THE KENYA POWER COMPANY

SPECIFICATIONS FOR MULTIFUNCTIONAL CALIBRATOR

	NAME	DESIGNATION	SIGNATURE	DATE
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REVISION RECORD

REVISION	DESCRIPTION OF REVISION	DATE
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Foreword

This standard specification has been prepared by the Meter Central Laboratory in consultation with the Research and Development Department, all of KP, and lays down requirement for Multifunctional Calibrator

This specification is intended for procurement of materials and does not include provision of contract.

This specification is based on EN/IEC 61010-1 standard on safety,

It is subject to revision as and when required.

This specification supersedes all specifications Multifunctional Calibrator

Issued before the revision date.

Introduction

This specification was prepared to establish and promote uniform requirements for Multifunctional Calibrator. The specification lays down the minimum requirements for equipment acceptable for evaluation. It is the responsibility of the Supplier to obtain copies of the standards referred herein.

1 **Scope**

This is a Multifunctional Calibrator. The Multifunctional Calibrator shall be easy to use. Unless otherwise specified; Multifunctional Calibrator shall comply with

IEC 61010-1/EN61010 standard on safety,

Degree of protection class 1.

2 **References**

The following documents were referred to during the preparation of this specification; in case of conflict, the requirements of this specification take precedence,

- IEC TR 61010-3-032 : standard on safety requirement for electrical equipments for measurements and laboratory use
- IEC 60529: Degree of protection provided by enclosures

Definitions

The definitions given in the reference standard apply.

3. REQUIREMENTS

3.1 **Operating Conditions**

3.1.1 The Multifunctional Calibrator. shall operate in tropical areas with the following atmospheric conditions:

3.1.1.1 Humidity: High at Coast, up to 95 % and operating

3.1.1.2 Altitudes ranging from 0 to 2000m above sea level

3.1.1.3 Temperature: Vary from≤2 °C to 50 °C degrees.

4.2 Design and construction

4.2.1.1 The Multifunctional Calibrator shall have Width less than 433cm.Height less than 18cm and Depth less than 20cm

4.2.1.2 The Multifunctional Calibrator shall calibrate both Analogue and Digital Equipments.

4.2.1.3 The Multifunctional Calibrator. Shall calibrate wide range of test Equipments e.g insulation testers and continuity testers.

4.2.1.4 The Multifunctional Calibrator shall be a single portable calibration source.

4.2.1.5 The Multifunctional Calibrator shall be able to generate results certificate compliant with our Quality System requirements (ISO 17025) and other International Quality Standards.

4.2.1.6 The Multifunctional Calibrator shall have procedure mode that guides operators step by step on the calibration process.

4.2.1.7 The Multifunctional Calibrator shall generate all waveforms required to calibrate oscilloscopes up to 600 MHz

4.2.1.8 The Multifunctional Calibrator shall have variable phase angle voltages and current that allow to calibrate power meters.

4.2.1.9 The Multifunctional Calibrator shall do self test on start up.

4.2.1.10 The Multifunctional Calibrator shall have a hard transit case with wheels.

4.2.1.11 The Multifunctional Calibrator shall have a hard mounting kit with feet on the bottom.

4.2.1.12 The Multifunctional Calibrator shall have standard interfaces, IEE-488, RS 232.

4.2.1.13 The Multifunctional Calibrator shall have a software support which provides software upgrades and calibration. Calibration due date message on the display shall be deactivated

4.2.1.14 The Multifunctional Calibrator shall weight of $\leq$ 23kg .without options.

4.2.1.15 The Multifunctional Calibrator shall have Absolute Uncertainty values provided for all Equipment ranges.

4.3 RATINGS

4.3.1 The Multifunctional Calibrator shall have

- Single phase 100v/120/220/240v selectable from rear panel
- Line Frequency 43 to 63 Hz. ±10% of the voltage settings

- A current circuit breaker with over-current protection
- Provide reverse power protection, immediate output disconnection and fuse protection on all output functions.
- Maximum power ≥300VA
- Power fuses 220/240v 15A and 110/120v

4.3.2 The Multifunctional Calibrator shall perform the following functions:

- Ac voltage output variable ..... 0 to ≥1020V
- Ac current variable.....0 -20A.Upto 1000A with option
- Dc voltage output variable .....0 to≥1020V
- Dc Current variable...0 -20A. Up to 1000A with option
- Temperature measurements and indicator....T/C /RTD
- Frequency measurements.....0 to 40MHZ
- Resistance .....0 to ≥200Mega Ohm
- Conductance accuracy
- Capacitance accuracy
- Self internal zero calibration

4.3.3 A type tests calibration certificate from a national metrology institute shall be required with calibration bench to be provided.
Where test and / or calibration certificates/ reports are issued by a laboratory other than the International / National Test Certification Authority, **a copy of accreditation certificate from the International / National Testing Certification Authority shall be attached together with the tender documents.**

Requirements of clause 4.3 shall form part of the type test approval to be issued by an international or the national (of country of manufacture) the three phase multifunctional calibration station.

4.4 **Marking, Labeling and Packaging**

4.4.1 Markings

The markings shall identify:

a) The serial number of the equipment

b) The ratings;

4.4.1.1 Method of marking

4.4.1.2 The markings shall be marked clearly and indelible, either on their surface or in their immediate vicinity.

4.4.1.3 The marking shall consist of letters followed, or preceded where necessary, by numbers. The letters shall be in block capitals.

4.4.2 Rating plate markings

The Multifunctional Calibrator shall

at least carry the following markings:

a) the manufacturer's name or other mark by which he may be readily identified;

b) a serial number or a type designation,

c) "THE PROPERTY OF K.P. CO. LTD."

All information shall be marked in an indelible manner on the Multifunctional Calibrator. In addition, other information shall be marked whenever space.

4.4.3 Packaging

4.3.4 The Multifunctional Calibrator shall be packaged in such a manner as to minimize damage and entry of moisture during transportation and handling.. Where a tender has been awarded, packaging shall be done only after inspection, testing of the Multifunctional Calibrator has been finalized. In the absence of these consent to package and shipment shall be granted, in writing, by the Procurement manager, Kenya Power Company Ltd.

5.0 TEST METHODS

The tests specified in this standard are classified as operation tests, routine tests, and special tests

6.0 OTHER REQUIREMENTS

6.1 Guarantee

4.3.5 The Multifunctional Calibrator shall be guaranteed against any defects, which may develop due to faulty material calibration, transportation or workmanship for a twelve-month period from the date of delivery.

6.2. Product information

The following Drawings and Information shall be supplied with the tender.

(a) Drawing giving all relevant dimensions.

(b) Wiring diagram.

(c) Description leaflet of the Multifunctional Calibrator.

(d) Operation manual

6.3 The tenderer shall show proof, by means of appropriate current certificates, of compliance to ISO 9001:2008) and / or ISO 14001 series of Standards.

6.4 A statement of compliance or non-compliance with the above specifications shall be required. In case of non-compliance the affected requirements shall be indicated.

The manufacturer shall meet the full costs of two engineers, for the Multifunctional Calibrator, inspection and acceptance testing at the manufacturer's facility, excepting the cost of engineers' transportation from Kenya to the nearest major airport.

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6.5 The Multifunctional Calibrator shall be delivered with 2 laptops with minimum specification as attached in appendix B

APPENDIX A: SPECIFICATIONS FOR THE LAPTOP COMPUTER

Processor	Hard Disk	Ram	Writer	Display
Intel Duo	120GB	1GB	DVD-RW	15-17 FT
CORE 2GHZ				

7.0 REFERENCES

The following documents were referred to during the preparation of this specification, and may be referred to. In case of conflict, the provision of this specification shall take precedence.

Unless otherwise specified, the latest revision, edition and amendments shall apply.

- IEC TR 61010-3-032 : standard on safety requirement for electrical equipments for measurements and laboratory use

KPLC: Code of Practice for Drafting and Presentation of Standards

Appendix B: SCHEDULE OF TECHNICAL DATA

Clause Number	Bidder's offer	Manufacturer's catalogue, drawing, technical data or tests certificate Reference Page to support the offer.
3.1 Operating Conditions		
3.1.1 The Multifunctional Calibrator shall operate in tropical areas with the following atmospheric conditions: 3.1.1.1 Humidity: High at Coast, up to 95 % and operating 3.1.1.2 Altitudes ranging from sea level to 2000m above sea level 3.1.1.3 Temperature: Vary from ≤2°C to 50 °C degrees.		
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4.2.1 Dimensions		
4.2.1.1 The Multifunctional Calibrator shall have Width less than 433cm.Height less than 18cm and Depth less than 20cm	0	
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4.2.1.15 The Multifunctional Calibrator output shall have Absolute Uncertainty values provided for all Equipment ranges.		
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4.3.1 The Multifunctional Calibrator shall have • Single phase 100v/120/220/240v selectable from rear panel • Line Frequency 43 to 63 Hz. ±10% of the voltage settings • A current circuit breaker with over-current protection • Provide reverse power protection, immediate output disconnection and fuse protection on all output functions. • Maximum power ≥300VA • Power fuses 220/240v 15A and 110/120v		

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4.3.3 **A type tests calibration certificate from a national metrology institute shall be required with Multifunctional Calibrator to be provided.** Where test and / or calibration certificates/ reports are issued by a laboratory other than the International / National Test Certification Authority, **a copy of accreditation certificate from the International / National Testing Certification Authority shall be attached together with the tender documents.** **Requirements of clause 4.3 shall form part of the type test approval to be issued by an international or the national (of country of manufacture) the Multifunctional Calibrator**		

4.4 **Marking, Labeling and Packaging**	
4.4.1 The markings shall identify: a) The serial number of the equipment b) The ratings;	
4.4.1.1 Method of marking	

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b) A serial number or a type designation,	
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All information shall be marked in an indelible manner on the Multifunctional Calibrator	
In addition, other information shall be marked whenever there is space.	
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6.1 Guarantee: The Multifunctional Calibrator shall be guaranteed against any defects, which may develop due to faulty material calibration, transportation or workmanship for a twelve-month period from the date of delivery.	
6.2 Product information: The following Drawings and Information shall be supplied with the tender. (a) Drawing giving all relevant dimensions. (b) Wiring diagram. (c) Description leaflet of the Multifunctional Calibrator Operational manual	
6.3The tenderer shall show proof, by means of appropriate current certificates, of compliance to ISO 9001:2008) and / or ISO 14001 series of Standards.	
6.4 A statement of compliance or non-compliance with the above specifications shall be required. In case of non-compliance the affected requirements shall be indicated. The manufacturer shall meet the full costs of two engineers, for the Multifunctional Calibrator, inspection and acceptance testing at the manufacturer's facility, excepting the cost of engineers' transportation from Kenya to the nearest major airport.	
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NB: - This schedule does not in any way substitute for detailed information required elsewhere in the specification.

Manufacturer's Declaration: I .....on behalf of.....
Declare that the above specifications matrix conforms to a typical tender item type..... as clearly marked in the attached technical brochures & drawings, and being offered for this tender.
Signature..... Date.....Stamp/Seal.....