

Test Verification of Conformity

On the basis of the tests undertaken, the sample(s) of the below product have been found to comply with the essential requirements of the referenced specifications at the time the tests were carried out.

Applicant Name & Address : Fluke Corp.
6920 Seaway Blvd, M/S 266D, Everett WA 98203 U.S.A.

Product(s) Tested : Test Lead

Ratings and principal characteristics : CAT IV 1000Vac, 1500Vdc, 10A
CAT II 1000Vac

Model(s) : TL1500, AL1500

Brand name : AMPROBE

Relevant Standard(s)/Specification(s) : IEC 61010-31:2002 (First Edition) + Amd 1:2008

Verification Issuing Office Name & Address : Intertek Testing Services Taiwan Ltd.
5F, No. 423, Ruiguang Road, Neihu District, Taipei 114, Taiwan

Verification/Report Number(s) : ETS-061216-02 (ETS-061216, ETS-061216-01 and ETS-061216-02)

NOTE 1: This verification is part of the full test report(s) and should be read in conjunction with it.

NOTE 2: This verification supersedes all previous verifications with the noted Verification/Report number(s) dated before this verification issuance.

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SAMMY WU
DIRECTOR



August 22, 2011



Test Report issued under the responsibility of:

TEST REPORT IEC 61010-031 Safety requirements for electrical equipment for measurement, control, and laboratory use Part -031: Safety requirements for hand-held probe assemblies for electrical measurement and test	
Report Reference No.	ETS-061216-02
Date of issue	August 22, 2011
Total number of pages	4 pages
CB Testing Laboratory	Intertek Testing Service Taiwan Ltd
Address	5F, No. 423, Ruiguang Rd., Neihu District Taipei 114, Taiwan, R.O.C
Applicant's name	Fluke Corp.
Address	6920 Seaway Blvd, M/S 266D, Everett WA 98203 U.S.A.
Test specification:	
Standard	IEC 61010-31:2002 (First Edition) + Amd 1:2008
Test procedure	E&E Test Report
Non-standard test method	N/A
Test Report Form No.	IEC 61010_031C
Test Report Form(s) Originator	KTL (Korea Testing Laboratory)
Master TRF	2008-08
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Test item description	Test Lead
Trade Mark	AMPROBE
Manufacturer	Chung Instrument Electronics, Co., Ltd No, 44, Tung Rong Street, Shu Lin, Taipei Hsien, Taiwan
Model/Type reference	TL1500, AL1500
Ratings	CAT IV 1000Vac, 1500Vdc , 10A CAT II 1000Vac

Testing procedure and testing location:	
<input checked="" type="checkbox"/> CB Testing Laboratory:	
Testing location/ address	Intertek Testing Service Taiwan Ltd 6F, No. 423, Ruiguang Rd., Neihu District Taipei 114, Taiwan, R.O.C
<input type="checkbox"/> Associated CB Test Laboratory:	
Testing location/ address	
Tested by (name + signature).....	Allen Huang 
Approved by (+ signature).....	Arthur Sun 
<input type="checkbox"/> Testing procedure: TMP	
Tested by (name + signature).....	
Approved by (+ signature).....	
Testing location/ address	
<input type="checkbox"/> Testing procedure: WMT	
Tested by (name + signature).....	
Witnessed by (+ signature)	
Approved by (+ signature).....	
Testing location/ address	
<input type="checkbox"/> Testing procedure: SMT	
Tested by (name + signature).....	
Approved by (+ signature).....	
Supervised by (+ signature).....	
Testing location/ address	
<input type="checkbox"/> Testing procedure: RMT	
Tested by (name + signature).....	
Approved by (+ signature).....	
Supervised by (+ signature).....	
Testing location/ address	

Summary of testing:	
<p>Tests performed (name of test and test clause):</p> <p>Marking Test (5.3) Voltage, Current, and Capacitance Test (6.3.1) Dielectric Strength Test (6.6) Pull Test (6.7.4.1) Flexing/pull Test (6.7.4.2) Rotation Flexing Test (6.7.4.3) Insulation of Probe Cable Test (6.7.4.5) Rigidity Test (8.1) Drop Test (8.2) Impact Swing Test (8.3) Temperature Test (9.2) Maximum Ambient Temperature Test (10.1) Non-Metallic Enclosure Test (10.2) Cleaning Test (11.2)</p>	<p>Testing location:</p> <p>Intertek Testing Service Taiwan Ltd. 6F, No. 423, Ruiguang Rd., Neihu District Taipei 114, Taiwan, R.O.C</p>
<p>Summary of compliance with National Differences: NA</p>	
<p>Copy of marking plate</p> <div data-bbox="485 1335 1129 1509" style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>AMPROBE AL1500 CAT. IV 1000 Vac CAT. IV 1500 Vdc MAX 10 A</p>    </div> <div data-bbox="485 1541 1129 1747" style="border: 1px solid black; padding: 5px;"> <p>AMPROBE TL1500 CAT. II 1000 V CAT. IV 1000 Vac CAT. IV 1500 Vdc MAX 10 A</p>    </div>	

Test item particulars	
Type of item tested	Measurement
Description of equipment function	CAT IV, 1000V, 1500Vdc, 10A
Classification	Type A
Protection class	Class II
Measurement category	CAT IV, 1000V, 1500Vdc
POLLUTION DEGREE	Pollution degree 2
Environmental rating	Standard
Operating conditions	Continuous
Overall size of the equipment (W x D x H)	TL1500: 1220 mm x 11 mm x 33.5 mm AL1500: 80 mm x 20.5 mm x 22.5 mm
Mass of the equipment (kg)	TL1500: 100 g AL1500: 19 g
Marked degree of protection to IEC 60529	IPX0
Possible test case verdicts:	
- test case does not apply to the test object	N/A
- test object does meet the requirement	P (Pass)
- test object does not meet the requirement	F (Fail)
Testing	
Date of receipt of test item	March 14, 2011
Date (s) of performance of tests	March 22, 2011 ~ March 23, 2011
General remarks:	
The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory. "(see Enclosure #)" refers to additional information appended to the report. "(see appended table)" refers to a table appended to the report. Throughout this report a comma (point) is used as the decimal separator.	

IEC 61010-031			
Clause	Requirement + Test	Result – Remark	Verdict
5	MARKING AND DOCUMENTATION		P
5.1	Markings		P
5.1.1	Markings applicable for whole probe assembly not located on operator removable parts		P
	Letter symbols (IEC 60027) used		P
	Graphic symbols (Table 1) used; or		P
	if other symbol used; explained in accompanying documentation	Explained in instruction manual	P
	In case of less space for required markings:		N/A
	- symbol 10 of table 1 used		N/A
	- all necessary information included in documentation		N/A
5.1.2	Identification		P
5.1.2 a)	Name or registered trademark	AMPROBE	P
5.1.2 b)	For type B and C, also model no. or similar	Type A	P
	If designed for use with specific model this is made clear and		N/A
	model identified by marking or in documentation		N/A
5.1.3	Fuses	No such device	N/A
	All details necessary for fuse replacement		N/A
	Includes rated voltage and current breaking capacity		N/A
	If selected according to particular application; marked with symbol 10 and information in documentation		N/A
5.1.4	Necessary identification for TERMINALS, connectors etc		N/A
5.1.6	Rating		P
	Maximum RATED voltage to earth	1000 Vac, 1500 Vdc	P
	(CAT I) Symbol 10 used	Not this type	N/A
	(CAT II-IV) Category marked	CAT IV	P
	Nature of voltage (ac, dc etc.)	ac, dc	P
	Reference connector intended for connection to voltages exceeding the values of 6.3.1.1		P
	For type A and type D only, the maximum RATED current unless specified for high impedance inputs	10 A	P
5.2	Warning markings		P

IEC 61010-031			
Clause	Requirement + Test	Result – Remark	Verdict
	Visible when ready for NORMAL USE		P
	If necessary marked with symbol 10		P
	Near or on particular parts of the PROBE ASSEMBLY		P
	Advise to disconnect or isolate during access to HAZARDOUS LIVE parts or		P
	marked with symbol 10 and information in the instruction manual		P
	Easily touched heated parts, if not self-evident, marked with symbol 9		N/A
5.3	Durability of markings		P
	The required markings are clear and legible (NORMAL USE)	see Form A.3	P
	Resist cleaning (clear, legible and not worked loose)		P
5.4	Documentation		P
5.4.1	General		P
5.4.1 a)	Technical specification		P
5.4.1 b)	Instructions for use		P
5.4.1 c)	Name and address of manufacturer or supplier		P
5.4.1 d)	The information specified in 5.4.2 to 5.4.4		P
	A clear explanation of warning symbols is in the documentation or		P
	Information is durably and legibly marked on the equipment		N/A
	Statement that symbol 10 means documentation needs to be consulted		P
5.4.2	Ratings		P
	Maximum voltage RATING	1000 Vac, 1500 Vdc	P
	Maximum current RATING	10 A	P
	Statement of the range of environmental conditions		P

IEC 61010-031			
Clause	Requirement + Test	Result – Remark	Verdict
5.4.3	Operation		P
5.4.3 a)	Identification of operating controls		N/A
5.4.3 b)	Interconnection requirements		N/A
	Specification of accessories, materials etc		N/A
5.4.3 c)	Specification of intermittent operation limits	Continuous	N/A
5.4.3 d)	Explanation of required and used symbols		P
5.4.3 e)	Replacement of consumables		N/A
5.4.3 f)	Definition of measurement category (if marked with CAT)	CAT II, CAT IV	P
5.4.3 g)	If marked CAT I, a warning not to use in other CAT		N/A
5.4.3 h)	Cleaning if necessary		P
5.4.3 i)	Warning for the lower CAT of a combination of a PROBE ASSEMBLY and an accessory		P
	A statement against use in a manner not specified by the manufacturer		P
5.4.4	Maintenance		P
	Sufficient preventive maintenance and inspection for RESPONSIBLE BODY		P
	Parts to be supplied or examined by the manufacturer only		N/A
	RATING and characteristics of fuses (see 5.1.3)		N/A
6	PROTECTION AGAINST ELECTRIC SHOCK		P
6.1	General	see Form A.4	P
6.1.1	Exceptions		P
6.1.1 a)	Parts intended to be replaced by the operator (for example, fuses), but only if they have a warning marking according to 5.2		N/A
6.1.1 b)	PROBE TIPS, provided that they meet the requirements of 6.4.4		P
6.2	Determination of ACCESSIBLE parts		P
	According to figure 3	see Form A.5	P
6.3	Permissible limits for ACCESSIBLE parts		P
	Measurements performed according to figure 4		P
6.3.1	Values in NORMAL CONDITION	see Form A.6	P
6.3.2	Values in SINGLE FAULT CONDITION		N/A
6.4	Insulation requirements for protection against electric shock		P

IEC 61010-031			
Clause	Requirement + Test	Result – Remark	Verdict
6.4.1	Connectors		P
6.4.1 a)	Connectors in fully mated position:		P
	i) Connecting probe to measuring equipment insulated by at least basic insulation	see Form A.9	P
	ii) Intended to be HAND-HELD insulated by DOUBLE or REINFORCED INSULATION	see Form A.9	P
6.4.1 b)	Connectors in partially mated position:		P
	insulated by at least BASIC INSULATION		P
	Voltage test with test finger (B.1)	see Form A.10	P
6.4.1 c)	Connectors in unmated position:		P
	Except for locking or screw-held type connectors or limited current by PROTECTIVE IMPEDANCE:	For crocodile clip	P
	i) HAZARDOUS LIVE parts not ACCESSIBLE		P
	Up to 1 kV a.c. or 1.5 kV d.c., not ACCESSIBLE	For probe	P
	Above 1 kV a.c. or 1.5 kV d.c., voltage test with test finger	Not this type	N/A
	ii) Stackable connectors	Not this type	N/A
	HAZARDOUS LIVE parts separated by BASIC INSULATION from ACCESSIBLE parts		N/A
	CLEARANCE and CREEPAGE meet the requirements for BASIC INSULATION		N/A
	Voltage test in acc. to 6.6		N/A
6.4.2	HAND-HELD parts other than connectors		P
	HAZARDOUS LIVE parts separated by DOUBLE or REINFORCED INSULATION from ACCESSIBLE parts	see Form A.4	P
	CLEARANCE and CREEPAGE meet the requirements for DOUBLE or REINFORCED INSULATION	see Form A.9	P
	Voltage test in acc. 6.6 (specify parts)	see Form A.10	P
	REFERENCE CONNECTOR		N/A
6.4.3	Cables		P
	RATED for maximum voltage and current	2000 V	P
	DOUBLE or REINFORCED INSULATION based on voltages (min 125 V/500 V) according to type of PROBE ASSEMBLIES.....:		N/A
	or for maximum RATED voltage	1000 Vac or 1500 Vdc	P
	Voltage test in acc. 6.6 (specify parts)	see Form A.10	P
6.4.4	PROBE TIPS		P
	BARRIER providing safe distance:		P

IEC 61010-031			
Clause	Requirement + Test	Result – Remark	Verdict
	- CLEARANCE and CREEPAGE meet the requirements for REINFORCED INSULATION	see Form A.9	P
	Spring-loaded squeeze PROBE ASSEMBLIES: (rated for WORKING VOLTAGE ≤ 1 kV)		N/A
	a) Actuation prevents touching HAZARDOUS LIVE parts		N/A
	b) Additional protective distance of 45 mm longer than for barrier		N/A
	Crocodile clips and similar without barrier: (rated for CAT I or II)	CAT IV was provided	N/A
	- have tactile indication	Barrier was provided	P
6.4.5	DOUBLE INSULATION and REINFORCED INSULATION		P
	See 6.5, 6.6 and 6.7.2		P
6.4.6	PROTECTIVE IMPEDANCE		N/A
	Appropriate HIGH-INTEGRITY single component used for protection (see 12.3)	No such impedance	N/A
	Components, wires and connections are suitably RATED even for SINGLE FAULT CONDITION		N/A
6.5	CLEARANCES AND CREEPAGE DISTANCES		P
	CLEARANCES and CREEPAGE DISTANCES between circuits and parts	see Form A.4 and Form A.9	P
6.6	Voltage tests		P
	Humidity pre-conditioning (6.6.2) conducted		P
	Test voltages (6.6.4)	see Form A.4 and Form A.10	P
6.7	Constructional requirements		P
6.7.1	General		P
6.7.1 a)	Security of soldered wiring connections		N/A
6.7.1 b)	Screws securing removable covers are captive if their length affects isolation distances		N/A
6.7.1 c)	Accidental loosening		N/A
	The following is not used for safety purposes:		N/A
	1) Materials which can be easily damaged (enamel etc)		N/A
	2) Non-impregnated hygroscopic materials		N/A
6.7.2	ENCLOSURES of PROBE ASSEMBLIES with DOUBLE or REINFORCED INSULATION		P
	ENCLOSURE which surrounds all metal parts		P
	Small metal parts are separated from HAZARDOUS LIVE voltages by DOUBLE or REINFORCED INSULATION		P

IEC 61010-031			
Clause	Requirement + Test	Result – Remark	Verdict
	ENCLOSURES or parts made of insulating material fulfil requirements for DOUBLE or REINFORCED INSULATION.	see Form A.4 and Form A.9	P
	Protection for metal ENCLOSURES or parts is provided by one of the following:		N/A
	a) provision of an insulating coating or BARRIER on the inside of the ENCLOSURE		N/A
	b) CLEARANCES and CREEPAGE DISTANCES cannot be reduced by loosening of parts or wires		N/A
6.7.3	Corona and partial discharge		N/A
	No corona or partial discharge while operating at maximum voltage		N/A
6.7.4	Cable attachment		P
	Withstand forces likely to be encountered		P
6.7.4.1	Pull test	see Form A.11	P
6.7.4.2	Flexing/pull test	see Form A.11	P
6.7.4.3	Rotational flexing test	see Form A.11	P
6.7.5	Insulation of a probe cable		P
	Probe cable with a wear indicator provide DOUBLE or REINFORCED INSULATION when new, and at least BASIC INSULATION when the wear indicator is reached		P
	PROBE CABLE without a wear indicator provide DOUBLE or REINFORCED INSULATION		N/A
	Voltage test in acc. 6.6 (specify parts):	see Form A.10	P
	- REINFORCED INSULATION: one unconditioned sample before cycling treatment		P
	- BASIC INSULATION: contrasting colour became visible during the cycling treatment		P
	- REINFORCED INSULATION: 250 cycles treatment without contrasting colour becoming visible.		N/A
7	PROTECTION AGAINST MECHANICAL HAZARDS		P
	Handling during normal use shall not lead to hazard		P
8	MECHANICAL RESISTANCE TO SHOCK AND IMPACT		P
	Withstand shock and impact likely to occur in NORMAL USE		P
8.1	Rigidity test		P
	20 N applied three times		P
8.2	Drop test		P

IEC 61010-031			
Clause	Requirement + Test	Result – Remark	Verdict
	Three samples dropped		P
8.3	Impact swing test		P
	Probe subjected to impact against a hardwood board		P
	After the tests of 8.1 to 8.3:		P
	Voltage tests in acc. to 6.6	(see Form A.10)	P
	Inspections:		P
8a)	HAZARDOUS LIVE parts not accessible		P
8b)	ENCLOSURE shows no cracks (hazard)		P
8c)	CLEARANCES not less than their permitted values	(see Form A.9)	P
8d)	BARRIERS not damaged or loosened		P
8e)	No damage which could cause spread of fire		P
9	TEMPERATURE LIMITS AND PROTECTION AGAINST THE SPREAD OF FIRE		P
9.1	General		P
	Any heating does not cause a HAZARD in NORMAL CONDITION nor in SINGLE FAULT CONDITION		P
	No spread of fire outside the PROBE ASSEMBLY		P
	Easily touched surfaces not exceeding the following limits in NORMAL CONDITION :		P
	- metal less than 55 °C		N/A
	- non-metallic less than 70 °C		P
	- wires and cables less than 75 °C		P
	Temperatures in SINGLE FAULT CONDITION less than 105 °C		N/A
	Easily touched heated surfaces recognizable or marked with symbol 9 of table 1 (s. 5.2), if necessary for functional reasons		N/A
	Circuits separated by at least by BASIC INSULATION, if protection depends on separation of circuits		N/A
9.2	Temperature tests	see Form A.12	P
10	RESISTANCE TO HEAT		P
10.1	Integrity of CLEARANCES and CREEPAGE DISTANCES		P
	Requirements of 6.5 are met at an ambient temperature of 40 °C of maximum RATED ambient temperature (if higher)	see Form A.9	P
10.2	Resistance to heat		P
	Probe assemblies with non-metallic ENCLOSURES are resistant to elevated temperatures:	see Form A.13	P

IEC 61010-031			
Clause	Requirement + Test	Result – Remark	Verdict
11	PROTECTION AGAINST HAZARDS FROM FLUIDS		N/A
11.1	General		N/A
	OPERATOR and surrounding area are protected against HAZARDS from fluids if PROBE ASSEMBLIES containing or intended to be used with fluids		N/A
11.2	Cleaning		N/A
	Cleaning procedure applied three times to the PROBE ASSEMBLY		N/A
11.3	Specially protected PROBE ASSEMBLIES		N/A
	Where the equipment is RATED or marked by the manufacturer the requirements of IEC 60529 are fulfilled		N/A
	After the tests of 11.1 to 11.3:		N/A
	Accessible parts do not exceed the limits of 6.3.1		N/A
	Voltage tests in acc. to 6.6		N/A
12	COMPONENTS		N/A
12.1	General		N/A
	Safety components operated within their specified RATINGS		N/A
	Components approved by a recognized testing authority for conformity		N/A
	Those components comply with one of the following :		N/A
12.1 a)	comply with all applicable safety requirements in relevant IEC standards		N/A
	and subjected to the tests of this standard if necessary for application		N/A
12.1 b)	comply with all relevant requirements of this standard		N/A
	and subjected to the tests of relevant IEC component standard if necessary for application		N/A
12.1 c)	comply with all relevant requirements of this standard only if there is no relevant IEC standard		N/A
12.2	Fuses		N/A
	Voltage RATING	No such device	N/A
	Breaking capacity and current rating..... :		N/A
12.3	HIGH-INTEGRITY components		N/A
	Positions of use	No such device	N/A
	Evaluated to IEC Publications		N/A

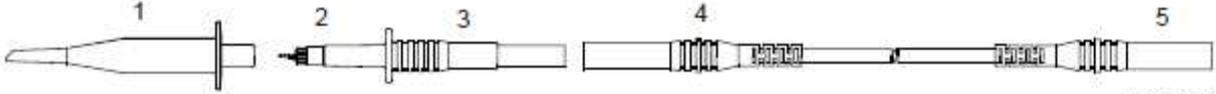
IEC 61010-031			
Clause	Requirement + Test	Result – Remark	Verdict
	A single electronic device which employs electron conduction in a vacuum, gas or semiconductor is not used as HIGH-INTEGRITY component		N/A
12.3.1	Resistors used in PROTECTIVE IMPEDANCE		N/A
12.3.1 a)	Withstand twice the dissipation at RATED voltage	No such device	N/A
12.3.1 b)	Withstand twice the RATED voltage for 1 s		N/A
12.3.1 c)	Distance across resistor or assembly:		N/A
	fulfil requirements for DOUBLE or REINFORCED INSULATION		N/A
	If heating occurs at maximum working voltage, CLEARANCE complies with temperature corrected value		N/A
13	Prevention of HAZARD from arc flash and short-circuits		P
13.1	General		P
	PROBE TIPS and crocodile clips are constructed to mitigate the risk of arc flash and short-circuits.		P
13.2	Exposed conductive parts		P
13.2. a)	PROBE ASSEMBLIES RATED for CAT III or IV, the exposed conductive part of a PROBE TIP \leq 4 mm.	Measured: 3.0 mm	P
13.2. b)	Special applications within CAT I where the energy levels not support arc flash or fire, the exposed conductive part of a PROBE TIP \leq 80 mm	Not this type	N/A
13.2. c)	Other PROBE ASSEMBLIES, the exposed conductive part of a PROBE TIP \leq 19 mm.	Measured: 17.0 mm	P
13.2. d)	The outer surfaces of the jaws of crocodile or similar clips RATED for CAT II, III, or IV are not conductive.		P
	HAZARDOUS LIVE parts are not ACCESSIBLE when closed		P

IEC 61010-031			
Clause	Requirement + Test	Result – Remark	Verdict

5.3	TABLE: Durability of markings				Form A.3	P
Marking method (see NOTE)			Agent			
1) Carve			A Water			
2)			B Isopropyl alcohol			
3)			C (specify agent)			
4)			D (specify agent)			
5)			E (specify agent)			
NOTE – Where applicable include print method, label material, ink or paint type, and fixing method, adhesive and surface to which marking is fixed.						
Marking location			Marking method (see above)			
Identification (5.1.2)			1) Carve			
Fuses (5.1.3)			None			
TERMINALS and operating devices (5.1.4)			None			
DOUBLE/REINFORCED equipment (5.1.5)			1) Carve			
Rating (5.1.6)			1) Carve			
Warning marking (5.2)			1) Carve			
Method	Test agent	Remains legible Verdict	Label loose Verdict	Curled edges Verdict	Comments	
1	A	Yes	No	No	Pass	
1	B	Yes	No	No	Pass	
Supplementary information:						

IEC 61010-031			
Clause	Requirement + Test	Result – Remark	Verdict

6	TABLE: Protection against electric shock - Block diagram	Form A.4	P
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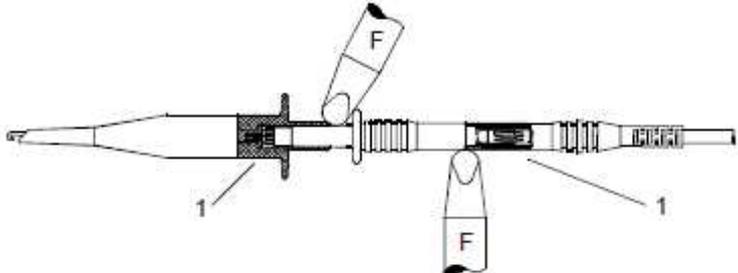


IEC 2599/01

Key

1 Accessory PROBE TIP	4 Connector
2 PROBE TIP	5 Connector to equipment
3 Probe body	

Figure 3a – Parts of PROBE ASSEMBLY

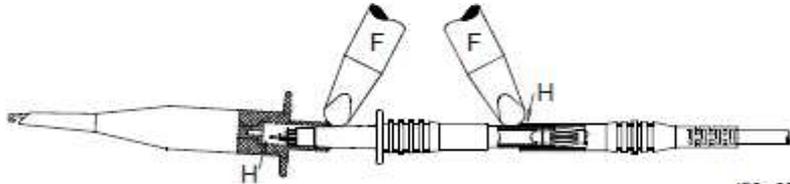


IEC 2600/01

Key

1 Connector

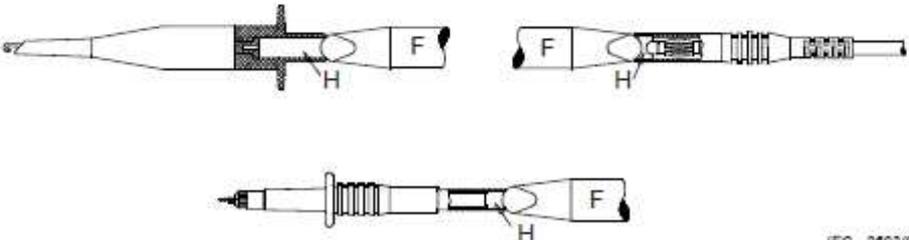
Figure 3b – Fully mated PROBE ASSEMBLY (see 6.2 and 6.4.1a))



IEC 2601/01

Connecting parts are partially mated so as just to make electrical contact while allowing maximum access to test finger.

Figure 3c – Partially mated PROBE ASSEMBLY (see 6.2 and 6.4.1 b))



IEC 2602/01

Key

F Rigid test finger (see figure B.1)

H Potentially HAZARDOUS LIVE part

Figure 3d – Unmated parts of PROBE ASSEMBLY (see 6.2 and 6.4.1c)

Figure 3 – Methods for determination of ACCESSIBLE parts (see 6.2) and for voltage tests of (see 6.4.1)

IEC 61010-031									
Clause	Requirement + Test						Result – Remark		Verdict
6	TABLE: Protection against electric shock - Block diagram							Form A.4	P
POLLUTION DEGREE... : 2			Measurement category (overvoltage category).. : IV						
Location or description	Insulation type	Maximum working voltage (NOTE 2)	CREEPAGE DISTANCE (NOTE 3)				CLEARANCE (NOTE 3)	Test voltage	Comments
	(NOTE 1)		PWB mm	CTI	Other mm	CTI	mm	(NOTE 2) V	
For probe:									
Probe body	DI	1000 Vac	N/A	N/A	N/A	N/A	N/A	N/A	24.3 mm
Cable	DI	1000 Vac	N/A	N/A	N/A	N/A	N/A	N/A	24.3 mm
Connector	DI	1000 Vac	N/A	N/A	N/A	N/A	N/A	N/A	24.3 mm
For crocodile clip:									
Clip body	DI	1000 Vac	N/A	N/A	N/A	N/A	N/A	N/A	24.3 mm
NOTE 1 – Type of insulation: BI = BASIC INSULATION DI = DOUBLE INSULATION PI = PROTECTIVE IMPEDANCE RI = Reinforced INSULATION SI = Supplementary INSULATION		NOTE 2 - Types of voltage Peak impulse test voltage (pulse) r.m.s. d.c. peak				NOTE 3 - MEASUREMENT CATEGORY (OVERVOLTAGE CATEGORIES) or POLLUTION DEGREES which differ from these should be shown under "Comments".			
Supplementary Information:									

6.2	TABLE: List of ACCESSIBLE parts						Form A.5	P
6.1.1	Exceptions					Probe Tip		—
6.2	Determination of ACCESSIBLE parts					Probe assemblies		—
Item	Description				Determination method (NOTE 5)	Exception under 6.1.1 (NOTE 4)		
For probe:								
1	Probe body				Visual; Jointed test finger	No		
2	Connector				Visual; Jointed test finger	No		
For crocodile clip:								
3	Clip body				Visual; Jointed test finger	No		
NOTE 1 – Test fingers and pins are to be applied without force unless a force is specified (see 6.2.1) NOTE 2 – Special consideration should be given to inadequate insulation and high voltage parts (see 6.2) NOTE 3 – Parts are considered to be ACCESSIBLE if they could be touched in the absence of any covering which is not considered to provide suitable insulation (see note to paragraph 1 of 6.4). NOTE 4 – Capacitor test may be required NOTE 5 – The determination methods are: visual; rigid test finger; jointed test finger; pin 3 mm diameter.								
Supplementary information:								

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Clause	Requirement + Test							Result – Remark					Verdict
6.3.1	TABLE: Values in NORMAL CONDITION (see NOTE 1)							Form A.6					P
6.1.1	Exceptions							11.1 General					—
6.3.1	Values in NORMAL CONDITION							11.2 Cleaning					—
								11.3 Specially protected PROBE ASSEMBLIES					—
Item (see Form A.5)	Voltage			Current				Capacitance		10 s test			Comments
	V r.m.s.	V peak	V d.c.	Test circuit A1/A2/A3	mA r.m.s.	mA peak	mA d.c.	μC	mJ	V	μC	mJ	
For probe:													
Probe body	<10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Pass
Cable	<10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Pass
Connector	<10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Pass
For crocodile clip:													
Clip body	<10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Pass
NOTE 1 – The requirements of 6.3.1 include drying out (if specified).													
Supplementary information:													

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Clause	Requirement + Test	Result – Remark	Verdict

6.5	TABLE: CLEARANCES and CREEPAGE DISTANCES										Form A.9	P
6.4	Insulation requirements for protection against electric shock											P
6.7.2	ENCLOSURES of PROBE ASSEMBLIES with DOUBLE or REINFORCED INSULATION											P
8	Mechanical resistance to shock and impact											P
10.1	Integrity of CLEARANCES and CREEPAGE DISTANCES											P
Location (see Form A.4)	Measured (initial)		Verdict	Mechanical tests (note)				Test at max. RATED ambient	Measured after test (if required)		Verdict	
	CREEPAGE DISTANCE	CLEARANCE		Applied force	Rigidity (8.1)	Drop (8.2)	Impact swing (8.3)		CREEPAGE DISTANCE	CLEARANCE		
	mm	mm		N	(8.1)	(8.2)	(8.3)	(10.2)	mm	mm		
For probe:												
Probe body	25.0	25.0	P	20	P	P	P	P	25.0	25.0	P	
Cable	29.0	29.0	P	20	P	P	P	P	29.0	29.0	P	
Connector	36.0	36.0	P	20	P	P	P	P	36.0	36.0	P	
Partially mated	18.0	18.0	P	20	P	P	P	P	18.0	18.0	P	
Unmated	2.9	2.9	P	20	P	P	P	P	2.9	2.9	P	
For crocodile clip:												
Clip body	24.5	24.5	P	20	P	P	--	P	24.5	24.5	P	
Partially mated	17.0	17.0	P	20	P	P	--	P	17.0	17.0	P	
Unmated	21.0	21.0	P	20	P	P	--	P	21.0	21.0	P	
NOTE – Refer to Form A.10 for voltage tests following the above tests.												
Supplementary information:												

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Clause	Requirement + Test	Result - Remark	Verdict

6.6	TABLE: Voltage tests	Form A.10	P
4.4.4	Conformity after application of fault conditions ¹		N/A
6.4	Insulation requirements for protection against electric shock		P
6.7.2	ENCLOSURES of PROBE ASSEMBLIES with DOUBLE or REINFORCED INSULATION		P
6.7.5	Insulation of a probe cable		P
8	Mechanical resistance to shock and impact		P
11	Protection against hazards from fluids		N/A

¹ Record the fault, test or treatment applied before the voltage test

	Test site altitude	m	—
	Test voltage correction factor (see Table 10).....		—

Location or references from Forms A.2 and A.4	Clause or sub-clause	Humidity Yes/No	Working voltage V	Test voltage r.m.s./peak/d.c. V	Comments	Verdict
Probe body	6.4	Yes	1000 V	14880 Vdc		Pass
Probe body	8	No	1000 V	14880 Vdc		Pass
Cable	6.4	Yes	1000 V	14880 Vdc		Pass
Cable	6.7.2	No	1000 V	14880 Vdc		Pass
Cable	6.7.5	No	1000 V	9300 Vdc	BASIC INSULATION	Pass
Connector	6.4	Yes	1000 V	14880 Vdc		Pass
Connector	8	No	1000 V	14880 Vdc		Pass
Clip body	6.4	Yes	1000 V	14880 Vdc		Pass
Clip body	8	No	1000 V	14880 Vdc		Pass

Supplementary information:

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Clause	Requirement + Test	Result - Remark	Verdict

6.7.4	TABLE: Cord anchorage of cable attachment						Form A.11	P
Location	Pull N	Verdict	Flexing/pull	Verdict	Rotational flexing	Verdict	Comment	
Probe side	36	P	5000 cycle	P	500 cycle	P		
Connector side	36	P	5000 cycle	P	500 cycle	P		

Supplementary information:
Cable: Type 1803, VW-1, 80°C, 18 AWG, 2000 V.(E199279)

9.	TABLE : Temperature Measurements				Form A.12	P
9.1	Surface temperature limits - NORMAL CONDITION					
Operating conditions:	10 A					
Frequency	Hz	Test room ambient temperature (t_a)			52 °C	
Voltage	V	Test duration			h min	
Part / Location	t_m °C	t_c °C	t_{max} °C	Verdict	Comments	
Probe body	62	60	70	P	62-52+50=60	
Cable	62	60	75	P	62-52+50=60	
Connector	64	62	70	P	64-52+50=62	
Clip body	67	65	70	P	67-52+50=65	

NOTE 1 - t_m = measured temperature
 t_c = t_m corrected ($t_m - t_a + 40$ °C or max. RATED ambient)
 t_{max} = maximum permitted temperature
NOTE 2 - See also 12.1 with reference to component operating conditions
NOTE 3 - Record values for NORMAL CONDITION and / or SINGLE FAULT CONDITION in this Form use additional form if necessary
NOTE 4 - The tests of 6.7.4.1 to 6.7.4.3 are performed before temperature tests.

Supplementary information:

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Clause	Requirement + Test	Result - Remark	Verdict
10.2	TABLE: Resistance to heat of non-metallic enclosures	Form A.13	P
	Test method used:		—
	Non operative treatment.....:	[75°C]	P
	Empty ENCLOSURE.....:	[]	—
	Operative treatment.....:	[60°C]	P
	Temperature during tests		—
	ENCLOSURE samples tested were		—
	Description	Material	Comments
	Probe body	Plastic Material	No damage
	Cable	Plastic Material	No damage
	Connector	Plastic Material	No damage
	Clip body	Plastic Material	No damage
	Voltage test (6.6)	14880 V	d.c. P
Supplementary information:			

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Clause	Requirement + Test	Result - Remark	Verdict

Photo:

