Schedule of Accreditation

issued by

United Kingdom Accreditation Service

2 Pine Trees, Chertsey Lane, Staines-upon-Thames, TW18 3HR, UK

2437

Accredited to ISO/IEC 17025:2017

Yadav Measurements Private Limited

Issue No: 032 **Issue date:** 09 May 2022

Post Box 169
Plot No. F-373 - 375
Riico Bhamashah Industrial Area
Kaladwas
Udaipur
313 003
India

Contact: Mr B M Vyas
Tel: .+91 294 265 0127
Fax: +91 294 265 0129
E-Mail: .yadav.measurements@ymllabs.com
Website: www.yadavmeasurements.com

Testing performed at the above address only

Flexible Scope

The laboratory is accredited to ISO/IEC17025:2017 for testing activities in accordance with the standards listed in the schedule. This may also include tests on the same or similar product types against standards, or customer-specified methods that are not specifically listed in this Schedule, providing that:

(1) The method or standard does not introduce new principles of measurement.

(2) The method or standard does not require measurements to be made outside the parametric boundaries defined in this Schedule.

Information about flexible scopes of accreditation is available in UKAS document GEN-4 and EA document EA-2/05.

NOTES

The abbreviation IS refers to Indian Standards and the abbreviation CBIP refers to the Central Bureau of Irrigation and Power, Government of India.

Tests carried out to IS13779:1999 include Amendment 1 (October 2003), Amendment 2 (October 2004), Amendment 3 (December 2004) and Amendment 4 (June 2006), Amendment 5 (March 2015)

Tests carried out to IS14697:1999 include Amendment 1 (October 2003), Amendment 2 (October 2004) and Amendment 3 (December 2004), Amendment 4 (Dec.2014)

Tests carried out to IS13779:1999 and IS14697:1999 include the reaffirmation of those standards that were carried out in 2004.

Tests carried out to CBIP 88:February 2002 include Amendment 4 (2005).

Publication No. 304 is dated 2008 and is published by CBIP.

Publication No. 325 is Jan, 2015 and is published by CBIP.

DETAIL OF ACCREDITATION

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
	1.0 EMC Tests	
Computers and Peripherals Domestic Appliances: Electrical Electrical/Electronic Components Electrical/Electronic Connectors Electrical/Electronic Products Electronic Products: Digital Electro-Mechanical Devices IT Equipment Luminaires Micro-electronic Circuits and Components Office Equipment: Electrical Printed Circuit Boards Electrical equipment for measurement, control and laboratory use Audio, Video and similar electronic apparatus Instruments: Indicating/ Recording Medical & Diagnostic Instruments Measuring Instruments – Electrical measuring transducers Flow/Gas meters	1.1 Conducted Radio interference Emissions Measurement *Frequency Range* *0.15 MHz to 30 MHz* *0 dBµV to 137 dBµV*	EN55022:2006 EN55022:2006 +A1:2008 CISPR 22 (1997/2006/2008) CISPR 16 -2-1:2008 CISPR 16 -2-1:2014 CISPR 32 (2015)
	1.2 Radiated Emissions *Frequency Range:* *30 MHz to 2.5GHz* *quite zone 2m x 2m x 2m* *2.5GHz to 6GHz* *quite zone 1.5m x 1.5m x 1.5m*	EN55011:2007 CISPR 32 (2015) CISPR 16 -2-3
	1.3 Immunity to Electrostatic Discharge	IEC 61000-4-2 (1995) IEC 61000-4-2 (2008) EN 61000-4-2 (1995/2009)
	1.4 Immunity to electromagnetic HF field *Frequency Range:* *80 MHz to 6 GHz* *Field strength: upto 30 V/m*	IEC 61000-4-3 (2002’ 2010) IEC 61000-4-3 (2006) EN 61000-4-3 (2002/2006 +A1:2008 +A2:2010)
	1.5 Electrical fast transient burst test *0.5 kV to 4.0 kV*	IEC 61000-4-4 (1995/2004/2012) EN 61000-4-4: 2012
	1.6 Surge Immunity Test *0.5 kV to 12 kV*	IEC 61000-4-5 (1995/2005/2014)+A1 2017 EN 61000-4-5: 2014+A1 2017

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
	1.0 EMC Tests (Cont)	
	1.7 Test of immunity to conducted disturbances, induced by radio frequency fields *Frequency range: 150 kHz to 80 MHz* *EMF: upto10 V rms*	IEC 61000-4-6 (1996/2006/2008/2013) EN 61000-4-6: 2014+COR 2015
	1.8 Immunity to power frequency magnetic fields of external origin	IEC 61000-4-8 (2001/2009) EN 61000-4-8 (2001)
	1.9 Damped oscillatory wave immunity test Max Voltage: 2.5 kV Max Current: 25 A	IEC61000-4-12 (1995) IEC 61000-4-18: 2019 EN 61000-4-18:2019
	1.10 Conducted Disturbance Induced Current 2 kHz to 150 kHz 1 A and 2 A	CLC/TR/50579: 2012
	1.11 Voltage dips and Interruptions Max Voltage : 270 V Time period :6 ms to 6 min Max current :2 A	IEC 61000-4-11 : 2004
	1.12 Ring wave test Max Voltage: 6 kV Max Current: 500 A	IEC 61000-4-12: 2017 EN 61000-4-12: 2017
	1.13 EMC Generic & product specific standards. These are accredited to the extent that the basic standards are included above	IEC 62055-31:2005 IEC 62052-21:2004 EN 14236 (2007) and 2018 BS EN 14236 (2007) and 2018 EN 1359 (1999) Incorporating Amendment No. 1 BS EN 1359: 2017 EN 1359: 2017 CISPR 11(2004) BS EN 62052-21:2004

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
	2.0 Climatic Tests	
	2.1 Dry Heat Test *Ambient to +120 °C*	IEC 60068-2-2 (1994) IEC 60068-2-2 (2007)
	2.2 Cold Test / resistance to storage temperature range *Ambient to - 40 °C and + 60 °C*	IEC 60068-2-1 (1994) IEC 60068-2-1 (2007)
	2.3 Damp Heat Cyclic / resistance to external humidity test *Temperature + 20 °C to + 60 °C* *Relative Humidity 30 % to 95 %*	IEC 60068-2-30 (1980) AMD1 (1985) IEC 60068-2-30:2005
	2.4 Resistance to salt spray	BS EN 1359:2017 EN 1359:2017 BSEN 1359:1999 Incorporating Amendment No. 1 EN 1359:1998 + Amendment No. 1 Clause 6.3.2.1.5 & 6.3.2.2.2 ISO 7253:1984. BSEN ISO 7253:2001 , EN ISO 9227:2012 EN ISO 9227:2017 EN 14236:2007 and 2018 BS EN 14236:2007 and 2018 Clause 6.3.2.5 & 6.3.3.2
	2.5 Salt Mist	IEC 62052-11:2020 In house procedure TP-GASM-4.1 As above

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
	3.0 Mechanical Tests	
	3.1 Vibration test *Sweep frequency: 10 Hz to 5 kHz* *Displacement: 20 mm p-p* *Capacity: 400 kgf*	IEC 60068-2-6 (1995) IEC 60068-2-6 (2007)
	3.2 Shock test *Peak acceleration: 50 g, Half sine pulse Time duration: 11 ms and 18 ms*	IEC 60068-2-27 (1987) IEC 60068-2-27 (2007)
	3.3 Protection against dust IP2X, IP5X without suction	IS/IEC 60529: 2013
	3.4 Protection against water IPX1, IPX2, IPX3 and IPX4, without suction.	
	3.5 Glow wire test/Resistance to heat and fire	IEC60695-2-11:2000
	3.6 Spring and Pendulum Hammer Test	IEC60068-2-75 (1997-05) IEC60068-2-75 (2014)
	4.0 High Voltage Tests	
	4.1 AC Voltage test *1 kV to 6 kV* 4.2 Insulation Resistance Test *Up to 100 MΩ* *Test voltage 500V dc* 4.3 Impulse Voltage Test *0.5 kV to 12 kV*	IEC 61000-4-5 (1995/2005/2014) IEC 60060-1 (1989)

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
The following tests are paragraph by paragraph from the relevant meter standards and demonstrate the comprehensive nature of the accreditation. In the main the test methods are covered in the basic standards in the previous sections.		
Static Watthour and VAR hour meters, including prepayment meters and smart meters Power metering and monitoring devices (PMD)	1. AC Voltage test *1 kV to 6 kV* 2. Insulation Resistance Test *Up to 100 MΩ* *Test Voltage: 500 V dc* 3. Impulse Voltage Test *0.5 kV to 12 kV* 4. Limits of Errors 5. Meter Constant 6. Starting Conditions 7. Ambient Temperature Influence 8. Repeatability of errors test 9. Test of power consumption *(Upper limits are 100 VA for the current circuit and 10W or 50 VA for the voltage circuit)* 10. Influence of Self Heating 11. Influence of Heating 12. Immunity to Earth Fault 13. Test/abnormal voltage condition For test 4 to 13 *Single Phase: 0.04 W to 38.4kW* *Three Phase: 0.12 W to 115.2kW* *30 V to 320 V* *1 mA to 240 A* 14. Start Up Test of energy meters *30 V to 320 V*	IEC62052-11 (2003) + A1:2016 IEC 62052-11:2020 IEC 62053-21 (2003) + A1:2016 IEC 62053-21:2020 IEC 62053-22 (2003) + A1:2016 IEC 62053-22:2020 IEC 61000-4-5(1995) IEC 61000-4-5(2014) IEC 60060-1 (1989) IEC 61000-4-5 (2005) IEC 62053-23(2003) + A1:2016 IEC 62053-23:2020 IEC 62053-61: 1998 IEC62052-21:2004 IEC 60601-1-2: 2001 IEC62055- 31:2005 IEC62053- 23 (2003) IEC 60695-2-10(2000) IEC 60695-2-11(2000) IEC 62059-32-1:2011 IEC 62053-24 (2014) + A1:2016 IEC 62053-24:2020 IEC 62053-31 (2015) BS EN 62053 -21:2003 AS 62053.22 (2005) BS EN 62053 -22:2003 BS EN 62053 -23:2003 BS EN 60687:1993 BS EN 61036:1997 BS EN 62052- 11:2003 BS EN 62052- 21:2004 BS EN 62054- 21:2004 IEC 60068-2-30 AMD1(1985)

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
Static Watthour and VAR hour meters, including prepayment meters and smart meters, Power metering and monitoring devices (PMD) (cont'd)	15. No load condition *30 V to 320 V*	
	16. Short time over voltage test 17. Spring and pendulum hammer tests *0.20 Nm, 0.22 Nm, 0.35 Nm, 0.50 Nm, 0.70 Nm, 1.00 Nm*	AS 62053.23(2006) AS 62052-21:2006 AS 62052.11 (2005)) AS 62053-22 (2005) AS 62054.21 (2006) AS 62053.21 (2005)
	18. Resistance to heat and fire *Up to 1000 °C*	
	19. Tests of effect of voltage dips and short interruptions / influence of supply voltage *At 63.5 V, 110 V and 240 V; 50Hz*	EN50470 -1:2006 EN50470 -1:2006 + A1 2018 EN50470 -3:2006 EN50470 -3:2006+ A1 2018 EN60068-2-75(1997)
	20. Interpretation of test results and adjustments	NMI M6 (2012) NMI-M6:2020
	21. Test of influence quantities (a)Voltage variation, (b)Frequency Variation, (c)Reverse phase sequence, (d)Voltage unbalance, (e)Auxiliary voltage, (f)Harmonic components in current and voltage circuits, (g)10 percent of third harmonics, (h)Sub-harmonics in a.c. circuit (i)Continuous magnetic induction of external origin, (j)Continuous abnormal magnetic induction of external origin (k)Magnetic induction of external origin,(l)DC and even harmonics in AC circuit, (m)Odd harmonies in AC circuit, (n)Operation of accessories (o)Abnormal AC magnetic induction of external origin *(10mT, 200mT)* *Single Phase: 0.04 W to 38.4 kWThree Phase: 0.12 W to 115.2 kW*	OIMLR46-1/-2 Ed 2012 IEC 61000-4-11 :2004 IEC 61557-12 :2018
	22. Short time over current test	

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
Static Watthour and VAR hour meters, including prepayment meters and smart meters, Power metering and monitoring devices (PMD) (cont'd)	*20 A to 7000 A* (1/2 cycle to 50 cycles) (1/2 cycle up to 12 kA peak 23. Short time over current test *up to 1000 A for up to 25 cycles and up to 7000 A (½ cycles)* 24. Surge Immunity Test *0.5 kV to 12 kV* 25. Electrical fast transient burst test *0.5 kV to 4.0 kV* 26. General and constructional / Mechanical requirements (A)General: (a)Meter case (b)Display of measured values (c)Output device Optical output device characteristics. Irradiance and pulse parameters (d)Window (B)Terminal: (a)Terminal block(s) - Protective earth terminal, including heat deflection test (b)Terminal cover(s) (c)Clearance and Creepage distances (d)Insulating encased meter of protective class II	**As listed on pages 6 & 7** BS EN / EN 16314:2013 (24 & 25 only)

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
	27. Meter Marking and documentation 28. Time keeping Accuracy 29. Durability 30. Pulse outputs 31. Electrical pulse inputs 32. Fast load Current Variation 33. Conducted Radio Interference Emissions Measurement *Frequency Range* *0.15 MHz to 30 MHz* *0 to 137 dBµV* 34. Test of immunity to conducted disturbances, induced by radio frequency fields *Frequency range 150 kHz to 80 MHz, EMF: up to 10 V rms*	BS EN / EN 16314:2013 (28 only)

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
Static Watthour and VAR hour meters, including prepayment meters and smart meters, Power metering and monitoring devices (PMD) (cont'd)	35. Immunity to electromagnetic HF field *Frequency Range: 80 MHz to 6GHz* *Field strength: up to 30 V/m* 36. Radiated Emissions Measurement *Frequency Range: 30 MHz to 6GHz* *Range: 0 to137 dBµV* 37. Damped oscillatory wave immunity test 38. Immunity to Electrostatic Discharge 39. Immunity to power frequency magnetic fields of external origin 40. Dry Heat Test *Ambient to +120 °C* 41. Cold Test *Ambient to - 40 °C* 42. Damp Heat Cyclic test *Temperature + 20 °C to + 70 °C* *Relative Humidity 30 % to 98 %* 43. Operation within the specified operation range 44. Operation within the limit range of operation 45. Storage and transport outside the limit range of operation 46. load switching capability 47. Token carrier interface 48. Vibration test *Sweep frequency: 10 Hz to 3 kHz Displacement:* *20 mm p-p Capacity 400 kgf*	**As listed on pages 6 & 7**

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
Static Watthour and VAR hour meters, including prepayment meters and smart meters, Power metering and monitoring devices (PMD) (cont'd)	49. Protection against dust and water *IPX1, IPX2, IPX3, IPX4 and IP5X without suction.* 50. Shock test *Peak acceleration: 50 g* *Half sine pulse* *Time duration: 11 ms and 18 ms* 51. Requirement of time keeping 52. Test of keeping time 53. Test of consumption based charging functions 54. Test of time-based charging functions 55. Functional requirements (a)General (b)Robustness of meter accounting process 56. Stability of meteorological Characteristics by applying elevated temperature. 57. High order Harmonics (Test of influence) 58. Test of intrinsic uncertainty 59. Tests of variation of uncertainty with influence quantities 60. Measurement of voltage harmonics and THDu 61. Measurement of current harmonics and THDi 62. Test of compliance voltage and effect of variation of load 63. Test of ripple content 64. Tests of analog output response time 65. Test of limit value of analog output 66. Voltage dip and voltage swell measurements 67. Voltage interruption measurements 68. Voltage unbalance measurements 69. Current unbalance measurements	**As listed on pages 6 & 7**

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
Particular requirement for time switches (synchronized & crystal controlled)	1. Variation of the supply frequency *45 Hz to 65Hz* *Single phase: 0.04 W to 38.4 kW)* *Three Phase: 0.12 W to 115.2 kW)* 2. Immunity to DC magnetic fields *1000 AT, 67 mT to 0.27 T* 3. Immunity to AC magnetic fields *0.5 mT* 4. Voltage dips and short interruptions *6 ms to 6 min* 5. Tests of effects of supply interruptions on synchronous time switches Voltage 270 Vp-n *6.* Long interruptions of supply voltage *Time up to 6 hours* *Voltage up to 320 V_{p-n}* 7. Operation reserves *Time up to 36 hours* *Voltage up to 320 V_{p-n}* 8. Backup power supply replacement Time < 5 minutes 9. Functional requirements and test accuracy *(a)time setting and programming* *(b) time switches with mechanical analogic dials* *(c)time switches with digital displays* 10. Time keeping accuracy *Time up to 30 days* *Voltage up to 320 V_{p-n}*	AS62052-21:2006 AS 62054.21(2006) IEC 61000-4-11 :2004 AS 62052-21:2006 AS 62054.21(2006) (cont'd)

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
Particular requirement for time switches (synchronized & crystal controlled) (cont'd)	11. Requirement for synchronous time and crystal switches - test of time keeping accuracy *(a) test of synchronous and crystal controlled time switches* *(b)test of synchronous and crystal controlled time switches on operation reserve* 12. Test of time keeping accuracy of crystal-controlled time switches with temperature *Frequency: 45 Hz to 65 Hz* *Single phase: 0.04 W to 38.4 kW* *Three Phase: 0.12 W to 115.2 kW* *Temperature -10 ˚C to + 40 ˚C* 13. Switching accuracy *time up to 168 hours* *(a) test on time switches with dials* *(b)test on time switches with digital displays* *(c)synchronization (time up to 1 minute)* *14. Test of influence of harmonics* Single phase: 0.04 W to 38.4 kW Three Phase: 0.12 W to 115.2 kW Time up to 30 days	
Tariff and load control equipment	1. Electrical requirements and tests 2. Supply frequency range 3. Output elements	AS62052-21:2006 EN 62059-32-1:2012

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
Measuring Instruments - Electrical measuring transducers	1. Environmental condition test 2. Variations due to Auxiliary Supply Voltage 3. Variations due to Auxiliary Supply frequency 4. Variations due to Ambient Temperature 5. Variations due to the frequency of the input quantities 6. Variations due to input Voltage 7. Variations due to input Current 8. Variations due to power factor 9. Variations due to output load 10. Variations due to distortion of the input quantities 11. Variation due to magnetic fields of external origin 12. Variation due to unbalanced currents 13. Variation due to the interaction between measuring elements 14. Variation due to self-heating 15. Variation due to continuous operation 16. Permissible excessive inputs 17. Continuous excessive inputs 18. Excessive inputs of short duration 19. Variation due to common mode interference 20. Variation due to series mode interference 21. Test of limits of Intrinsic Error 22. Marking 23. Test for temperature rise 24. Limiting condition for storage and transport (up to 80 ˚C 25. Response time *(up to 700 ms)*	IEC 60688 (2015} IS 12784 part 1 (1989) IEC 60521 (1988) IEC 61000-4-12 (1995) IEC 61010-1(2001)

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
Measuring Instruments - Electrical measuring transducers (cont'd)	26. Limiting value of output *(0 V to 320 V, 0 A to 120 A)* 27. Sealing verification 28. Ripple content of output (0 V to 320 V, 0 A to 120 A) 29. Over range of measurand (0 V to 320 V, 0 A to 120 A) and other safety requirements 30. Impulse voltage tests 31. High frequency disturbance test 32. Voltage test, insulation tests	As listed on previous page

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
Electricity Metering Equipment (AC)	Information and marking requirements (clause 5) General. Labels, signs and signals. Information for selection. Information for installation and commissioning. Information for use. Information for maintenance. Protection against electrical shock (clause 6) General requirements Determination of accessible parts. Limit values for accessible parts. Primary means of protection (protection against direct contact). Additional means of protection in case of single fault conditions (protection against indirect contact). Connection to external circuits. Insulation requirements. Insulation requirements between circuits and parts. Constructional requirements for protection against electric shock. Safety related electrical tests.	IEC 62052-31:2015 AS 62052-31:2017 Clause 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 Annex A to K

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
Electricity Metering Equipment (AC) (cont'd)	Protection against mechanical hazards (7) General. Sharp edges. Provisions for lifting and carrying. Resistance to mechanicals stresses (8) General. Spring hammer test. Protection against spread of fire (9) General. Eliminating or reducing the sources of ignition within the equipment. Containment of fire within the equipment, should it occur. Limited-energy circuit. Overcurrent protection Equipment temperature limits and resistance to heat (10) Surface temperature limits for protection against burns. Temperature rise limits for terminals. Temperature of internal parts. Temperature test. Resistance to heat. Protection against penetration of dust and water (11) Protection against liberated gases and substances explosion and implosion - Batteries and battery charging (12) Components and sub-assemblies (13) General. Mains transformers tested outside equipment. Printed wiring boards. Components bridging insulation. Circuits or components used as transient overvoltage limiting devices. Hazards resulting from application - Reasonably foreseeable misuse (14) Risk Assessment (15)	IEC 62052-31:2015 AS 62052-31:2017 Clause 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 Annex A to K

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
Electricity Metering Equipment (AC) (cont'd)	Measuring circuits for touch Current (Annex A) Examples for insulation between Parts (Annex B) Examples for direct connected meters equipped with supply control and load control switches (Annex C) Test circuit diagram for the test of long term overvoltage withstand (Annex D) Test circuit diagram for short current test on the current circuit of direct connected meters (Annex E) Examples for voltage tests (Annex F) Additional a.c. voltage tests for electromechanical meters (Annex G) Test equipment for cable flexion and pull test (Annex H) Routine tests (Annex I) Examples of battery protection (Annex J) Rationale for specifying overvoltage category III (Annex K)	

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
Diaphragm and Ultrasonic domestic gas meters	**Metrological performance:** Permissible errors of indication Carried out on air only from 0.016 m^3/hour to 10 m^3/hour Error of indication Error on gas Gas-air relationship Temperature sensitivity Pressure absorption Starting flow rate Metrological stability Influence of other devices Cyclic volume Installation effects Zero flow Reverse flow Low flow registration High flow registration Overload flow rate Mode comparison Pulsed (unsteady) flow Environment and humidity Immunity to contaminants in gas stream Meters with gas temperature conversion devices Reproducibility Repeatability Flow test at different temperatures Monitoring the unsuppressed flow rate output of the meter at no-flow conditions at different temperatures Evaluation of the construction of the meter Flow tests with equal gas and ambient temperatures Flow tests with unequal gas and ambient temperatures Different gases Interchangeable components	In house procedure TP-GASM-P-1.1 BS EN 1359:2017 EN 1359:2017 BS EN 1359:1999 Incorporating Amendment No. 1 EN 1359:1998 + Amendment No. 1 clause 5, clause 7.1.3 and B.2.3 BS EN 14236:2018, EN 14236:2018, EN 14236:2007 and BSEN 14236 (2007) clause 5,7.3 and annex C EN 16314:2013 and BSEN 16314:2013, Clause 4.11.1, 7.13.4.4, 7.13.4.9 Clause 5.3, 5.4, 5.6, 5.7, 5.9 ,5.11, 5.13.5,5.13.6, 12.6.7 a, 12.6.7 b, 12.6.7c, 12.7.6.1,12.7.6.2, 12.6.11, 12.6.12, & 12.6.1, 12.6.14, of OIML R137-1&2:2012(E) Including Amendment 2014

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
Diaphragm and Ultrasonic domestic gas meters	**Construction and material properties** General Robustness of meter case including: Protection against penetration of dust and water Resistance to internal Pressure External leak tightness Heat resistance Connections Resistance to vibration Vibration (random): disturbance test Mechanical shocks : disturbance test Resistance to Impact Resistance to mishandling Corrosion protection Casework decorative finish Ageing of non-metallic casework Ageing of external surfaces of the meter Resistance to external humidity Flame retardance of external surfaces Resistance to the effects of toluene/iso-octane vapour Resistance to water vapour Ageing Meter case sealing test Connections Orientation Threads Strength Torque Bending moment Protective coatings Scratch resistance Adhesion Impact resistance Resistance to humidity Chemical resistance Electronics-Dry heat (non-condensing) influence test Electronics-Cold influence test	In house procedure TP-GASM-P-2.1 BS EN 1359:2017 EN 1359:2017 BSEN 1359:1999 Incorporating Amendment No. 1 EN 1359:1998 + Amendment No. 1 clauses 6 BS EN 14236:2018, EN 14236:2018, EN 14236:2007 and BSEN 14236 (2007) clause 6 excluding 6.7 Protection against solar radiation EN 16314:2013 and BSEN 16314:2013 Clause 4.8, 4.9.5, 4.9.6, 4.10, 4.14, 4.15, 4.16, 7.13.4.7, Annex – D3, D5, 7.13.4.6.3, Annex – D3, D4 Clause 5.8, 5.12, 12.6.13, 12.6.15, A.4.1.1, A.4.1.2, A.4.2.1, A.4.2.2, A.5.1 of OIML R137-1 &2 :2012(E) Including Amendment 2014 Clause 5.12, 12.6.13,12.6.15, A.5.1 of OIML R137-1 & 2 :2012 (E) Including amendment & IEC 60068-2-47 , IEC 60068-2-64, IEC 60068-2-31 Clause A.4.1.1 , 12.6.15 of OIML R137-1 & 2 :2012 (E) Including Amendment & IEC 60068-2-2

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
Diaphragm and Ultrasonic domestic gas meters	Electronics- Damp heat, steady-state (non condensing): influence test Electronics- Damp heat, cyclic (condensing): disturbance test Resistance to storage temperature range Pressure measuring point Insulation feet Resistance to high ambient temperature Magnetic index drive Reverse flow devices	Clause A.4.1.2 , 12.6.15 of OIML R137-1 & 2 :2012 (E) Including Amendment & IEC 60068-2-1 Clause A.4.2.1 , 12.6.15 of OIML R137-1 & 2 :2012 (E) Including Amendment & IEC 60068-2-78 Clause A.4.2.2 , 12.6.15 of OIML R137-1 & 2 :2012 (E) Including Amendment & IEC 60068-2-30
Diaphram and Ultrasonic domestic gas meters	Optional features Pressure measuring point Resistance to high ambient Temperatures Meter fitted with a thermal shut-off valve Ancillary devices Meters with temperature conversion devices Index Markings Software Battery Immunity to electromagnetic fields Electrostatic discharge Radio frequency electromagnetic field Electromagnetic induction (power frequency and pulsed field) Radio Interference suppression Permanent magnetic fields Radio Frequency common mode Fast Transient Bursts Surges Conducted radio-frequency field	BS EN 14236:2018, EN 14236:2018, EN 14236:2007 and BSEN 14236 (2007) clauses 7, 8, 9, 10, 12, 13 Excluding clauses 7.5, 9.3.2.2, 10, 11 EN 16314:2013 and BSEN 16314:2013 Clause 4.12.2, 4.12.3, 4 .12. 4, 4.12.5, 4.12.6, 4.12.7, 4.13.2, 4.13.3, 4.13.4 Clause A.6.1.1 , 12.6.15 of OIML R137-1 & 2 :2012 (E) Including Amendment & IEC 61000-4-3 Clause A.6.1.2 , 12.6.15 of OIML R137-1 & 2 :2012 (E) Including Amendment & IEC 61000-4-6 Clause A.6.2 , 12.6.15 of OIML R137-1 & 2 :2012 (E) Including Amendment & IEC 61000-4-2 Clause A.6.3 , A.7.5, 12.6.15 of OIML R137-1 & 2 :2012 (E) Including Amendment & IEC 61000-4-4

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
Diaphram and Ultrasonic domestic gas meters	DC mains voltage variation: influence test AC mains voltage variation: influence test AC mains voltage dips and short interruptions: disturbance test Low voltage of internal battery (not connected to the mains power): influence tes**t**	Clause A.6.4 ,A.7.6, 12.6.15 of OIML R137-1 & 2 :2012 (E) Including Amendment & IEC 61000-4-5 Clause A.7.1 , 12.6.15 of OIML R137-1 & 2 :2012 (E) Including Amendment & IEC 60654-2 Clause A.7.2 , 12.6.15 of OIML R137-1 & 2 :2012 (E) Including Amendment & IEC/TR 61000-2-1 Clause A.7.3 , 12.6.15 of OIML R137-1 & 2 :2012 (E) Including Amendment IEC 61000-4-11 , IEC 61000-6-1, IEC 61000-6-2
Diaphragm domestic gas meters	**Mechanical performance** Meter assembly Index Diaphragm and other components	BS EN 1359:2017 EN 1359:2017 BSEN 1359:1999 Incorporating Amendment No. 1 EN 1359:1998 + Amendment No. 1 clause 7
Diaphragm domestic gas meters	**Markings**	BS EN 1359:2017 clause 8 EN 1359:2017 clause 8 EN 1359:1999 clause 8

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
Diaphragm and Ultrasonic domestic gas meters	**Additional functionality** Types of additional functionality devices AFD1, AFD2, AFD3 Climatic environments Closed location Safety requirements Expected lifetime Security Power system Display Diagnostics Metrological influence AFD connections Input to AFD & Output from AFD Data storage Time interval accuracy Energy Calculation within the meter/AFD Tariffs Display/Human interface Gas valve and System Design Quality Valve operation & performance Display of valve related information Valve closing & opening Electrical Safety Registers Prepayment System with valve and without a valve History of Consumption Memory Access profiles Non-volatile memory Valve performance Opening and Closing Water vapour Endurance Documentation Ageing Marking	In house procedure TP-GASM-P-3.1 EN 16314:2013 and BSEN 16314:2013 Clause 4.4, 4.5, 4.9.1, 4.9.2, 4.11, 4.17, 5, 6, 7, 8, 9, Annex D2, D4, D5
END		