595	-0.8	-5	$\pm 10$	$\pm 10$
	800	797	-0.4	-3	$\pm 10$	$\pm 10$
	990	963	-2.7	-27	$\pm 10$	$\pm 10$

(5) Conclusion: Pass

### 1.2. Reference conditions for storage test

(1) Technical requirement: After the test, the sample works normally and without any damage, the relative percentage uncertainty of sample is not less than  $\pm 10\%$  or  $\pm 10k\Omega$ .

(2) Test method:

IEC 61557-1:2007 item 6, IEC 61557-8:2014 item 6.2.2, IEC 61557-9:2014 item 6.2.2

Exposed to the cold temperature(product not powered):  $-25^\circ C$ ;

Exposed to the cold duration: 96h;

Exposed to the dry heat temperature(product not powered):  $+70^\circ C$ ;

Exposed to the dry heat duration: 96h.

(3) Test equipment: WHTH-1000-40-880, GZX92E

(4) Test result(JYZ20050800007,JYZ20050800002,JYZ20050800008):

After the cold storage test

Test condition	Standard value	Indication value	Error	Limit of Error
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	(kΩ)	(kΩ)	(%)	(kΩ)	(%)	(kΩ)
$U_n = 230V$ $f = 50Hz$ $U_s = 24V$ $C_e = 1\mu F$	50	51	+2.0	+1	±10	±10
	200	198	-1.0	-2	±10	±10
	400	395	-1.3	-5	±10	±10
	600	593	-1.2	-7	±10	±10
	800	794	-0.8	-6	±10	±10
	990	963	-2.7	-27	±10	±10

After the dry heat storage test

Test condition	Standard value (kΩ)	Indication value (kΩ)	Error		Limit of Error	
			(%)	(kΩ)	(%)	(kΩ)
$U_n = 230V$ $f = 50Hz$ $U_s = 24V$ $C_e = 1\mu F$	50	51	+2.0	+1	±10	±10
	200	197	-1.5	-3	±10	±10
	400	396	-1.0	-4	±10	±10
	600	592	-1.3	-8	±10	±10
	800	793	-0.9	-7	±10	±10
	990	967	-2.3	-23	±10	±10

Test condition	Leakage capacitances $C_e(\mu F)$	Standard value (kΩ)	Indication value (kΩ)	Error		Limit of Error	
				(%)	(kΩ)	(%)	(kΩ)
$U_n = 230V$ $f = 50Hz$ $U_s = 24V$	0	50	51	+2.0	+1	±10	±10
	0.5	50	51	+2.0	+1	±10	±10
	1	50	51	+2.0	+1	±10	±10
	3	50	52	+4.0	+2	±10	±10

(5) Conclusion: Pass

## 2. Test of response time $t_{an}$

(1) Technical requirement: The response time  $t_{an}$  shall be below 5s.

(2) Test method: IEC 61557-1:2007 item 6, IEC 61557-8:2014 item 6.2.3.

(3) Test equipment: GZX92E, SW8019

(4) Test result(JYZ20050800005,JYZ20050800001,JYZ20050800010):

Test condition	Specified response value $R_{an}(k\Omega)$	$t_{an}$ (s)	Limit value (s)
$U_n = 230V$ $f = 50Hz$ $U_s = 24V$ $C_e = 1\mu F$	50	2.7	5

(5) Conclusion: Pass

### 3. Test of peak value of the measuring voltage $U_m$

(1) Technical requirement: The peak value of the measuring voltage  $U_m$  shall be below 15VDC.

(2) Test method: IEC 61557-1:2007 item 6, IEC 61557-8:2014 item 6.2.4.

(3) Test equipment: GZX92E, 34461A

(4) Test result(JYZ20050800005,JYZ20050800001,JYZ20050800010):

Test condition	$U_m$ (V)	Limit value (V)
$U_n = 230V$ $f = 50Hz$ $U_s = 24V$ $C_e = 1\mu F$ $R_{an} = 50 k\Omega$	12.2	15

(5) Conclusion: Pass

### 4. Test of peak value of the measuring current $I_m$

(1) Technical requirement: The peak value of the measuring current  $I_m$  shall be below 1mA.

(2) Test method: IEC 61557-1:2007 item 6, IEC 61557-8:2014 item 6.2.5.

(3) Test equipment: GZX92E, 34461A

(4) Test result(JYZ20050800005,JYZ20050800001,JYZ20050800010):

Test condition	Insulation resistance $R_F(k\Omega)$	$I_m$ (mA)	Limit value (mA)
$U_n = 0V$ $f = 50Hz$ $U_s = 24V$ $C_e = 1\mu F$ $R_{an} = 50 k\Omega$	0	0.05	1

(5) Conclusion: Pass

**5. Test of internal d.c. resistance  $R_i$  and internal impedance  $Z_i$**

- (1) Technical requirement: The a.c. internal impedance  $Z_i$  shall be at least 100 k $\Omega$ , the d.c. internal resistance  $R_i$  shall be at least 15 k $\Omega$ .
- (2) Test method: IEC 61557-1:2007 item 6, IEC 61557-8:2014 item 6.2.6.
- (3) Test equipment: GZX92E, 34461A
- (4) Test result(JYZ20050800005,JYZ20050800001,JYZ20050800010):

Test condition	$R_i$ (k $\Omega$ )	Limit value (k $\Omega$ )
$U_n = 230V$ $f = 50Hz$ $U_s = 24V$ $C_e = 1\mu F$ $R_{an} = 50 k\Omega$	522	15

Test condition	$Z_i$ (k $\Omega$ )	Limit value (k $\Omega$ )
$U_n = 230V$ $f = 50Hz$ $U_s = 24V$	460	100

$C_e = 1\mu\text{F}$		
$R_{an} = 50\text{ k}\Omega$		

(5) Conclusion: Pass

**6. Test of facilities for indicating the insulation resistance  $R_F$**

(1) Technical requirement: The relative percentage uncertainty of sample is not less than  $\pm 10\%$  or  $\pm 10\text{k}\Omega$ .

(2) Test method:

IEC 61557-1:2007 item 6, IEC 61557-8:2014 item 6.2.7, IEC 61557-9:2014 item 6.2.6.

(3) Test equipment: GZX92E, 34461A

(4) Test result(JYZ20050800005,JYZ20050800001,JYZ20050800010):

Test condition	Standard value (kΩ)	Indication value (kΩ)	Error		Limit of Error	
			(%)	(kΩ)	(%)	(kΩ)
$U_n = 230\text{V}$ $f = 50\text{Hz}$ $U_s = 24\text{V}$ $C_e = 1\mu\text{F}$	50	50	0.0	0	$\pm 10$	$\pm 10$
	200	195	-2.5	-5	$\pm 10$	$\pm 10$
	400	394	-1.5	-6	$\pm 10$	$\pm 10$
	600	595	-0.8	-5	$\pm 10$	$\pm 10$
	800	795	-0.6	-5	$\pm 10$	$\pm 10$
	990	967	-2.3	-23	$\pm 10$	$\pm 10$

(5) Conclusion: Pass

**7. Test of permanently admissible nominal voltage  $U_n$**

(1) Technical requirement: The relative percentage uncertainty of sample is not less than  $\pm 10\%$  or  $\pm 10\text{k}\Omega$ .

(2) Test method:

IEC 61557-1:2007 item 6, IEC 61557-8:2014 item 6.2.9.

(3) Test equipment: GZX92E, 34461A

(4) Test result(JYZ20050800005,JYZ20050800001,JYZ20050800010):

Test condition	Standard value	Indication value	Error	Limit of Error

	(kΩ)	(kΩ)	(%)	(kΩ)	(%)	(kΩ)
$U_n = 264.5V$ $f = 50Hz$ $U_s = 24V$ $C_e = 1\mu F$	50	51	+2.0	+1	±10	±10
	200	197	-1.5	-3	±10	±10
	400	394	-1.5	-6	±10	±10
	600	595	-0.8	-5	±10	±10
	800	795	-0.6	-5	±10	±10
	990	964	-2.6	-26	±10	±10

(5) Conclusion: Pass

**8. Test of permanently admissible extraneous voltage  $U_{fg}$**

(1) Technical requirement: The extraneous voltage  $U_{fg}$  shall be not below 280VDC.

(2) Test method:

IEC 61557-1:2007 item 6, IEC 61557-8:2014 item 6.2.10.

(3) Test equipment: GZX92E, 34461A

(4) Test result(JYZ20050800005,JYZ20050800001,JYZ20050800010):

Test result	Conclusion
The extraneous voltage $U_{fg}$ is 280VDC	Pass

(5) Conclusion: Pass

**9. Test of supply voltage  $U_s$**

(1) Technical requirement: The relative percentage uncertainty of sample is not less than ±10% or ±10kΩ.

(2) Test method:

IEC 61557-1:2007 item 6, IEC 61557-8:2014 item 6.2.11.

(3) Test equipment: GZX92E,34461A

(4) Test result(JYZ20050800005,JYZ20050800001,JYZ20050800010):

Test condition	Standard value (kΩ)	Indication value (kΩ)	Error		Limit of Error	
			(%)	(kΩ)	(%)	(kΩ)

$U_n = 230V$ $f = 50Hz$ $U_s = 18V$ $C_e = 1\mu F$	50	51	+2.0	+1	$\pm 10$	$\pm 10$
	200	196	-2.0	-4	$\pm 10$	$\pm 10$
	400	396	-1.0	-4	$\pm 10$	$\pm 10$
	600	593	-1.2	-7	$\pm 10$	$\pm 10$
	800	794	-0.8	-6	$\pm 10$	$\pm 10$
	990	960	-3.0	-30	$\pm 10$	$\pm 10$

Test condition	Standard value (k $\Omega$ )	Indication value (k $\Omega$ )	Error		Limit of Error	
			(%)	(k $\Omega$ )	(%)	(k $\Omega$ )
$U_n = 230V$ $f = 50Hz$ $U_s = 36V$ $C_e = 1\mu F$	50	51	+2.0	+1	$\pm 10$	$\pm 10$
	200	197	-1.5	-3	$\pm 10$	$\pm 10$
	400	396	-1.0	-4	$\pm 10$	$\pm 10$
	600	596	-0.7	-4	$\pm 10$	$\pm 10$
	800	794	-0.8	-6	$\pm 10$	$\pm 10$
	990	965	-2.5	-25	$\pm 10$	$\pm 10$

(5) Conclusion: Pass

### 10. Test of the local transformer monitoring warning(LTMW)

(1) Technical requirement: The sample can simulate overload current of the transformer and simulate over-temperature of the transformer.

(2) Test method:

IEC 61557-1:2007 item 6, IEC 61557-8:2014 item 6.2.7 and 6.2.12.2.

(3) Test equipment: GZX92E, 34461A

(4) Test result(JYZ20050800005,JYZ20050800001,JYZ20050800010):

Test result	Conclusion
The sample can simulate overload current and over-temperature of the transformer and display it.	Pass

(5) Conclusion: Pass

**11. Test of the remote transformer monitoring warning(RTMW)**

- (1) Technical requirement: The sample can simulate overload current of the transformer and simulate over-temperature of the transformer.
- (2) Test method:  
IEC 61557-1:2007 item 6, IEC 61557-8:2014 item 6.2.7 and 6.2.12.3.
- (3) Test equipment: GZX92E, 34461A
- (4) Test result(JYZ20050800005,JYZ20050800001,JYZ20050800010):

Test result	Conclusion
The sample can simulate overload current and over-temperature of the transformer and remote it through the port.	Pass

- (5) Conclusion: Pass

**12. Voltage tests**

- (1) Technical requirement: The IMD can provide class I.
- (2) Test method:  
IEC 61557-1:2007 item 6, IEC 61557-8:2014 item 6.2.13, IEC 61557-9:2014 item 6.2.8, IEC 61557-9:2014 item 6.2.11.
- (3) Test equipment: (0~150)mm/0.01mm
- (4) Test result(JYZ20050800005,JYZ20050800001,JYZ20050800010):

Test result	Conclusion
The sample can provide class I, and functional earth connection(FE) can used to the protective conductor connection. The clearance and creepage distance between the terminals of front panel are 2.3mm.	Pass

- (5) Conclusion: Pass

**13. Inspection of the marking and operating instructions**

- (1) Technical requirement: Inspection of the marking and operating instructions



## (2) Test method:

IEC 61557-1:2007 item 6, IEC 61557-8:2014 item 6.2.15, IEC 61557-9:2014 item 6.2.12.

## (3) Test result(JYZ20050800005,JYZ20050800001,JYZ20050800010):

Test result	Conclusion
The nameplate of the sample meets the requirements of the standard.	Pass

## (4) Conclusion: Pass

**14. Shock and vibration test**

(1) Technical requirement: During the test, the sample works normally, without malfunction and performance deterioration. After the test, the sample is without any damage.

## (2) Test method:

IEC 61557-1:2007 item 6, IEC 61557-8:2014 item 6.2.16.1, IEC 61557-9:2014 item 6.2.13.1.

(3) Test equipment: MPA12/L620M, KRD11-50

## (4) Test result(JYZ20050800005,JYZ20050800001,JYZ20050800010):

Test result	Conclusion
During the test, the sample works normally, without malfunction and performance deterioration. After the test, the sample is without any damage.	Pass

## (5) Conclusion: Pass

**15. Test of the IP requirements**

(1) Technical requirement: The front panel of the sample is IP40, the housing excepting front panel is IP2X.

## (2) Test method:

IEC 61557-1:2007 item 6, IEC 61557-8:2014 item 6.2.16.2, IEC 61557-9:2014 item 6.2.13.2.

(3) Test equipment: ZLT-I04T, ZLT-I02T

## (4) Test result(JYZ20050800005,JYZ20050800001,JYZ20050800010):

Test result	Conclusion
The front panel of the sample is IP40, the housing excepting front panel is IP2X.	Pass

(5) Conclusion: Pass

**16. Test of the locating current  $I_L$**

(1) Technical requirement: The locating current shall be limited to 1mA peak.

(2) Test method:

IEC 61557-1:2007 item 6, IEC 61557-9:2014 item 6.2.3.

(3) Test equipment: GZX92E, 34461A

(4) Test result(JYZ20050800005,JYZ20050800001,JYZ20050800010):

Test result	Conclusion
The locating current is 0.3mA.	Pass

(5) Conclusion: Pass

**17. Test of the local warning and the indication of the insulation value**

(1) Technical requirement: The sample contains a visual warning device, the sample can display the insulation value.

(2) Test method:

IEC 61557-1:2007 item 6, IEC 61557-9:2014 item 6.2.5 and 6.2.6.

(3) Test equipment: GZX92E

(4) Test result(JYZ20050800005,JYZ20050800001,JYZ20050800010):

Test result	Conclusion
The sample contains a visual warning device, the sample can display the insulation value.	Pass

(5) Conclusion: Pass