KENYA BUREAU OF STANDARDS

TENDER DOCUMENT

FOR

SUPPLY, DELIVERY, INSTALLATION AND USER TRAINING OF TESTING LABORATORY EQUIPMENT

KEBS/T008/2018/2019

KENYA BUREAU OF STANDARDS
P.O. BOX 54974-00200
NAIROBI.
TEL: 020 6948000/605490/605550
E-MAIL: info@kebs.org, procurement@kebs.org
Website: www.kebs.org
FAX: 020 609660/ 604031

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KENYA BUREAU OF STANDARDS

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Website: www.kebs.org

INVITATION TO TENDER

TENDER NO. KEBS/T008/2017/2018: SUPPLY, DELIVERY, INSTALLATION, AND USER TRAINING OF LABORATORY EQUIPMENT

Kenya Bureau of Standards (KEBS) invites sealed tenders from eligible candidates for Supply, Delivery, Installation and User Training of Laboratory Equipment.

Interested eligible candidates may obtain further information from and inspect the tender documents from **Procurement Office at KEBS Centre, Popo Road, Off Mombasa Road, Behind Bellevue Cinema Nairobi.** A complete tender document may be obtained by interested candidates on normal working days between **8.30 a.m and 4.00 p.m** or **Download from the KEBS website www.kebs.org,** upon payment of a non refundable fee of **Kenya Shillings One Thousand (Kshs.1,000)** payable in cash or bankers' cheque **to Kenya Bureau of Standards**

Completed tender documents in plain sealed envelopes clearly marked **"KEBS/T008/2018/2019: SUPPLY, DELIVERY, INSTALLATION AND USER TRAINING OF LABORATORY EQUIPMENT** should be addressed and delivered to:

THE MANAGING DIRECTOR,
KENYA BUREAU OF STANDARDS,
POPO ROAD OFF MOMBASA ROAD
P.O. BOX 54974 - 00200
NAIROBI.
Or be deposited in the Tender Box at **KEBS Centre Main Reception** marked "**TENDER BOX**" so as to be received on or before **10.00 am on Tuesday 25th September, 2018**.

Tender opening will be carried out immediately thereafter at the **KEBS Centre Conference Room.**

Tenderers or their representatives are free to attend the tender opening.

Tenders must be accompanied by Bid Bond of 2% of the Tender sum in the format specified in the tender document.

Tenders will be opened immediately thereafter in the presence of the tenderers representatives who choose to attend the opening at **KEBS Centre Conference Room.**

Managing Director

Section B. General Information

Introduction

1. Eligible Tenderers

1.1 This Invitation for Tenders is open to all tenderers eligible as described in the tender documents. Successful tenderers shall complete the supply of Laboratory equipment by the intended completion date specified in the tender documents.

1.2 Tenderers shall provide the qualification information statement that the tenderer (including all members of a joint venture and subcontractors) is not associated, or have been associated in the past, directly or indirectly, with a firm or any of its affiliates which have been engaged by the Procuring entity to provide consulting services for the preparation of the design, specifications, and other documents to be used for the procurement of the goods under this Invitation for tenders.

1.3 Tenderers shall not be under a declaration of ineligibility for corrupt and fraudulent practices.

2. Eligible Goods

2.1 All Laboratory equipment to be supplied under the contract shall have their origin in eligible source countries.

2.2 For purposes of this clause, “origin” means the place where the goods are mined, grown, or produced. Goods are produced when, through manufacturing, processing, or substantial and major assembly of components, a commercially recognized product results that is substantially different in basic characteristics or in purpose or utility from its components.

2.3 The origin of goods is distinct from the nationality of the tenderer.

3. Cost of Tendering

3.1 The Tenderer shall bear all costs associated with the preparation and submission of its tender, and the procuring entity, will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the tendering process.

The Tender Document

4. Contents

4.1 The tender document comprises the documents listed below and addenda issued in accordance with clause 6 of theses instructions to tenders.

(i) Invitation for Tenders
(ii) General information
(iii) General Conditions of Contract
(iv) Special Conditions of Contract
(v) Schedule of Requirements
(vi) Technical Specifications
(vii) Tender Form and Price Schedules
(viii) Confidential Questionnaire
(ix) Tender Security Form
(x) Contract Form
(xi) Performance Security Form
(xii) Manufacturer's Authorization Form

4.2 The Tenderer is expected to examine all instructions, forms, terms, and specifications in the tender documents. Failure to furnish all information required by the tender documents or to submit a tender not substantially responsive to the tender documents in every respect will be at the tenderers risk and may result in the rejection of its tender.

5. Clarification of Documents

5.1 A prospective tenderer requiring any clarification of the tender document may notify the Procuring entity in writing or by cable (hereinafter, the term *cable* is deemed to include telex and facsimile) at the entity's address indicated in the Invitation for tenders. The Procuring entity will respond in writing to any request for clarification of the tender documents, which it receives no later than seven **(7**) days prior to the deadline for the submission of tenders, prescribed by the procuring entity. Written copies of the Procuring entities response (including an explanation of the query but without identifying the source of inquiry) will be sent to all prospective tenderer that have received the tender document.

6. Amendment of Documents

6.1 At any time prior to the deadline for submission of tenders, the Procuring entity, for any reason, whether at its own initiative or in response to a clarification requested by a prospective tenderer, may modify the tender documents by amendment.

6.2 All prospective candidates that have received the tender documents will be notified of the amendment in writing or by cable, and will be binding on them.

6.3 In order to allow prospective tenderers reasonable time in which to take the amendment into account in preparing their tenders, the Procuring entity, at its discretion, may extend the deadline for the submission of tenders.

Preparation of Tenders

7. Language of Tender

7.1 The tender prepared by the tenderer, as well as all correspondence and documents relating to the tender exchanged by the tenderer and the Procuring entity, shall be written in English language, provided that any printed literature furnished by the tenderer may be written in another language provided they are accompanied by an accurate English translation of the relevant passages in which case, for purposes of interpretation of the tender, the English translation shall govern.

8. Documents Comprising the Tender

8.1 The tender prepared by the tenderer shall comprise the following components:

(a) A Tender Form and a Price Schedule completed in accordance with paragraph 9, 10 and 11 below.

(b) Documentary evidence established in accordance with paragraph 12 that the tenderer is eligible to tender and is qualified to perform the contract if its tender is accepted;

(c) Documentary evidence established in accordance with paragraph 13 that the goods and ancillary services to be supplied by the tenderer are eligible goods and services and conform to the tender documents; and

(d) Tender security furnished in accordance with paragraph 14

9. Tender Form

9.1 The tenderer shall complete the Tender Form and the appropriate Price Schedule furnished in the tender documents, indicating the equipment to be supplied, a brief description of the Equipment, their country of origin, quantity, and prices.

10. Tender Prices

10.1 The tenderer shall indicate on the appropriate Price Schedule the unit prices and total tender price of the equipment it proposes to supply under the contract.

10.2 Prices indicated on the Price Schedule shall be entered separately in the following manner:

(i) The price of the equipment quoted EXW (ex works, ex factory, ex warehouse, ex showroom, or off-the-shelf, as applicable), including all customs duties and sales and other taxes already paid or payable.

(ii) Charges for inland transportation, insurance, and other local costs incidental to delivery of the equipment to their final destination.

10.3 Prices quoted by the tenderer shall be fixed during the Tender's performance of the contract and not subject to variation on any account. A tender submitted with an adjustable price quotation

will be treated as non-responsive and will be rejected, pursuant to paragraph 22.

11. Tender Currencies

11.1 Prices shall be quoted in the following currencies:

(a) For goods that the tenderer will supply from within Kenya, the prices shall be quoted in Kenya shillings; and

(b) For equipment that the tenderer will supply from outside Kenya, the prices shall be quoted in US dollars or in another freely convertible currency.

12. Tenderers Eligibility and Qualifications.

12.1 Pursuant to paragraph 1 of section III, the tenderer shall furnish, as part of its tender, documents establishing the tenderers eligibility to tender and its qualifications to perform the contract if it's tender is accepted.

12.2 The documentary evidence of the tenderers eligibility to tender shall establish to the Procuring entity's satisfaction that the tenderer, at the time of submission of its tender, is from an eligible source country as defined under paragraph I of section III.

12.3 The documentary evidence of the tenderers qualifications to perform the contract if its tender is accepted shall establish to the Procuring entity's satisfaction:

(a) That, in the case of a tenderer offering to supply equipment under the contract which the tenderer did not manufacture or otherwise produce, the tenderer has been duly authorized by the goods' Manufacturer or producer to supply the equipment;

(b) That the tenderer has the financial, technical, and production capability necessary to perform the contract;

(b) That, in the case of a tenderer not doing business within Kenya, the tenderer is or will be (if awarded the contract) represented by an Agent in Kenya equipped, and able to carry out the Tenderer's maintenance, repair, and spare parts-stocking obligations prescribed in the Conditions of Contract and/or Technical Specifications.

13. Goods' Eligibility and Conformity to Tender Document.

13.1 Pursuant paragraph 2 of this section, the tenderer shall furnish, as part of its tender, documents establishing the eligibility and conformity to the tender documents of all equipment, which the tenderer proposes to supply under the contract.

13.2 The documentary evidence of the eligibility of the equipment shall consist of a statement in the Price Schedule of the country of origin of the equipment and services offered which a certificate of origin issued at the time of shipment shall confirm.

13.3 The documentary evidence of conformity of the goods to the tender documents may be in the form of literature, drawings, and data, and shall consist of:

(a) A detailed description of the essential technical and performance characteristics of the goods;

(b) A list giving full particulars, including available sources and current prices of spare parts, special tools, etc., necessary for the proper and continuing functioning of the goods for a period of two (2) years, following commencement of the use of the goods by the Procuring entity; and

(c) A clause-by-clause commentary on the Procuring entity's Technical Specifications demonstrating substantial responsiveness of the goods and services to those specifications, or a statement of deviations and exceptions to the provisions of the Technical Specifications.

13.4 For purposes of the commentary to be furnished pursuant to paragraph 13.3(c) above, the tenderer shall note that standards for workmanship, material, and equipment, as well as references to brand names or catalogue numbers designated by the Procurement entity in its Technical Specifications, are intended to be descriptive only and not restrictive. The tenderer may substitute alternative standards, brand names, and/or catalogue numbers in its tender, provided that it demonstrates to the Procurement entity's satisfaction that the substitutions ensure substantial equivalence to those designated in the Technical Specifications.

14. Tender Security

14.1 The tenderer shall furnish, as part of its tender, a tender security for the amount specified in the Invitation to tender.

14.2 The tender security is required to protect the Procuring entity against the risk of Tenderer's conduct which would warrant the security's forfeiture, pursuant to paragraph 14.7

14.3 The tender security shall be denominated in Kenya Shillings or in another freely convertible currency and shall be in the form of Cash, bank guarantee issued by a reputable bank, or insurance guarantee approved by the Authority and valid for 30 days beyond validity of the tender

14.4 Any tender not secured in accordance with paragraph 14.1 and 14.3 will be rejected by the Procuring entity as nonresponsive, pursuant to paragraph 22.

14.5 Unsuccessful Tenderer's tender security will be discharged or returned as promptly as possible as but not later than thirty (30) days after the expiration of the period of tender validity prescribed by the Procuring entity.

14.6 The successful Tenderer's tender security will be discharged upon the tenderer signing the contract, pursuant to paragraph 30, and furnishing the performance security, pursuant to paragraph 31.

4.7 The tender security may be forfeited:

(a) if a tenderer withdraws its tender during the period of tender validity specified by the procuring entity on the Tender Form; or

(b) In the case of a successful tenderer, if the tenderer fails:

(i) To sign the contract in accordance with paragraph 30

Or

(ii) To furnish performance security in accordance with paragraph 31.

15. Validity of Tenders

15.1 Tenders shall remain valid for **120 days** or as specified in the tender documents after date of tender opening prescribed by the Procuring entity, pursuant to paragraph 18. A tender valid for a shorter period shall be rejected by the Procuring entity as nonresponsive.

15.2 In exceptional circumstances, the Procuring entity may solicit the Tenderer's consent to an extension of the period of validity. The request and the responses thereto shall be made in writing. The tender security provided under paragraph 14 shall also be suitably extended. A tenderer may refuse the request without forfeiting its tender security. A tenderer granting the request will not be required nor permitted to modify its tender.

16. Format and Signing of Tender

16.1 The Tenderer shall prepare two copies of the tender, clearly marking each "**ORIGINAL TENDER"** and **"COPY OF TENDER,**" as appropriate. In the event of any discrepancy between them, the original shall govern.

16.2 The original and all copies of the tender shall be typed or written in indelible ink and shall be signed by the tenderer or a person or persons duly authorized to bind the tenderer to the contract. Written power-of-attorney accompanying the tender shall indicate the latter authorization. The person or persons signing the tender shall initial all pages of the tender, except for unamended printed literature.

16.3 The tender shall have no interlineations, erasures, or overwriting except as necessary to correct errors made by the tenderer, in which case such corrections shall be initialled by the person or persons signing the tender.

Submission of Tenders

17. Sealing and Marking of Tenders

17.1 The tenderer shall seal the original and each copy of the tender in separate envelopes, duly marking the envelopes as "**ORIGINAL**" and "**COPY."** The envelopes shall then be sealed in an outer envelope.

17.2 The inner and outer envelopes shall:

a) Be addressed to the Procuring entity at the following address:

THE MANAGING DIRECTOR
KENYA BUREAU OF STANDARDS
P.O.BOX 54974 – 00200
POPO ROAD
OFF MOMBASA ROAD
BEHIND BELLEVUE CINEMA
NAIROBI

Bear the tender no. **KEBS/T008/2017/2018: SUPPLY, DELIVERY, INSTALLATION AND USER TRAINING OF TESTING LABORATORY EQUIPMENT** and the words: **"DO NOT OPEN BEFORE" 10.00 am on Tuesday 25th September, 2018.**

17.3 The inner envelopes shall also indicate the name and address of the tenderer to enable the tender to be returned unopened in case it is declared "late".

17.4 If the outer envelope is not sealed and marked as required by paragraph 17.2, the Procuring entity will assume no responsibility for the tender's misplacement or premature opening.

18. Deadline for Submission of Tenders

18.1 Tenders must be received by the Procuring entity at the address specified under paragraph 17.2 no later than **10.00 am on Tuesday 25th September, 2018**.

18.2 The Procuring entity may, at its discretion, extend this deadline for the submission of tenders by amending the tender documents in accordance with paragraph 6, in which case all rights and obligations of the Procuring entity and candidates previously subject to the deadline will thereafter be subject to the deadline as extended.

9. Modification and Withdrawal of Tenders

19.1 The tenderer may modify or withdraw its tender after the tender's submission, provided that written notice of the modification, including substitution or withdrawal of the tenders, is received by the Procuring prior to the deadline prescribed for submission of tenders.

19.2 The Tenderer's modification or withdrawal notice shall be prepared, sealed, marked, and dispatched in accordance with the provisions of paragraph 17. A withdrawal notice may also be sent by cable, but followed by a signed confirmation copy, postmarked not later than the deadline for submission of tenders.

19.3 No tender may be modified after the deadline for submission of tenders.

19.4 No tender may be withdrawn in the interval between the deadline for submission of tenders and the expiration of the period of tender validity specified by the tenderer on the Tender Form. Withdrawal of a tender during this interval may result in the Tenderer's forfeiture of its tender security, pursuant to paragraph 14.7.

Opening and Evaluation of Tenders

20. Opening of Tenders

20.1 The Procuring entity will open all tenders in the presence of tenderers' representatives who choose to attend, at **10.00 am on Tuesday 25th September, 2018**.and in the following location:

KENYA BUREAU OF STANDARDS
OFF MOMBASA ROAD
POPO ROAD
BEHIND BELLEVUE CINEMA
CONFERENCE ROOM
NQI COMPLEX

The tenderers' representatives who are present shall sign a register evidencing their attendance.

20.2 The tenderers' names, tender modifications or withdrawals, tender prices, discounts, and the presence or absence of requisite tender security and such other details as the Procuring entity, at its discretion, may consider appropriate, will be announced at the opening.

20.3 The Procuring entity will prepare minutes of the tender opening.

21. Clarification of Tenders

21.1 To assist in the examination, evaluation and comparison of tenders the Procuring entity may, at its discretion, ask the tenderer for a clarification of its tender. The request for clarification and the response shall be in writing, and no change in the prices or substance of the tender shall be sought, offered, or permitted.

21.2 Any effort by the tenderer to influence the Procuring entity in the Procuring entity's tender evaluation, tender comparison or contract award decisions may result in the rejection of the tenderers' tender.

22. Preliminary Examination

22.1 The Procuring entity will examine the tenders to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished, whether the documents have been properly signed, stamped and whether the tenders are generally in order.

22.2 Arithmetical errors will be rectified on the following basis. If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail, and the total price shall be corrected. If the candidate does not accept the correction of the errors, its tender will be rejected, and its tender security may be forfeited. If there is a discrepancy between words and figures, the amount in words will prevail.

22.3 The Procuring entity may waive any minor informality or non-conformity or irregularity in a tender which does not constitute a material deviation, provided such waiver does not prejudice or affect the relative ranking of any tenderer.

22.4 Prior to the detailed evaluation, pursuant to paragraph 23, the Procuring entity will determine the substantial responsiveness of each tender to the tender documents. For purposes of these paragraphs, a substantially responsive tender is one, which conforms to all the terms and conditions of the tender documents without material deviations. The Procuring entity's determination of a tender's responsiveness is to be based on the contents of the tender itself without recourse to extrinsic evidence.

22.5 If a tender is not substantially responsive, it will be rejected by the Procuring entity and may not subsequently be made responsive by the tenderer by correction of the nonconformity.

23. Evaluation and Comparison of Tenders

23.1 The Procuring entity will evaluate and compare the tenders, which have been determined to be substantially responsive, pursuant to paragraph 22.

23.2 The Procuring entity's evaluation of a tender will exclude and not take into account:

(a) in the case of equipment manufactured in Kenya or of foreign origin already located in Kenya, sales and other similar taxes, which will be payable on the equipment if a contract is awarded to the tenderer; and

(c) Any allowance for price adjustment during the period of execution of the contract, if provided in the tender.

23.3 The comparison shall be of the ex-factory/ex-warehouse/off-the-shelf price of the equipment offered from within Kenya, such price to include all costs, as well as duties and taxes paid or payable on components and raw material incorporated or to be incorporated in the Equipment.

23.4 The Procuring entity's evaluation of a tender will take into account, in addition to the tender price and the price of incidental services, the following factors, in the manner and to the extent indicated in paragraph 23.5 and in the technical specifications:

(a) Delivery schedule offered in the tender;

(b) Deviations in payment schedule from that specified in the Special Conditions of Contract;

(c) The cost of components, mandatory spare parts, and service;

(d) The availability in Kenya of spare parts and after-sales services for the equipment offered in the tender.

23.5 Pursuant to paragraph 23.4 the following evaluation methods will be applied:

(a) *Delivery schedule.*

The Procuring entity requires that the equipment under the Invitation for Tenders shall be delivered at the time specified in the Schedule of Requirements. Tenders offering deliveries longer than the procuring entity's required delivery time will be treated as non-responsive and rejected.

(b) *Deviation in payment schedule.*

Tenderers shall state their tender price for the payment of schedule outlined in the special conditions of contract. Tenders will be evaluated on the basis of this base price. Tenderers are, however, permitted to state an alternative payment schedule and indicate the reduction in tender price they wish to offer for such alternative payment schedule. The Procuring entity may consider the alternative payment schedule offered by the selected tenderer.

(c) *Spare parts and after sales service facilities.*

Tenderers must offer items with service and spares parts back-up. Documentary evidence and locations of such back- up must be given. Where a tenderer offers items without such back-up in the country, he must give documentary evidence and assurance that he will establish adequate back-up for items supplied.

24. Contacting the Procuring entity

24.1 Subject to paragraph 21, no tenderer shall contact the Procuring entity on any matter relating to its tender, from the time of the tender opening to the time the contract is awarded.

24.2 Any effort by a tenderer to influence the Procuring entity in its decisions on tender evaluation, tender comparison, or contract award may result in the rejection of the Tenderer's tender.

Award of Contract

25. Post-qualification

25.1 In the absence of pre-qualification, the Procuring entity will determine to its satisfaction whether the tenderer that is selected as having submitted the lowest evaluated responsive tender is qualified to perform the contract satisfactorily.

25.2 The determination will take into account the tenderer financial, technical, and production capabilities. It will be based upon an examination of the documentary evidence of the tenderers qualifications submitted by the tenderer, pursuant to paragraph 12.3, as well as such other information as the Procuring entity deems necessary and appropriate.

25.3 An affirmative determination will be a prerequisite for award of the contract to the tenderer. A negative determination will result in rejection of the Tenderer's tender, in which event the Procuring entity will proceed to the next lowest evaluated tender to make a similar determination of that Tenderer's capabilities to perform satisfactorily.

26. Award Criteria

26.1 Subject to paragraph 10, 23 and 28 the Procuring entity will award the contract to the successful tenderer(s) whose tender has been determined to be substantially responsive and has been determined to be the lowest evaluated tender, provided further that the tenderer is determined to be qualified to perform the contract satisfactorily.

27. Procuring entity's Right to Vary quantities

27.1 The Procuring entity reserves the right at the time of contract award to increase or decrease the quantity of equipment originally specified in the Schedule of requirements without any change in unit price or other terms and conditions.

28. Procuring entity's Right to Accept or Reject Any or All Tenders

28.1 The Procuring entity reserves the right to accept or reject any tender, and to annul the tendering process and reject all tenders at any time prior to contract award, without thereby incurring any liability to the affected tenderer or tenderers or any obligation to inform the affected tenderer or tenderers of the grounds for the Procuring entity's action.

29. Notification of Award

29.1 Prior to the expiration of the period of tender validity, the Procuring entity will notify the successful tenderer in writing that its tender has been accepted.

29.2 The notification of award will constitute the formation of the Contract.

29.3 Upon the successful Tenderer's furnishing of the performance security pursuant to paragraph 31, the Procuring entity will promptly notify each unsuccessful Tenderer and will discharge its tender security, pursuant to paragraph 14.

30. Signing of Contract

30.1 At the same time as the Procuring entity notifies the successful tenderer that its tender has been accepted, the Procuring entity will send the tenderer the Contract Form provided in the tender documents, incorporating all agreements between the parties.

30.2 Within thirty (30) days of receipt of the Contract Form, the successful tenderer shall sign and date the contract and return it to the Procuring entity.

31. Performance Security

31.1 Within thirty (30) days of the receipt of notification of award from the Procuring entity, the successful tenderer shall furnish the performance security in accordance with the Conditions of

Contract, in the Performance Security Form provided in the tender documents, or in another form acceptable to the Procuring entity.

31.2 Failure of the successful tenderer to comply with the requirement of paragraph 30 or paragraph 31 shall constitute sufficient grounds for the annulment of the award and forfeiture of the tender security, in which event the Procuring entity may make the award to the next lowest evaluated Candidate or call for new tenders.

32. Corrupt Fraudulent Practices

32.1 The Procuring entity requires that tenderers observe the highest standard of ethics during the procurement process and execution of contracts. In pursuance of this policy, the Procuring entity: -

(a) Defines, for the purposes of this provision, the terms set forth below as follows:

(i) "Corrupt practice" means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution; and

(ii) "Fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Procuring entity, and includes collusive practice among tenderer (prior to or after tender submission) designed to establish tender prices at artificial non-competitive levels and to deprive the Procuring entity of the benefits of free and open competition;

(b) Will reject a proposal for award if it determines that the tenderer recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question;

(c) Will declare a firm ineligible, either indefinitely or for a stated period of time, to be awarded any contract if it at any time determines that the firm has engaged in corrupt or fraudulent practices in competing for, or in executing, a contract.

32.2 Furthermore, tenderers shall be aware of the provision stated in the General Conditions of Contract.

Section C - General Conditions of Contract

1. Definitions

1.1 In this Contract, the following terms shall be interpreted as indicated:

(a) "The Contract" means the agreement entered into between the Procuring entity and the tenderer, as recorded in the Contract Form signed by the parties, including all attachments and appendices thereto and all documents incorporated by reference therein.

(b) "The Contract Price" means the price payable to the tenderer under the Contract for the full and proper performance of its contractual obligations.

(c) "The Goods" means all of the equipment which the tenderer is required to supply to the Procuring entity under the Contract.

(d) "The Procuring entity" means the organization purchasing the Goods under this Contract.

(e) "The tenderer" means the individual or firm supplying the Goods under this Contract.

2. Application

2.1 These General Conditions shall apply in all Contracts made by the Procuring entity for the procurement of goods.

3. Country of Origin

3.1 For purposes of this Clause, "origin" means the place where the Goods were mined, grown, or produced.

3.2 The origin of Goods and Services is distinct from the nationality of the tenderer.

4. Standards

4.1 The Equipment supplied under this Contract shall conform to the standards mentioned in the Technical Specifications.

5. Use of Contract Documents and Information

5.1 The Candidate shall not, without the Procuring entity's prior written consent, disclose the Contract, or any provision thereof, or any specification, plan, drawing, pattern, sample, or information furnished by or on behalf of the Procuring entity in connection therewith, to any person other than a person employed by the tenderer in the performance of the Contract.

5.2 The tenderer shall not, without the Procuring entity's prior written consent, make use of any document or information enumerated in paragraph 5.1 above.

5.3 Any document, other than the Contract itself, enumerated in paragraph 5.1 shall remain the property of the Procuring entity and shall be returned (all copies) to the Procuring entity on completion of the Tenderer's performance under the Contract if so required by the Procuring entity.

6. Patent Rights

6.1 The tenderer shall indemnify the Procuring entity against all third-party claims of infringement of patent, trademark, or industrial design rights arising from use of the equipment or any part thereof in the Procuring entity's country.

7. Performance Security

7.1 Within thirty (30) days of receipt of the notification of Contract award, the successful tenderer shall furnish to the Procuring entity the performance security in the amount specified in Special Conditions of Contract.

7.2 The proceeds of the performance security shall be payable to the Procuring entity as compensation for any loss resulting from the Tenderer's failure to complete its obligations under the Contract.

7.3 The performance security shall be denominated in the currency of the Contract, or in a freely convertible currency acceptable to the Procuring entity and shall be in the form of a bank guarantee or an irrevocable letter of credit issued by a reputable bank located in Kenya or abroad, acceptable to the Procuring entity, in the form provided in the tender documents.

7.4 The performance security will be discharged by the Procuring entity and returned to the Candidate not later than thirty (30) days following the date of completion of the Tenderer's performance obligations under the Contract, including any warranty obligations, under the Contract.

8. Inspection and Tests

8.1 The Procuring entities or its representative shall have the right to inspect and/or to test the Goods to confirm their conformity to the Contract specifications. The Procuring entity shall notify the tenderer in writing, in a timely manner, of the identity of any representatives retained for these purposes.

8.2 The inspections and tests may be conducted on the premises of the tenderer or its subcontractor(s), at point of delivery, and/or at the Goods' final destination. If conducted on the premises of the tenderer or its subcontractor(s), all reasonable facilities and assistance, including access to drawings and production data, shall be furnished to the inspectors at no charge to the Procuring entity.

8.3 Should any inspected or tested equipment fail to conform to the Specifications, the Procuring entity may reject the equipment, and the tenderer shall either replace the rejected equipment or make alterations necessary to meet specification requirements free of cost to the Procuring entity.

8.4 The Procuring entity's right to inspect test and, where necessary, reject the equipment after arrival shall in no way be limited or waived by reason of the equipment having previously been inspected, tested, and passed by the Procuring entity or its representative prior to the delivery.

8.5 Nothing in paragraph 8 shall in any way release the tenderer from any warranty or other obligations under this Contract.

9. Packing

9.1 The tenderer shall provide such packing of the Goods as is required to prevent their damage or deterioration during transit to their final destination, as indicated in the Contract.

9.2 The packing, marking, and documentation within and outside the packages shall comply strictly with such special requirements as shall be expressly provided for in the Contract.

10. Delivery and Documents

10.1 Delivery of the equipment shall be made by the tenderer in accordance with the terms specified by Procuring entity in its Schedule of Requirements and the Special Conditions of Contract

11. Insurance

11.1 The Equipment supplied under the Contract shall be fully insured against loss or damage incidental to manufacture or acquisition, transportation, storage, and delivery in the manner specified in the Special conditions of contract

12.Payment

12.1 The method and conditions of payment to be made to the tenderer under this Contract shall be specified in Special Conditions of Contract.

12.2 Payments shall be made promptly by the Procuring entity as specified in the contract.

13.Prices

13.1 Prices charged by the tenderer for equipment delivered and Services performed under the Contract shall not, with the exception of any price adjustments authorized in Special Conditions of Contract, vary from the prices by the tenderer in its tender.

14.Assignment

14.1 The tenderer shall not assign, in whole or in part, its obligations to perform under this Contract, except with the Procuring entity's prior written consent.

15.Subcontracts

15.1 The tenderer shall notify the Procuring entity in writing of all subcontracts awarded under this Contract if not already specified in the tender. Such notification, in the original tender or later, shall not relieve the tenderer from any liability or obligation under the Contract.

16. Termination for Default

16.1 The Procuring entity may, without prejudice to any other remedy for breach of Contract, by

written notice of default sent to the tenderer, terminate this Contract in whole or in part:

(a) If the tenderer fails to deliver any or all of the Goods within the period(s) specified in the Contract, or within any extension thereof granted by the Procuring entity.
(b) If the tenderer fails to perform any other obligation(s) under the Contract.
(c) If the tenderer, in the judgment of the Procuring entity has engaged in corrupt or fraudulent practices in competing for or in executing the Contract.

16.2 In the event the Procuring entity terminates the Contract in whole or in part, it may procure, upon such terms and in such manner, as it deems appropriate, Goods similar to those undelivered, and the tenderer shall be liable to the Procuring entity for any excess costs for such similar Goods.

17. Liquidated Damages

17.1 If the tenderer fails to deliver any or all of the equipment within the period(s) specified in the contract, the procuring entity shall, without prejudice to its other remedies under the contract, deduct from the contract prices liquidated damages sum equivalent to 0.5% of the delivered price of the delayed equipment up to a maximum deduction of 10% of the delayed goods. After this the tenderer may consider termination of the contract.

18. Resolution of Disputes

18.1 The procuring entity and the tenderer shall make every effort to resolve amicably by direct informal negotiation any disagreement or dispute arising between them under or in connection with the Contract.

18.2 If, after thirty (30) days from the commencement of such informal negotiations both parties have been unable to resolve amicably a contract dispute, either party may require adjudication in an agreed national or international forum, and/or international arbitration.

19. Language and Law

19.1 The language of the contract and the law governing the contract shall be English language and the Laws of Kenya respectively unless otherwise stated.

20. Force Majeure

20.1 The tenderer shall not be liable for forfeiture of its performance security, or termination for default if and to the extent that it's delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.

Section D. Special Conditions of Contract

1. Special Conditions of Contract shall supplement the General Conditions of Contract. Whenever there is a conflict, the provisions herein shall prevail over those in the General Conditions of Contract.

2. Bid Security. The tenderer shall furnish, as part of its tender a tender security comprising **of 2%** of the total quoted tender price. The tender security shall be a **bank guarantee** from a Reputable bank, cash or such insurance guarantee approved by the authority valid for 30 days beyond the validity of the tender.

3. General conditions of the contract clause 7.1 performance security.
The performance security shall be in the amount of 10% of the contract price and shall remain valid for 30 days beyond the last date of installation and commissioning of the system.

4. **Warranty:** The manufacturer warrants that goods supplied under the contract are new, unused, of the most recent or current specifications and incorporate all recent improvement in design and materials unless provided otherwise in the contract. The manufacturer further warrants that the goods supplied under this contract shall have no defect arising from manufacture, materials or workmanship or from any act or omission of the manufacturer that may develop under normal use of goods.

- This warranty will remain valid for a minimum of **12 months** after the equipment have been delivered and installed to Respective Regional Laboratories
- The procuring entity shall promptly notify the Manufacturer in writing of any claim arising under this warranty.
- Upon receipt of this claim the manufacturer shall, with reasonable speed, replace the defective equipment without cost to the Procuring Entity.
- If the manufacturer having been notified fails to remedy the defect(s) within a reasonable period, the procuring entity may proceed to take such remedial action as may be necessary, at the Manufacturer's risk and expense and without prejudice to any other rights, which the Procuring Entity may have against the Manufacturer under the contract.

5. Where the tender price is in foreign currency, the Exchange Rate will be as per Central Bank of Kenya exchange rate of Tender closing/opening date.

6. Tenderers must attach Manufacturers Authorization, addressed to the Managing Director (Manufacturers Authorization Form) Kenya Bureau of Standards in the format provided for in the tender document.

Section E. Schedule of Requirements

Number	Description	Quantity	Delivery schedule
1	**SUPPLY,DELIVERY,INSTALLATION AND USER TRAINING OF METROLOGY LABORATORY EQUIPMENT**		

(Shipment) In weeks/months from _____

Indicate your Delivery schedule for the goods/services after receipt of a confirmed Purchase Order from the Kenya Bureau of Standards.

Section F. Technical Specifications

EVALUATION CRITERIA

a) Stage One: Mandatory Evaluation Criteria

No.	Requirements
1.	PIN/VAT Certificate
2.	Single business permit/Trade license
3.	Certificate of Registration and /or Incorporation.
4.	Valid Bid Bond.
5.	Valid Tax Compliance Certificate.
6.	Confidential Business Questionnaire
7.	Declaration stating that you have NOT been debarred by Public Procurement Regulatory Authority.
8.	Financial Audited Accounts/statements for the last 3 years: 2015, 2016 and 2017.
9.	Manufacturer authorization/ Partnership letter
10.	Bidder Must Provide brochures/catalogues for the items

TECHNICAL SPECIFICATIONS

Kenya Bureau of Standards

Standards for quality life

TECHNICAL SPECIFICATION FOR TESTING LABORATORY EQUIPMENT

TECHNICAL SPECIFICATIONS FOR BLOCK DIGESTOR SYSTEM

NAME OF LABORATORY: POLYMER				LOCATION: NAIROBI	
SN	**EQUIPMENT**	**SPECIFICATION**		**QUANTITY**	**WEIGHTING (%)**
01	**BLOCK DIGESTOR SYSTEM (with scrubber)**	**Application/Scope**	**Digestion of various products**	**1**	
		Main Features			**70**
		a. Contact heating			10
		b. Temperature Control			5
		c. Programmable profiles			5
		d. Lift			5
		e. Heating zone atleast 6cm			1
		f. Sample positions; 20			1
		g. Sample Tube sizes; 300ml			5
		h. Maximum temperature; 450^{o}C			5
		i. Automatic temperature calibration			1
		j. Precision of the heating block temperature and Stability of the heating block temperature; 0.5^{o}C			5
		k. Digestion time range; 1 to 999 minutes			1
		l. Optimum energy utilisation block and effective all-round insulation			5
		m. Thermally insulated handles Drip tray for collecting acid residue			5
		n. Automatically Overheating protection...			5
		o. Exhaust equipment switches on			1
		p. Housing is extra corrosion-protected...			5
		q. Acid-resistant surface			5

		Performance Specifications	**15**
		i. Ups for power backup	5
		ii. Electrical power 240v/50hz	5
		iii. Traceable calibration Certificate	5
		TOTAL SCORE	**15**
		Other requirements	**15**
		i. Installation and Commissioning -to be indicated	3
		ii. Operation and Service Manuals- All Manuals in English	3
		iii. Warranty and Nearest service centre -to be indicated	3
		iv. Brochures for the equipment to be provided during quotation	3
		v. Training - onsite training during installation	3
		TOTAL SCORE	**15**
	GRAND TOTAL SCORE FOR THE EQUIPMENT		**100 %**
	MINIMUM SCORE REQUIRED		**85%**

NAME OF LABORATORY: POLYMER				LOCATION: NAIROBI	
SN	**EQUIPMENT**	**SPECIFICATION**		**QUANTITY**	**WEIGHTING (%)**
02	**Drying time recorder**	**Application/Scope**	**Testing of drying times of paints, inks and coatings films**	**1**	
		Main Features			**5Max**
		a. Selectable speed combinations of 6,12 and 24 hour			3
		b. Fitted with graduated scale			2
		Performance Specifications			**85**
		i. Special speed combinations of 6,12 and 24 hour			15
		ii. Fitted With 10 tracks of test specimen			15
		iii. An independent motor to drive the tracks to cover the 6,12 and 24 hour.			10
		iv. A set of a minimum of 10 needles			5
		v. A pack of a minimum of 12 glass strips of 25 X300 mm .			5
		vi. The hemispherical needles travel on these test tracks over a selected time			5
		vii. The drying time stages can be easily assessed with the graduation scale.			5
		viii. Two 25 cube paint applicator with film width 16mm - 37/75µm Gap size			10
		ix. Castor guide			5
		x. Set of 6 X 5g brass weights			5
		xi. Calibration certificate			3
		xii. Electrical power 240v/50hz			2
		TOTAL SCORE			**85**
		Other requirements			**15**
		i. Installation and Commissioning			3
		ii. Operation and Service Manuals- All Manuals in English			3
		iii. Warranty and Nearest service centre -to be indicated			3
		iv. Brochures for the equipment to be provided during quotation			3
		v. Training - onsite training during installation			3
		TOTAL SCORE			**15**
	GRAND TOTAL SCORE FOR THE EQUIPMENT				**100 %**
				MINIMUM SCORE REQUIRED	**85%**

NAME OF LABORATORY: ELECTRICAL ENGINEERING LABORATORY LOCATION: NAIROBI					
Sr. No.	**EQUIPMENT**	**SPECIFICATIONS**		**QUANTITY**	**WEIGHTING (%)**
03	**TRACKING CURRENT EQUIPMENT**	**Application**	Tracking Resistance test on Insulators	**1**	
		1. Main Features			
		a) Micro-processor controller based system			2.5
		b) Supply: 220 – 240V AC, 50/60 Hz			2.5
				TOTAL SCORE	**5**
		2. Performance Specifications			
		i. Test Voltage: 100 to 1200V AC, adjustable			6
		ii. Chamber with interlock to provide for complete operator safety.			5
		iii. Trip Current: Maximum 0.5A, Adjustable			6
		iv. Voltage Indication: 1/8 DIN, 3 Digit Voltmeter, 0 to 750V			5
		v. Current Indication: 1/8 DIN, 31/2 Digit Ammeter, 0 to 2.000A			5
		vi. Dropping Unit: Automatic by special positive displacement Pump			6
		vii. Drop Volume: Mechanical, operated by knob.			6
		viii. Drop Volume: 20mm³, (- 0/+ 5)			6
		ix. Drop Number Indication: Preset Digital Counter, 0 to 999 drops			6
		x. Dropping Height: 40mm			6
		xi. Load on each electrode: 1.0 Newton			6
		xii. Electrodes: Platinum			6
		xiii. Incorporated fan to extract fumes			6
		xiv. Max. Fuse Rating: 3A Rapid			5
		xv. Accessories: Extra set of electrodes and Fuses			5
				TOTAL SCORE	**85**
		3. Other requirements			
		vi. Installation and Commissioning -to be indicated			2
		vii. Operation and Service Manuals- All Manuals in English			2

		viii. Warranty and Nearest service centre -to be indicated	2
		ix. Brochures (in English)for the equipment to be attached with the quotations	2
		x. Training - onsite training during installation	2
		TOTAL SCORE	**10**
	EQUIPMENT	**GRAND TOTAL SCORE FOR THE**	**100 %**
		MINIMUM SCORE REQUIRED	**85%**

Sr. No.	**EQUIPMENT**	**SPECIFICATIONS**		**QUANTITY**	**WEIGHTING (%)**
04	**DIGITAL DESKTOP POWERMETER**	**Application**	Power Rating Measurements of Electrical Appliances	**1**	
		1. Main Features			
		a) 3 ½ digits LCD Digital Display			2.5
		b) Desktop, Five Range Measurement			2.5
		TOTAL SCORE			**5**
		2. Performance Specifications			
		i. 0.5” LCD Max. Indication			4
		ii. Watt (True Power), DCV, ACV, DCA, ACA & Power factor measurement			12
		iii. Bi-polar by automatic switching, “-“ indicates reverse polarity			8
		iv. Zero Adjust: Watt (External adjustment for zero)			8
		v. Over-input: Indication of “1” or “-1”			8
		vi. Operation: 0^{o}C - 50^{o}C and upto 80% Relative Humidity			8
		vii. Power Supply: 220 – 240V a.c, 50/60Hz			5
		viii. Input Impedance: 1 Mega Ohm			8
		ix. AC Watt: (0 – 6000W) Measurement ranges; 0-2000W and 0-6000W			10

		x. 2000W±(1%+1D) accuracy; 1W Resolution; Overload protection ACV 600V, ACA 10A.	5
		xi. 6000W±(1%+1D) accuracy; 10W Resolution; Overload protection ACV 600V, ACA 10A.	5
		xii. Pair of test leads	4
		TOTAL SCORE	**85**
		3. Other requirements	
		i. Installation and Commissioning -to be indicated	3
		ii. Operation and Service Manuals- All Manuals in English	3
		iii. Warranty and Nearest service centre -to be indicated	3
		iv. Brochures (in English)for the equipment to be attached with the quotations	3
		v. Training - onsite training during installation	3
		TOTAL SCORE	**15**
	FOR THE EQUIPMENT	**GRAND TOTAL SCORE**	**100 %**
		MINIMUM SCORE REQUIRED	**85%**

TECHNICAL SPECIFICATION FOR TESTING LABORATORY EQUIPMENT

1. Specifications for vacuum oven

		Weight
Temperature range	**ambient 0°C to 200°C**	10
size	**25 / 53 / 128L**	10
Temperature control and display	**PID control, digital display**	5
Over-temperature protection	**Adjustable over-temperature protection for sample safety over temperature cut-out for protection of oven**	10
Shelving	**Aluminum Shelves; trays as accessories**	10
Pressure display	**Analogue / digital**	5
Heating technology	**Jacket heating and Shelf heating**	5
Material of inner chamber	**Stainless steel**	5
Attainable vacuum	**50 mbar**	10
Timers / Programmability	**Various On/Off timers and programmable controls for temperature ramping**	5
Access port for external temperature probe	**Yes**	5
Other standard features	**double-pane safety glass window; pressure release valve for gentle venting; electro polished interior for easy cleaning**	5
Compatible pump a must to be supplied with equipment		10
	Other Requirements	
	xi. Installation and Commissioning	2
	xii. Operation and Service Manuals- All Manuals in English	1
	xiii. Warranty and Nearest service centre	1
	xiv. Training - onsite training during installation	1
	TOTAL SCORE	
	GRAND TOTAL SCORE FOR THE EQUIPMENT	100%
	MINIMUM SCORE REQUIRED	90%

2. NITROGEN ANALYSER – BY COMBUSTION

		Weight
Time Saving - Unparalleled technology, results in 3-4 minutes		1
Energy Saving - Excellent engineering, low consumption.		1
Money Saving - Limited cost per analysis, less gas and reagents used		1
Space Saving - Just one slim unit required for the whole analysis.		0.5
Operate continuously, even 24/7,		1
Minimal maintenance and without the use of **hazardous chemicals**.		1
Extremely accurate analyses, with a very low detection limit 0.003 mgN		1
With autosampler that can manage up to 30 samples stackable to 90 both solids and liquids		1
Moderate Running Costs		0.5
Sample is burnt at a high temperature, in the presence of catalysts in a controlled oxygen atmosphere.		1
Elemental nitrogen is measured with a Thermal Conductivity Detector (TCD). The whole procedure takes from **3 - 4 minutes**		1
Method of analysis:	**Combustion**	10
Detector:	**Innovative autocalibrating TCD (no reference gas required)**	10
Sample weight:	**up to 1g**	5
Autosampler capacity:	**min 3 discs, 30 positions each**	10
Reproducibility (RSD):	**< 0.5% for EDTA standards approx. 100 mg (9.57% N)**	5
Recovery :	**> 99.5%**	10
Detection range:	**0.1 - 200 mg N**	10
Detection limit:	**0.003 mgN absolute**	10
Combustion temperature:	**Approx. 1000 °C**	3
Helium (He):	**purity 99.999% (grade 5.0)**	1
Oxygen (O2):	**purity 99.999% (grade 5.0)**	1
Compressed air or Nitrogen (N2):	**purity 99.6 % (oil and water free)**	1
Helium (He) pressure:	**2 bar**	1
Oxygen (O2) pressure:	**2.5 bar**	1
Compressed air or Nitrogen (N2) pressure:	**3 bar**	1
Power:	**1400 W**	2
Power supply:	**230 V / 50-60 Hz**	2

Weight:	**60 kg max**	2
Other requirements		
i. Installation and Commissioning		2
ii. Operation and Service Manuals- All Manuals in English		1
iii. Warranty and Nearest service centre		1
iv. Training - onsite training during installation		1
	TOTAL SCORE	
	GRAND TOTAL SCORE FOR THE EQUIPMENT	**100 %**
	MINIMUM SCORE REQUIRED	**90 %**

TECHNICAL SPECIFICATIONS FOR WATER BATH				
3. WATER BATH	**Application**	Conditioning of Samples	**1**	
	1. Main Features			
	a) Two independently working over-temperature protections			1.5
	b) Circulation system			2
	c) Drain system			1.5
	TOTAL SCORE			**5**
	2. Performance Specifications			
	i. Temperature range: +15°C to +95°C			20
	ii. Capacity: Minimum 20 litres			20
	iii. Electrical connection: 220-240Va.c; 50/60 Hz			5
	iv. Heating element, bath interior, cover, lid and perforated tray made of stainless steel			8
	v. Thermal insulating and double-walled arched lid			8
	vi. Corrosion proof exterior housing made of stainless steel powder coated			8
	vii. Digital temperature readout and setting via Electronic display, in steps of 0.1 °C			8
	viii. Temperature constancy: ±0.1 °C temporal			8
	TOTAL SCORE			**85**
	3. Other requirements			
	i. Installation and Commissioning -to be indicated			2
	ii. Operation and Service Manuals- All Manuals in English			2
	iii. Warranty and Nearest service centre -to be indicated			2
	iv. Brochures (in English)for the equipment to be attached with the quotations			2
	v. Training - onsite training during installation			2
	TOTAL SCORE			**10**
GRAND TOTAL SCORE FOR THE E				**100 %**
MINIMUM SCORE REQUIRED				**85%**

NAME OF LABORATORY: FOOD & AGRICULTURE , Inorganic, Organic LOCATION: NAIROBI						
SN	**EQUIPMENT**	**SPECIFICATION**		**QUANTITY**	**WEIGHTING (%)**	**ACTUAL SCORE**
1.	Analytical Balance	**Application/ Scope**	Weighing of samples, gravimetric analyses	**4**		
		Specification	Requirement			
		Weighing capacity	10mg-520g		33	
		Precision	0.1mg		14	
		Readability	0.005mg/0.1mg or less		10	
		Stability	less than 5 seconds		12	
		Operation	Touchless, handsfree or touch sensitive		3	
		Draft control	Shall be fitted with a draft shield (Flip top and side sliding doors).		3	
		Display	Shall have LCD display with multiple modes		1	
		Static charges	Shall have Automatic electrostatic detection, compact ionizer or better		5	
		Communication and data transfer	Shall be Fitted with an RS 232 cable or a better alternative		2	
		Internal Calibration	Shall have a Monolithic weigh cell or a more advanced cell		2	
		Level	Shall be fitted with a level indicator		2	
		Power	220-250V AC		2	
		Housing	Shall be chemical resistant		2	
		Operation	Internal adjustment(user selectable auto cal) and external calibration		2	
		In use protective cover	Shall be fitted		2	
		overload protection	Shall be in inbuilt		2	

		Installation, Training and warranty	Shall be conducted by the manufacturer on site after delivery. The warranty shall be a minimum of one year post installation	2	
		Manual and Traceable certificate of calibration showing linearity and uncertainty	Shall be supplied on delivery and written in English	1	
	GRAND TOTAL SCORE FOR THE EQUIPMENT			100	
	MINIMUM SCORE REQUIRED			90	

1500MM VERNIER CALIPER SPECS- MATERIALS LABORATORY

	EQUIPMENT	**SPECIFICATION**		**Quantity**	**Location**	**Weighting (%)**	**Weighting (%)**
1. Vernier Calipers		**Application /Scope**	**For general measurements of thickness/diameter of specimens**	**1**	**Mechanical lab.**	**Weighting (%)**	**Weighting (%)**
		Hardened stainless steel				**20**	
		Four way measuring capability for multiple applications: Outside diameter, inside diameter, depth and step				**20**	
		Supplied with plastic/protection case				**15**	
		Accuracy +/-0.01mm (<100mm), +/-0.03mm (>100-200mm), +/-0.04 (>200-500mm)+/-(>500-1500mm)				**5**	
		Resolution 0.05				**5**	
		Range:0-1500				**5**	
		Valid calibration certificate				**5**	
		Dust/water proof protection level				**10**	
					TOTAL SCORE	**100**	
					MINIMUM SCORE REQUIRED	**85**	

S. No	EQUIPMENT	SPECIFICATION		Quantity	Location	Weighting (%)	Score (%)
2.	**Automated multi – range Viscometer**	**Application/Scope**	**Simultaneous testing of two samples at two different temperatures with integrated auto samplers.**	**1**	**Petroleum laboratory**		
		Performance Specifications					
		Standard test methods:	ASTM D445,IP 71 section 1,ISO 3104, EN ISO 3104			**10**	
		Viscosity range:	0.5-5000 mm^2/s @40 °C, 0.5-2000 mm^2/s @100 °C			**10**	
		Bath Temperature Range:	20 °C 150°C,user programmable			**10**	
		Bath Temperature stability:	≤ 100°C better than ± 0.01°C, > 100°C better than ± 0.03°C			**10**	
		Bath Temperature Uniformity:	Proportional heat control, high velocity bath media circulation			**10**	
		Sample induction:	26-position auto samplers (one sampler per bath)			**10**	
		Detection : Two multi range tubes.	Thermal (TNC) meniscus detection/timing			**10**	
		Documentation: Results data base with powerful data handling features; Numeric display VI, dynamic viscosity and M-value calculations; Automatic correction (gravity and energy)				**5**	
		Auto cleaning: Dual solvent system with programmable cycle parameters; Low solvent usage, no external vacuum pump required ; Seals compatible with aggressive solvents such as acetone.				**5**	
		Accessories: Cooling accessories: cooling control system Slop accessories: sensor detects a full slop container and prevents overflow				**4**	
		Safety device: Over temperature protection; Low liquid level power cutoffs Dual panes insulate bath media and contain heat; CE approved for safety				**4**	
		Dimensions and weight: 49,75,127 (W,D,H) 99kg with bath liquid				**4**	
		Power Supply: 220 Volts, 50-60 Hz				**4**	
		Warranty : (At least one year)				**4**	
			TOTAL SCORE			**100**	

		MINIMUM SCORE REQUIRED	**85**		

TECHNICAL SPECIFICATION FOR METROLOGY LABORATORY EQUIPMENT

NAME OF LABORATORY: CHEMISTRY LAB				**LOCATION:** LAKE REGION	
SN	**EQUIPMENT**	**SPECIFICATION**	**QUANTITY**	**WEIGHTING (%)**	**ACTUAL SCORE**
1	**FT-NIR SPECTROMETER**	**Application/Scope** SUGAR,CEREAL AND CEREAL PRODUCTS,BAKED PRODUCTS,DAIRY,MEAT ,FEEDS AND EDIBLE OIL/FAT	**1**		
		4. Main Features		**5 Max**	
		a. Automated FT-Near Infra Red analyser capable of doing direct measurements of cereal and cereal based products in the form of grains or ground powder or paste. Parameters to be checked to include; fat, protein, moisture, ash, starch, crude fibre, NDF and ADF.Versatile to do direct measurements in organic and liquid sample(such as edible oils) through module upgrade.			
		b. Rugged: Should withstand humidity, dust and temperature fluctuations, permanently aligned, shock insensitive, high stability mirrors.			
		c. Compatible PC for control of the spectrometer optics and signal processing d. Minimum PC-data system requirements e. Data System, "Intel" I7processor, >3GHz, >4GB RAM, 1000 GB HDU or better, 21.5" TFT display. f. Ports: USB 2.0 (10x), PS/2 (2), RS232, VGA,			
		g. User interface: Dedicated user interfaces to allow single routine measurements with predefined measurement parameters, qualitative and quantitative evaluations and storage			
		h. Inbuilt diagnostic mechanism monitoring operation within factory settings and online technical support.			
		TOTAL SCORE		**5**	
		Performance Specifications			

		a. Wavelength range: 25000 - 4,000 cm-1 b. Wavelength accuracy <0.03 c. Measuring speed: less 1 minute d. Spectral resolution :< 0.3nm e. Wavelength precision <0.004 f. Photometric linearity: better than 1.00±0.05 (slope); 0.00±0.05 g. Measurement Mode: Reflection and Trans-reflectance. h. Detector: high sensitivity PbS detector i. Operation temperature: 5°C to 35°C (41°F to 95°F) j. Power requirements: optical bench: 100 - 240 V, 50/60 Hz, 100 W k. Humidity: <80% non condensing l. Software: Dedicated software for quantification of substances and self-optimization calibration models.	**85**	
		TOTAL SCORE	**85**	
		Other requirements	**10**	
		Service contracts: preventive maintenance and service contracts and validation services to be indicated.	1	
		Installation and Commissioning -to be done by supplier	1	
		Operation and Service Manuals- All Manuals in English	1	
		Warranty of not less than 2 years and nearest service centre -to be indicated	2	
		Brochures and List of parameters and matrices to analysed by the equipment to be attached with the quotations ((in English)	3	
		Training - onsite training during installation not less than 5 days	2	
		TOTAL SCORE	**10**	
	GRAND TOTAL SCORE FOR THE EQUIPMENT		**100 %**	
	MINIMUM SCORE REQUIRED		**95 %**	

NAME OF LABORATORY: CHEMISTRY LAB					**LOCATION:** COAST REGION
SN	**EQUIPMENT**	**SPECIFICATION**		**QUANTITY**	**WEIGHTING (%)**
02.	**DIGITAL REFRACTOMETER**	**Application/Scope**	Capable of performing Tests of Refractive index, and ^{0}Brix	**1**	
		1. Main Features			**15 Max**
		Easy to clean Sample well			3
		Durable Prisms with Long-life Light sources.			5
		Local service.			3
		Should have adequately visible LCD Display with touch screen facility.			1
		Should have indications for Refractive Index (nD), Brix (%), Temp (degree C),			2
		Programmable User Scale.			2
		TOTAL SCORE			**15**
		2. Performance Specifications			**70**
		Wide Measuring range (Brix): 0 - 100			5
		Wide Measuring range(RI): 1.26 – 1.72 nD			5
		Resolution(Brix): 0.01			5
		Accuracy (Brix): ± 0.015			5
		Resolution(RI): 0.000001nD			5
		Accuracy (RI): ± 0.00002 nD			5

		Range of sample temperature control: 10 °C to 85 °C	5
		Temperature Control: electronic heating and cooling system	5
		Measuring wavelength: Minimum of 589 nm	5
		Light Source: LED	5
		Methods: Predefined methods	5
		Data memory: Minimum of 300 data sets	5
		Interfaces: ▪ minimum of 3 USB ▪ RS-232 ▪ CAN (Controller Area Network)	5
		Display: Minimum of 3.5 “, 320 x 200 Pixels	4
		Output: Printer and PC, Computer-USB.	3
		Self-Diagnosis Scale capability	5
		TOTAL SCORE	70
		3. Other requirements	**15**
		i. Assembling at delivery site , training and commissioning	5
		ii. All accessories accompanying as displayed on manufacturer’s website	5
		iii. Warranty of not less than 1 year and Nearest service center -to be indicated	5
		TOTAL SCORE	**15**
		GRAND TOTAL SCORE FOR THE EQUIPMENT	**100 %**
		MINIMUM SCORE REQUIRED %	**90**

NAME OF LABORATORY:CHEMISTRY				LOCATION:COAST REGION	
SN	**EQUIPMENT**	**SPECIFICATION**		**QUANTITY**	**WEIGHT (%)**
03.	**AUTOMATIC SACCHARIMETER**	**APLLICATION/SCOPE**	**POLARIZATION**	**1**	
		KEY FEATURES • Fast reliable measurement • The optical elements encapsulated • Long life LED light source • For all raw, white, and special sugars • Temperature compensation according to international sugar scale(ISS) • No external water bath required • Full international compliance (ICUMSA, OILML,) • Full QM compliance (password protection, audit trail, MP/GLP compatibility, forgery proof data export) **Technical Specifications** Measuring scales: °Z at 589 nm and 880nm Measuring range: ± 259 °Z (± 89.9 °OR) Resolution: 0.001 °OR Accuracy*: < 0.002 °OR < 0.006 °Z Repeatability: < 0.001 °OR < 0.003 °Z" Response time: 12 -15 sec Wavelength: 589 nm and 880 nm Light source: LED light source with more than 100 000 hours lifetime Sensitivity: Optical Density (OD) of 4.0, equivalent to OD 7.0 at 880 nm **Temperature control and measurement:** • PT100 sensor for sample temperature measurement inside the cell or quartz control plate; wireless transfer to the instrument • Resolution 0.1 °C • Accuracy** ±0.1 °C • Temperature control range 20 °C + 25 °C **Accessories;** • Sample cells- Wireless automatic identification of sample cells via RFID, sample cell path length from 2.5 mm to 200 mm. • Three Quartz control plates (three levels low, mid and high range °Z values - Automatic identification of the quartz control plate and automated wireless transfer or reference		**15** **70**

		parameters into the instrument. **Other requirements** • Installation and commissioning-to be indicated • Operation and service manuals-all manuals in English • Warranty and nearest service Centre-to be indicated • Brochures –to be provided during quotation • Training-onsite during installation	**15**
		GRAND TOTAL SCORE FOR THE EQUIPMENT	**100 %**
		Minimum Score	**85%**

NAME OF LABORATORY: PETROLEUM		**LOCATION: COAST REGION AND HEADOFFICE**			
SN	**EQUIPMENT**	**SPECIFICATION**		**QUANTITY**	**WEIGHT (%)**
04	**SAMPLE VAPORIZER FOR SAFELY INJECTING LPG IN GC ANALYZER**	**Application/Scope**	**SAMPLE VAPORIZER FOR SAFELY INJECTING LPG TO GC**	**2**	
		Main Features			**5**
		a. Ability to convert LPG from liquid state to Gaseous state			5
		Performance Specifications			**80**
		a. Manual selection valve between sample and calibration gas			15
		b. Electrically heated pressure			15
		c. Needle valve (NV) for adjusting the sample flow			15
		d. Needle valve (NV) for adjusting the flush flow			15
		e. with bracket to place canister			10
		F. One ¼" NPT Male Swagelok coupling for the connection of canister			10
		TOTAL SCORE			**80**
		Other requirements			**15**
		xv. Installation and Commissioning -to be indicated			3

		xvi. **Operation and Service Manuals**- All Manuals in English	3
		xvii. **Warranty and Nearest service centre -**to be indicated	3
		xviii. **Brochures** for the equipment to be provided during quotation	3
		xix. **Training - o**nsite training during installation	3
		TOTAL SCORE	**15**
	GRAND TOTAL SCORE FOR THE EQUIPMENT		**100 %**
	MINIMUM SCORE		**85 %**

NAME OF LABORATORY: CHEMISTRY LABORATORY **LOCATION:** LAKE REGION & COAST REGION						
SN	**EQUIPMENT**	**SPECIFICATION**		**QUANTITY**	**WEIGHTING (%)**	**ACTUAL SCORE**
05	**FUME HOOD (A Dedicated-Fan Fume Hood) with Ducting and exhaust system**	**Application**	Extraction of Hazardous fumes from the laboratory	**2**		
		Main Features			**5 max**	
		a) A stainless steel double walled constant air volume by-pass laboratory fume hood, with a sealed fluorescent light bulb 400/500 lux & Spur Switch Outer Shell Manufactured from highly Chemical resistant 6mm PVC sheet Inner linings manufactured from 5mm chemical resistant phenolic resin.			2	
		b) Sliding Sash should be manufactured from toughened glass 6mm thick and is fitted with an aerodynamic finger pull for ease of opening/closing.			1	
		c) Overall dimensions External: 2000 mm wide x 900 mm deep x 2375 mm high Internal: 1680 mm wide x 700 mm deep x 1100 mm high.			1	
		d) Airflow Monitor-Digital Airflow Controller module with audio/visual alarm for low airflow. The controller should control the automatic sash, energy save functions and fan			1	
				TOTAL SCORE		
		Performance Specifications			**85**	
		i. The fume hood shall have a face velocity of not less than 0.5m/s (100 fpm)			5	
		ii. Required air flow of not less than 1.8m3/s			5	
		iii. The working surface of the fume hood be made of solid cast epoxy resins, resistant to heat and chemicals			10	

		iv.	Electrical requirements: 240 VAC and 50/60 Hz	5	
		v.	The internal linings shall be made of fibreglass-reinforced polyester resin panels that provide resistance to chemicals and heat	10	
		vi.	Motor: minimum 3KW/4P	5	
		vii.	Blower: PP modulated high efficiency medium pressure fans including suitable adapter, electro galvanised	5	
		viii.	Electrical Sockets x 2(switched Neon Type, 1No. Each side) and Light switch (fixed spur Led type) are profiled to achieve top line aesthetics and aerodynamic effect, are fitted through removable service panels allowing for full flexibility Electrical and mechanical services are prewired and plumbed for convenient termination by others	15	
		ix.	Services of 1 x water & 1 x Gas & Drip Cup/Sink should be fitted through removable service panels allowing for full flexibility.	15	
		x.	Electro deposition to make the hood rust free.	10	
			TOTAL SCORE	**85**	
			Other requirements		
		i.	**Installation and commissioning** - Equipment shall be installed and commissioned at the user's facility by the Service Engineer followed on-site training for all the users. The stated scope of application for the equipment must be demonstrated during commissioning using installation standards and a real sample.	1	
		ii.	**Operation and Service Manuals** – Hardware and operator's manual complete with methods shall be supplied and written in English	1	
		iii.	**Warranty and nearest Service Centre** – Two year warranty	1	
		iv.	**Brochure (in English) -** The equipment brochure to be attached with the quotations	1	
		v.	**Training –** Training shall be done for all users during installation and commissioning at the supplier's cost	1	
			TOTAL SCORE	**100**	
			MINIMUM SCORE	**95**	

TECHNICAL SPECIFICATION FOR METROLOGY LABORATORY EQUIPMENT

SN	EQUIPMENT	Quantity	SPECIFICATION			Weighting (%)	Score (%)	Place of delivery
1	**Electrical Power Standard**	1	Primary electrical specifications					**Nairobi**
			Voltage/current amplitude setting resolution	6 digits		2		
			Range of fundamental frequencies	16 Hz to 850 Hz		2		
			Line frequency locking	45 Hz to 65.9 Hz at users discretion		1		
			Frequency accuracy	10 ppm		1		
			Frequency setting resolution	0.1 Hz		1		
			Warm up time to full accuracy	1 hour or twice the time since last warmed up		1		
			Output ramp up setting range (soft start)	0 to 10 seconds		1		
			Settling time following change to the output Nominal angle between voltage phases	Soft Start setting plus 1.4 second		1		
				120 °		1		
			Nominal angle between voltage and current of a phase	0 °		1		
			Phase angle setting	±180 °, p radians		1		
			Phase angle setting resolution	0.001 °, 0.00001 radians		1		
			Maximum number of voltage harmonics	100 including the 1st (fundamental frequency)		1		
			Maximum number of current harmonics	100 including the 1st (fundamental frequency)		1		
			Current to voltage phase angle accuracy					
				Voltage and current components >40 % of				
			Frequency	1-Year Accuracy, tcal ±5 °C	Stability per hour			
			45 Hz to 65 Hz	0.0023 °	0.0002 °	2		
			16 Hz to 69 Hz	0.003 °	0.0002 °	2		
			69 Hz to 180 Hz	0.007 °	0.0002 °	2		
			180 Hz to 450 Hz	0.018 °	0.0005 °	2		
			450 Hz to 850 Hz	0.033 °	0.0008 °	2		
			850 Hz to 3 kHz	0.115 °	0.001 °	2		
			3 kHz to 6 kHz	0.230 °	0.001 °	2		
			Voltage to voltage phase angle accuracy (poly phase systems)					
				Voltage components >40 % of range				
			Frequency	1-Year Accuracy, tcal ±5 °C	Stability per hour			
			45 Hz to 65 Hz	0.0023 °	0.0002 °	1		
			16 Hz to 69 Hz	0.005 °	0.0002 °	1		
			69 Hz to 180 Hz	0.007 °	0.0002 °	1		
			180 Hz to 450 Hz	0.025 °	0.0005 °	1		

SN	EQUIPMENT	Quantity	SPECIFICATION							Weighting (%)	Score (%)	Place of delivery
			450 Hz to 850 Hz	0.043 °	0.0008 °					1		
			850 Hz to 3 kHz	0.150 °	0.0010 °					1		
			3 kHz to 6 kHz	0.300 °	0.0015 °					1		
			Sinusoidal and Rectangular Modulation Flicker									
			Setting range	± 30 % of set value within range values (60 % ΔV/V)						1		
			Flicker modulation depth accuracy	0.025 %						1		
			Modulation depth setting resolution	0.001 %						1		
			Modulation shape	Sine, rectangular or square						1		
			Duty cycle (shape = rectangular)	0.01 % to 99.99 %						1		
			Modulating units either: Frequency	0.5 Hz to 40 Hz 1 cpm to 4800 cpm						1		
			Changes per minute									
			Modulation frequency accuracy	<0.13 % (1 cpm to 4800 cpm)						1		
			PstInication accuracy	0.25 %						1		
			Other Flicker modes									
			Frequency changes							1		
			Distorted voltage with multiple crossings							1		
			Harmonics with side band							1		
			Phase jumps							1		
			Rectangular voltage changes with duty ratio							1		
			Rectangular voltage changes with duty ratio							1		
			Dips and Swells									
			Dip/Swell minimum duration	1 ms						1		
			Dip/Swell maximum duration	1 minute						1		
			Dip minimum amplitude	0 % of the nominal output						1		
			Swell maximum amplitude	The least of full range value and 140 % of the nominal output						1		
			Ramp up/down period	Settable 100 µs to 30 seconds						1		
			Optional repeat with delay	0 to 60 seconds ± 31 µs						1		
			Starting level amplitude accuracy	± 0.025 % of level						1		
			Dip/Swell level amplitude accuracy	± 0.25 % of level						1		
			Trigger out	TTL falling edge co-incident with end of trigger out delay, remaining low for 10 µs to 31 µs						1		
			Voltage ranges, maximum burden 50 VA									
			23 V	45 V	90 V	180V	360V	650V	1008V			
			Sinusoidal voltage									
			Frequency	Voltage	1-Year Accuracy, TCal ± 5							

SN	EQUIPMENT	Quantity	SPECIFICATION											Weighting (%)	Score (%)	Place of delivery
										°C (ppm of output + ppm range					
										ppm	ppmR			
			45 Hz to 65 Hz					± 5 % Vcal		42	0		1	
								0 % to 100 % range		42	9		1	
			16 Hz to 850 Hz					0 % to 100 % range		60	9		1	
			Non-sinusoidal voltage											
			Output Frequency					1-Year Accuracy, TCal ± 5 °C (ppm of output + ppm range)						
								ppm			ppmR			
			0 % to 50 % range					DC		92	90		1	
			0 % to 30 % range					16 Hz to 850 Hz		58	24		1	
								850 Hz to 6 kHz		451	24		1	
			Current ranges											
			Full Range (FR)	0.25 A	0.5 A	1A	2A	5A					2	
			Maximum compliance voltage (Vrms)	10 V	10 V	10 V	10 V	10 V					2	
			Sinusoidal current											
			Frequency					Current percent of range		1-Year Accuracy, tcal ± 5 °C ± (ppm of output + ppm Range)				
			45 Hz to 65 Hz					90%		47	0		1	
								0 % to 100 %		47	10		1	
			16 Hz to 850 Hz					10 % to 40 %		61	20		1	
								40 % to 100 %		61	20		1	
			Non-sinusoidal current											
			Frequency					Current percent of range		1-Year Accuracy, tcal ± 5 °C ± (ppm of output + ppm Range)				
										ppm	ppmR			
			DC					0 % to 50 %		89	100		1	
			16 Hz to 850 Hz					0 % to 30 %		61	20		1	
			16 Hz to 850 Hz					0 % to 30 %		401	20		1	
			Voltage from the current terminals											
			Full range (FR)					0.25 V		1.5 V	10 V		1	
			Max peak					0.353 V		2.121 V	14.14 V		1	
			Source impedance					1 W		6.67 W	40.02 W		1	
			Minimum load impedance to maintain specification					40 kW		260 kW	1.5 MW		1	
			Sinusoidal voltage from the current terminals											
			0.05 V to 0.25 V	45 Hz to 65 Hz				0.1 V to 0.25 V		73	10		1	

SN	EQUIPMENT	Quantity	SPECIFICATION					Weighting (%)	Score (%)	Place of delivery
				16 Hz to 850 Hz	0.05 V to 0.25 V	82	10	1		
			0.15 V to 1.5 V	45 Hz to 65 Hz	0.6 V to 1.5 V	53	50	1		
				16 Hz to 850 Hz	0.6 V to 1.5 V	66	50	1		
			1 V to 10 V	45 Hz to 65 Hz	4 V to 10 V	52	200	1		
				16 Hz to 850 Hz	4 V to 10 V	66	200	1		
			Input power							
			Voltage			100 V to 240 V with up to ± 10 % fluctuations		1		
			Frequency			47 Hz to 63 Hz		1		
			Environment							
			Operating temperature			5 °C to 35 °C		1		
			Calibration temperature (tcal) range			16 °C to 30 °C		1		
			Storage temperature			0 °C to 50 °C		1		
			Warm up time			1 hour		1		
			Dimensions							
			Height			233 mm (9.17 in)		1		
			Height (without feet)			219 mm (8.6 in)				
			Width			432 mm (17 in)				
			Depth			630 mm (24.8 in)				
			Weight			23 kg (51 lb)				
			Valid calibration certificate from an internationally recognized National Metrology Institute					3		
			Training at manufacturer premises					3		
			Total					100		
			Pass mark 95 %							
2	**Reference Permanent Magnets**	6 4	Specs; 1. Each piece shall be of homogeneous (uniform) magnetic field. 2. Type (a) Transverse reference magnets of values 1, 2, 5, 15, 30 and 50 K Gauss (b) Axial reference magnets of values 0.5, 4, 10, 40 K Gauss *3.* Each piece shall be in a magnetic shield enclosure approximately *depth 15cm by height 10cm by width 10 cm* 4. Each piece of magnet shall be fixed within the magnetic shield. 5. Each piece shall have a calibration certificate from a recognized National Metrology Institute.					10 30 20 10 10 20		Nairobi
			TOTAL					**100**		
			PASS MARK 90 %							
3	**Sets of standard weights (reference standards for**	2	Class E1 OIML R: 111 weights in construction and finish					30		Nairobi
			Range 1mg – 20kg in denomination of 1,2,2,5					20		
			1mg – 5mg weights must be wire type					10		
			Supplied in service casing each set separately					10		

SN	EQUIPMENT	Quantity	SPECIFICATION	Weighting (%)	Score (%)	Place of delivery
	density calibration of mass standards)		Weights 1mg – 20 kg are made from stainless steel	10		
			Must be accompanied with calibration certificates from PTB Germany for conventional mass, true mass and density values of the weights	20		
			TOTAL	**100**		
			PASS MARK 90 %			
4	**Mixed Signal Oscilloscope**	1	General specifications	10		Nairobi
			Analog channels 4			
			Analog channel bandwidth 500 MHz			
			Rise time 700 ps			
			Sample rate (4 ch) 2.5 GS/s			
			Record length (4 ch) 20M			
			Digital channels 16			
			Spectrum analyzer channels 1			
			Spectrum analyzer frequency range 50 kHz - 3 GHz			
			Spectrum analyzer input	10		
			Real-time capture bandwidth			
			≥1 GHz			
			Span			
			1 kHz - 3 GHz or 1 kHz - 6 GHz, in a 1-2-5 sequence			
			Resolution bandwidth			
			20 Hz - 10 MHz in a 1-2-3-5 sequence			
			Reference level			
			-140 dBm to +30 dBm in steps of 5 dBm			
			Vertical scale			
			1 dB/div to 20 dB/div in a 1-2-5 sequence			
			Vertical position			
			-10 divs to +10 divs			
			Vertical units			
			dBm, dBmV			
			Displayed average noise level (DANL)			
			50 kHz - 5 MHz			
			< -130 dBm/Hz			
			5 MHz - 3 GHz			
			< -148 dBm/Hz			
			Spurious response			
			2nd and 3rd harmonic distortion (>100 MHz) < -55 dBc			
			2nd order intermodulation distortion (>200 MHz)			
			< -55 dBc			
			3rd order intermodulation distortion (>15 MHz)			
			< -60 dBc			

SN	EQUIPMENT	Quantity	SPECIFICATION	Weighting (%)	Score (%)	Place of delivery
			Other A/D spurs			
			< -55 dBc			
			Image and IF Rejection			
			< -50 dBc			
			Residual response			
			< -78 dBm			
			Crosstalk to spectrum analyzer from oscilloscope channels			
			≤1 GHz input frequencies			
			< -68 dB from ref level			
			>1 GHz - 2 GHz input frequencies			
			< -48 dB from ref level			
			Phase noise at 2 GHz CW			
			10 kHz			
			< -90 dBc/Hz, < -95 dBc/Hz (typical)			
			100 kHz			
			< -95 dBc/Hz, < -98 dBc/Hz (typical)			
			1 MHz			
			< -113 dBc/Hz, < -118 dBc/Hz (typical)			
			Level measurement uncertainty			
			Reference level 10 dBm to -25 dBm. Input level ranging from reference level to 30 dB below reference level. Specifications exclude mismatch error.			
			20 °C - 30 °C			
			< ±1 dB			
			Over operating range			
			< ±1.5 dB			
			Residual FM			
			≤100 Hz peak-to-peak in 100 ms			
			Frequency measurement accuracy			
			±((5ppm x Marker Frequency) + (0.001 x Span + 2)) Hz			
			Maximum operating input level			
			Average continuous power			
			+30 dBm (1 W)			
			DC maximum before damage			
			±40 V DC			
			Maximum power before damage (CW)			
			+33 dBm (2 W)			
			Maximum power before damage (pulse)			
			+45 dBm (32 W) (<10 µs pulse width, <1% duty cycle, and reference level of ≥ +10 dBm)			
			Power level trigger			
			Frequency range			

SN	EQUIPMENT	Quantity	SPECIFICATION	Weighting (%)	Score (%)	Place of delivery
			1 MHz - 3 GHz			
			Amplitude range			
			+30 dBm to -40 dBm			
			Limits			
			With CF 1 MHz - 3.25 GHz: -35 dB from ref level			
			Minimum pulse duration			
			10 µs On Time with a minimum settling Off Time of 10 µs			
			Spectrum analyzer to analog channel skew			
			<5 ns			
			Frequency domain trace types			
			Normal, Average, Max Hold, Min Hold			
			Time domain trace types			
			Amplitude vs. Time, Frequency vs. Time, Phase vs. Time			
			Detection methods			
			+Peak, -Peak, Average, Sample			
			Automatic markers			
			One to eleven peaks identified based on user-adjustable threshold and excursion values			
			Manual markers			
			Two manual markers indicating frequency, amplitude, noise density, and phase noise			
			Marker readouts			
			Absolute or Delta			
			Vertical system analog channels	10		
			Hardware bandwidth limits			
			20 MHz or 250 MHz			
			Input coupling			
			AC, DC			
			Input impedance			
			1 MΩ ±1%, 50 Ω ±1%			
			Input sensitivity range			
			1 MΩ			
			1 mV/div to 10 V/div			
			50 Ω			
			1 mV/div to 1 V/div			
			Vertical resolution			
			8 bits (11 bits with Hi Res)			
			Maximum input voltage			
			1 MΩ			
			300 V_{RMS} CAT II with peaks ≤ ±425 V			
			50 Ω			
			5 V_{RMS} with peaks ≤ ±20 V			

SN	EQUIPMENT	Quantity	SPECIFICATION	Weighting (%)	Score (%)	Place of delivery
			DC gain accuracy			
			±1.5%, derated at 0.10%/°C above 30 °C			
			Channel-to-channel isolation			
			Any two channels at equal vertical scale			
			≥100:1 at ≤100 MHz and ≥30:1 at >100 MHz up to the rated bandwidth			
			Offset range			
			Volts/div setting Offset range			
			1 MΩ input 50 Ω			
			1 mV/div to 50 mV/div ±1 V ±1 V			
			50.5 mV/div to 99.5 mV/div ±0.5 V ±0.5 V			
			100 mV/div to 500 mV/div ±10 V ±10V			
			505 mV/div to 995 mV/div ±5 V ±5 V			
			1 V/div to 5 V/div ±100 V ±5 V			
			5.05 V/div to 10 V/div ±50 V -			
			Vertical system digital channels	10		
			Input channels			
			16 digital (D15 to D0)			
			Thresholds			
			Per-channel thresholds			
			Threshold selections			
			TTL, CMOS, ECL, PECL, User-defined			
			User-defined threshold range			
			±40 V			
			Threshold accuracy			
			±[100 mV + 3% of threshold setting]			
			Maximum input voltage			
			±42 V_{peak}			
			Input dynamic range			
			30 V_{p-p} ≤200 MHz			
			10 V_{p-p} >200 MHz			
			Minimum voltage swing			
			400 mV			
			Probe loading			
			100 kΩ in parallel with 3 pF			
			Vertical resolution			
			1 bit			
			Horizontal system analog channels	10		
			Time base range			
			1 ns to 1000 s			
			Maximum duration at highest sample rate (all/half channels)			

SN	EQUIPMENT	Quantity	SPECIFICATION	Weighting (%)	Score (%)	Place of delivery
			8/8 ms			
			Time-base delay time range			
			-10 divisions to 5000 s			
			Channel-to-channel deskew range			
			±125 ns			
			Time base accuracy			
			±5 ppm over any ≥1 ms interval			
			Horizontal system digital channels	10		
			Maximum sample rate			
			500 MS/s (2 ns resolution)			
			Maximum sample rate			
			16.5 GS/s (60.6 ps resolution)			
			Maximum record length			
			10k points centered around the trigger			
			Minimum detectable pulse width			
			1 ns			
			Channel-to-channel skew			
			200 ps			
			Trigger system	10		
			Trigger modes			
			Auto, Normal, and Single			
			Trigger coupling			
			DC, AC, HF reject (attenuates >50 kHz), LF reject (attenuates <50 kHz), noise reject (reduces sensitivity)			
			Trigger holdoff range			
			20 ns to 8 s			
			Trigger sensitivity			
			Internal DC coupled			
			Trigger source Sensitivity			
			1 MΩ path For 1 mV/div to 4.98 mV/div; 0.75 div from DC to 50 MHz, increasing to 1.3 div at rated bandwidth			
			50 Ω path For ≥5 mV/div; 0.4 div from DC to 50 MHz, increasing to 1 div at rated bandwidth			
			Trigger level ranges			
			Any input channel			
			±8 divisions from center of screen, ±8 divisions from 0 V when vertical LF reject trigger coupling is selected			
			Trigger frequency readout			
			Provides 6-digit frequency readout of triggerable events.			
			Trigger types			
			Edge			
			Positive or negative slope on any channel. Coupling includes DC, AC, HF reject, LF reject, and noise reject.			
			Sequence (B-trigger)			

SN	EQUIPMENT	Quantity	SPECIFICATION	Weighting (%)	Score (%)	Place of delivery
			Trigger Delay by Time: 4 ns to 8 s. Or Trigger Delay by Events: 1 to 4,000,000 events.			
			Pulse Width			
			Trigger on width of positive or negative pulses that are >, <, =, ≠, or inside/outside a specified period of time.			
			Timeout			
			Trigger on an event which remains high, low, or either, for a specified time period (4 ns to 8 s).			
			Runt			
			Trigger on a pulse that crosses one threshold but fails to cross a second threshold before crossing the first again.			
			Logic			
			Trigger when any logical pattern of channels goes false or stays true for specified period of time. Any input can be used as a clock to look for the pattern on a clock edge. Pattern (AND, OR, NAND, NOR) specified for all input channels defined as High, Low, or Don't Care.			
			Setup and Hold			
			Trigger on violations of both setup time and hold time between clock and data present on any of the analog and digital input channels.			
			Rise/Fall Time			
			Trigger on pulse edge rates that are faster or slower than specified. Slope may be positive, negative, or either.			
			Video			
			Trigger on all lines, odd, even, or all fields on NTSC, PAL, and SECAM video signals.			
			Acquisition system	3		
			Acquisition Modes			
			Sample			
			Acquire sampled values.			
			Peak Detect			
			Captures glitches as narrow as 1.6 ns at all sweep speeds			
			Averaging			
			From 2 to 512 waveforms included in average.			
			Envelope			
			Min-max envelope reflecting Peak Detect data over multiple acquisitions.			
			Roll			
			Scrolls waveforms right to left across the screen at sweep speeds slower than or equal to 40 ms/div.			
			Waveform measurements	3		
			Cursors			
			Waveform and Screen.			
			Automatic measurements (time domain)			
			29, of which up to eight can be displayed on-screen at any one time. Measurements include: Period, Frequency, Delay, Rise Time, Fall Time, Positive Duty Cycle, Negative Duty Cycle, Positive Pulse Width, Negative Pulse Width, Burst Width, Phase, Positive Overshoot, Negative Overshoot, Peak to Peak, Amplitude, High, Low, Max, Min, Mean, Cycle Mean, RMS, Cycle RMS, Positive Pulse Count, Negative			

SN	EQUIPMENT	Quantity	SPECIFICATION	Weighting (%)	Score (%)	Place of delivery
			Pulse Count, Rising Edge Count, Falling Edge Count, Area and Cycle Area.			
			Automatic Measurements (frequency domain)			
			3, of which one can be displayed on-screen at any one time. Measurements include Channel Power, Adjacent Channel Power Ratio (ACPR), and Occupied Bandwidth (OBW)			
			Measurement statistics			
			Mean, Min, Max, Standard Deviation.			
			Reference levels			
			User-definable reference levels for automatic measurements can be specified in either percent or units.			
			Gating			
			Isolate the specific occurrence within an acquisition to take measurements on, using either the screen, or waveform cursors.			
			Waveform histogram			
			A waveform histogram provides an array of data values representing the total number of hits inside of a user-defined region of the display. A waveform histogram is both a visual graph of the hit distribution as well as a numeric array of values that can be measured.			
			Sources - Channel 1, Channel 2, Channel 3, Channel 4, Ref 1, Ref 2, Ref 3, Ref 4, Math			
			Types - Vertical, Horizontal			
			Waveform histogram measurements			
			Waveform Count, Hits in Box, Peak Hits, Median, Max, Min, Peak-to-Peak, Mean, Standard Deviation, Sigma 1, Sigma 2, Sigma 3			
			Waveform math	5		
			Arithmetic			
			Add, subtract, multiply, and divide waveforms.			
			Math functions			
			Integrate, Differentiate, FFT.			
			FFT			
			Spectral magnitude. Set FFT Vertical Scale to Linear RMS or dBV RMS, and FFT Window to Rectangular, Hamming, Hanning, or Blackman-Harris.			
			Spectrum math			
			Add or subtract frequency-domain traces.			
			Advanced math			
			Define extensive algebraic expressions including waveforms, reference waveforms, math functions (FFT, Intg, Diff, Log, Exp, Sqrt, Abs, Sine, Cosine, Tangent, Rad, Deg), scalars, up to two user-adjustable variables and results of parametric measurements (Period, Freq, Delay, Rise, Fall, PosWidth, NegWidth, BurstWidth, Phase, PosDutyCycle, NegDutyCycle, PosOverShoot, NegOverShoot, PeakPeak, Amplitude, RMS, CycleRMS, High, Low, Max, Min, Mean, CycleMean, Area, CycleArea, and trend plots), e.g.,(Intg(Ch1 - Mean(Ch1)) × 1.414 × VAR1).			
			Modulation Analysis	1		
			Graphical display of +Pulse Width, –Pulse Width, Period, Frequency, +Duty Cycle, and –Duty Cycle modulation types.			

SN	EQUIPMENT	Quantity	SPECIFICATION	Weighting (%)	Score (%)	Place of delivery
			Software	5		
			NI LabVIEW SignalExpress™ Tektronix Edition			
			A fully interactive measurement software environment optimized for your Tektronix oscilloscope, enables you to instantly acquire, generate, analyze, compare, import, and save measurement data and signals using an intuitive drag-and-drop user interface that does not require any programming.			
			Standard support for acquiring, controlling, viewing, and exporting your live analog-channel signal data is permanently available through the software.			
			OpenChoice® Desktop			
			Enables fast and easy communication between a Windows PC and your oscilloscope using USB or LAN. Transfer and save settings, waveforms, measurements, and screen images. Included Word and Excel toolbars automate the transfer of acquisition data and screen images from the oscilloscope into Word and Excel for quick reporting or further analysis.			
			IVI driver			
			Provides a standard instrument programming interface for common applications such as LabVIEW, LabWindows/CVI, Microsoft .NET, and MATLAB.			
			e*Scope® Web-based remote control			
			Enables control of the oscilloscope over a network connection through a standard web browser. Simply enter the IP address or network name of the oscilloscope and a web page will be served to the browser.			
			LXI Class C Web interface			
			Connect to the oscilloscope through a standard Web browser by simply entering the oscilloscope's IP address or network name in the address bar of the browser. The Web interface enables viewing of instrument status and configuration, status and modification of network settings, and instrument control through the e*Scope Web-based remote control. All Web interaction conforms to LXI Class C specification, version 1.3.			
			Display system	1		
			Display type			
			10.4 in. (264 mm) liquid-crystal TFT color display			
			Display resolution			
			1,024 horizontal × 768 vertical pixels (XGA)			
			Interpolation			
			Sin(x)/x			
			Waveform styles			
			Vectors, Dots, Variable Persistence, Infinite Persistence.			
			Graticules			
			Full, Grid, Cross Hair, Frame, IRE and mV.			
			Format			
			YT and simultaneous XY/YT			
			Maximum waveform capture rate >50,000 wfm/s.			
			Input/output ports	2		
			USB 2.0 high-speed host port			

SN	EQUIPMENT	Quantity	SPECIFICATION				Weighting (%)	Score (%)	Place of delivery
			Supports USB mass storage devices, printers and keyboard. Two ports on front and two ports on rear of instrument.						
			USB 2.0 device port						
			Rear-panel connector allows for communication/control of oscilloscope through USBTMC or GPIB (with a TEK-USB-488), and direct printing to all PictBridge-compatible printers.						
			LAN port						
			RJ-45 connector, supports 10/100/1000 Mb/s						
			Probe compensator output voltage and frequency				2		
			Front-panel pins						
			Amplitude						
			0 to 2.5 V						
			Frequency						
			1 kHz						
			External reference input				2		
			Time-base system can phase lock to an external 10 MHz reference (10 MHz ±1%)						
			Power source				2		
			Power source voltage						
			100 to 240 V ±10%						
			Power source frequency						
			50 to 60 Hz ±10% at 100 to 240 V ±10%						
			Operating Temperature				2		
			0 ºC to +50 ºC						
			Operating Humidity				2		
			10% to 90% relative humidity						
			Total				**100**		
			Pass mark				**95**		
5	**Quantum precision amplifier**	1	i.	Accuracy class		0.0025	3		Nairobi
			ii.	Carrier frequency	Hz	225 ± 0.5	3		
			iii.	Bridge Excitation voltage	V	2.5; 5.0 (±5%)	3		
			iv.	Transducers that can be connected		Stain gauge full bridges(6 wire and 4wire connection)	3		
			v.	Permissible cable length	m	100	3		
			vi.	Measuring ranges at 5 V excitation at 2. 5 V excitation	 mV/V mV/V	 ±2.5; ±5; ±2.5; ±5;	3		
			i.	Additional shunt resistor can be activated (control signal)	kΩ	100±0.1% (typ. - 0.886mV/V at 350 ohm)	3		
			ii.	Weight approx.	g	850	3		
			iii.	Dimensions (WxHxD)	mm	52.5x200x121 (with case	3		

SN	EQUIPMENT	Quantity	SPECIFICATION				Weighting (%)	Score (%)	Place of delivery
						protection) 44x174x116.5(without case protection)			
			iv.	Measuring frequency range	Hz	0…..50	3		
			v.	Transducer impendence at 5 V excitation at 2. 5 V excitation	 Ω Ω	 150 …5,000 75 …..5,000	3		
			vi.	Noise at 25 ˚C, 350Ω impendence for 2sigma (95%), (peak to peak) with filter 1 Hz Bessel with filter 10 Hz Bessel	 µv µv	 < 0.06 <0.02	2		
			vii.	Linearity error	%	< 0.002 of full scale	2		
			viii.	Common mode rejection	dB	>120	2		
			ix.	Zero drift	%/10K	0.0005 of full scale	2		
			x.	Full scale	%/10K	0.001 of measurement value	2		
			xi.	short term drift	%/24h	0.001	2		
			xii.	short term drift	%/24h	0.0015	2		
			xiii.	Ambient temperature	˚C	0 …… 40 [+32 ….+ 104]	2		
			xiv.	EMC Requirements		As per EN61326	2		
				b) Accessories required					
			xv.	Software and product packages MX238B+catman© AP	Package including -Laptop computer - Amplifier - Power supply (1-NTX001) - 8 transducer plugs with TEDS (1-SUBHD15-MALE) - Ethernet Cross-over cable (1-KAB239-2) - Catman©AP software from HBM (1-CATMAN-AP) - including software maintenance for the first 12 months		10		
			xvi.	Labview TM- Treiber	Universal driver from HBM for Lab view		3		
			xvii.	Capone driver	QuantumX driver for the software CANape© from vector Informatix. CANape versions from 10.0 are supported		3		
				Power					
			xviii.	AC-DC power supply/ 24V	Input: 100 … 240 V AC (±10%), 1.5m cable		3		
			xix.	3m cable – QuantumX supply	3 m cable for voltage supply of Quantum X module; Suitable plug (ODU medi-Snap S11M08- P04mjgo-5280) on one side and open strands on the other end.		3		
				Communication					
			xx.	IEEE 1394b fire wire cable (module to module)			2		

SN	EQUIPMENT	Quantity		SPECIFICATION			Weighting (%)	Score (%)	Place of delivery
			xxi.	IEEE 1394b Fire wire cable IEEE Express Card			2		
			xxii.	IEEE 1394b Fire wire cable PC-to- Module			3		
			xxiii.	IEEE 1394b IEEE 1394b Fire wire cable from hub -to- Module, IP68			2		
			xxiv.	IEEE 1394b Fire wire extender SCM-FW, IP68			3		
			xxv.	Ethernet cross over cable			3		
			xxvi.	c) Calibration certificate	Calibration certificate required from an National Metrology Institute		3		
			xxvii.	d) Training	training for two technical users at the factory.		3		
			xxviii.	d) Warranty	Warranty for at least two years for parts and labour to be provided		3		
			xxix.	e) User, operation and service manual	Required in English		3		
			xxx.	f) Installation and Commissioning	required				
				Total			**100**		
				Pass mark			**90**		
6	**Bridge Calibration Unit**	1	i.	Type		BN100A			
			ii.	Accuracy class		0.0005	5		Nairobi
			iii.	Supply voltage	V	AC Voltage 230, 50Hz AC Voltage 115, 50Hz	5		
			iv.	Power consumption	VA	20	5		
			v.	Calibration signal	mV/V	-100 …+ 100	5		
			vi.	Steps	mV/V	0.1	5		
			vii.	Calibration error, related to 2 mV/V	%	<0.0005	5		
			viii.	Steps error, related to the specific step value	%	<0.0003			
			ix.	Calibration signal deviation, on changing polarity, related to 2 mV/V	%	<0.0004	5		
			x.	Nominal temperature range	˚C	+15 …. +30	5		
			xi.	Permissible ambient temperature range	˚C	0 …. +50	5		
			xii.	Maximum relative humidity for temperature up ˚C	%	80	5		
			xiii.	Nominal frequency of the bridge excitation voltage	Hz	225±2	5		
			xiv.	Nominal value of the bridge excitation voltage	V	10	4		
			xv.	Weight (net Weight)	kg	7.2	4		
			xvi.	Dimensions (WxHxD)	mm	255x171x367	4		
			xvii.	Input resistance		350±4	4		
			xviii.	output resistance		350±4	4		
			xix.	Traceability		Calibration certificate from a national metrology Institute At 2.5V, 5V and 10V	5		
			xx.	Units selectable		mV/V, kN, Kg, bar	5		

SN	EQUIPMENT	Quantity	SPECIFICATION				Weighting (%)	Score (%)	Place of delivery
			xxi.	Training		On-site training of three technical users	5		
			xxii.	casing		Rack-mount version	5		
				Total			**100**		
				Pass mark			**90**		
7	**Viscosity oil bath**								
		1	Kinematic Viscosity at 40 ºC:		app. 20 mm^2/s		3		
			Density at 15 ºC:		800 - 900 kg/m^3		3		
			Flash point:		between 180 ºC - 290 ºC		3		
			Quantity:		20 litres		1		
		1	Kinematic Viscosity at 40 ºC:		app. 30 mm^2/s		3		
			Density at 15 ºC:		800 - 900 kg/m^3		3		
			Flash point:		between 180 ºC - 290 ºC		3		
			Quantity:		20 litres		1		
		1	Kinematic Viscosity at 40 ºC:		app. 45 mm^2/s		3		
			Density at 15 ºC:		800 - 900 kg/m^3		3		
			Flash point:		between 180 ºC - 290 ºC		3		
			Quantity:		20 litres		1		
		1	Kinematic Viscosity at 40 ºC:		app. 70 mm^2/s		3		
			Density at 15 ºC:		800 - 900 kg/m^3		3		
			Flash point:		between 180 ºC - 290 ºC		3		
			Quantity:		20 litres		1		
		1	Kinematic Viscosity at 40 ºC:		app. 100 mm^2/s		3		
			Density at 15 ºC:		800 - 900 kg/m^3		3		
			Flash point:		between 180 ºC - 290 ºC		3		
			Quantity:		20 litres		1		
		1	Kinematic Viscosity at 40 ºC:		app. 150 mm^2/s		3		
			Density at 15 ºC:		800 - 900 kg/m^3		3		
			Flash point:		between 180 ºC - 290 ºC		3		
			Quantity:		20 litres		1		
		1	Kinematic Viscosity at 40 ºC:		app. 220 mm2/s		3		
			Density at 15 ºC:		800 - 900 kg/m3		3		
			Flash point		between 180 ºC - 290 ºC		3		
			Quantity:		20 litres		1		
		1	Kinematic Viscosity at 40 ºC:		app. 320 mm2/s		3		
			Density at 15 ºC:		800 - 900 kg/m3		3		
			Flash point:		between 180 ºC - 290 ºC		3		
			Quantity:		20 litres		1		
		1	Kinematic Viscosity at 40 ºC:		app. 460 mm2/s		3		
			Density at 15 ºC:		800 - 900 kg/m^3		3		

SN	EQUIPMENT	Quantity	SPECIFICATION		Weighting (%)	Score (%)	Place of delivery
			Flash point:	between 180 ºC - 290 ºC	3		
			Quantity:	20 litres	1		
			Certificate of calibration from an ISO/IEC 17025 accredited centre		10		
			Total		100		
			PASS MARK 95 %				
8	**Density hydrometer**	2	Density range	0.6000-2.0000 g/ml	45		Nairobi
			Resolution	0.0005g/ml	45		
			Certificate of calibration from an ISO/IEC 17025 accredited centre		10		
			Total	**100**			
			PASS MARK 100 %				
9	**Environmental monitoring station with temperature, humidity and pressure sensors**	2	Specifications				Nairobi
			Temp. Range:	10 ºC to 50 ºC	15		
			Temp. Resolution:	0.01 ºC	15		
			Temp. Accuracy:	±0.01 ºC	10		
			Pressure range	800mbar-1050 mbar	15		
			Humidity range	20% - 80%	15		
			Power:	240V, 50/60Hz	10		
			To be supplied with a calibration certificate from an ISO/IEC 17025 accredited lab		20		
			TOTAL	**100**			
			PASS MARK 95 %				
10	**Resistance Direct Current Comparator Measurement System**	1	Measurement uncertainty: 0.03ppm		10		Nairobi
			Display Resolution 10.5 digit		10		
			Temperature Coefficient: 0.02/deg Centigrade		10		
			Resistance range 1μΩ to 1GΩ		10		
			Internaly installed: Self verification procedures, and self-stabilized internal temperature control		5		
			Internally installed: Direct Current Control, voltage Control, Scanner, Automated current reversal		8		
			capability of resistance verification of of long chain resistance measuring Multimeters		4		
			capability to transfer traceability from primary resistance standards		8		
			Manual and automated modes of operation		5		
			Supplied with attached Laptop with controller software installed		8		
			Supplied with English manual		5		
			Supplied with Power cable with standard square pin 240V plug		2		
			Supplied with Interfacing cable (GPIB)		3		
			Training of users on the system		4		
			Supply with resistor standards of 0.1Ω to 100Ω		4		
			Supplied with Current and NMI traceable calibration certificate		4		
			Total		**100**		

SN	EQUIPMENT	Quantity	SPECIFICATION	Weighting (%)	Score (%)	Place of delivery
			Pass 95%			
11	**RLC precision meter**	1	Accuracy: 0.1% Short duration, 0.05% long or medium duration	10		Nairobi
			Test Frequency: 20 Hz to 2MHz	10		
			Test signal level: Volatage 0V to 20V; Current 1µA to 100mA	8		
			With Auto-level test signal control	5		
			DC Bias ±40V	5		
			Programmable test sweep: 201 test points	8		
			Remote capability: Standard GPIB, LAN, USB with scanner	10		
			Input cable 4m Maximum specification	3		
			Weight: Not more than 3.5kg	2		
			Supplied with Data acquisation computer software	11		
			Supplied with Data acquisation interface cables	10		
			Supplied with standard 240v 3 pin square plug pwer cable	3		
			Supplied with English user manual	5		
			Supplied with Current and traceable certificate	10		
			Total	**100**		
			Pass 95%			
12	**Low resistance range High Voltage Insulation Resistance Decade Boxes**	1	Range: 1mΩ to 10 MΩ	10		
			Accuracy at the highest decade: 1% + 20mΩ	8		
			Power rating: 225W/decade	10		
			Temperature Coefficient: 80ppm/◦C	8		
			Maximum Voltage rating 1kV or higher	8		
			Terminals : 2- Terminal connection	10		
			Connection posts made from low resistance copper or copper alloy	5		
			3rd post ground shield connection	3		
			Dial electrical Contacts: Silver	5		
			Casing: Hermetically sealed well insulated case	5		
			Supplied with Current and traceable certificate	8		
			Required Decades			
			1mΩ per step; Rated at 8 Amperes	2		
			10mΩ per step; Rated at 6 Amperes	2		
			10mΩ per step; Rated at 6 Amperes	2		
			1Ω per step; Rated at 5 Amperes	2		
			10Ω per step; Rated at 1.5 Amperes	2		
			100Ω per step; Rated at 0.5 Amperes	2		
			1kΩ per step; Rated at 150 Milli Amperes	2		
			10kΩ per step; Rated at 50 Milli Amperes	2		
			10kΩ per step;	2		
			1MΩ per step;	2		

SN	EQUIPMENT	Quantity	SPECIFICATION	Weighting (%)	Score (%)	Place of delivery
			Total	**100**		
			Pass 95%			
13	**2 terminal high resistance range Decade box**	1	Range: 100 MΩ to 10 TΩ	12		
			Operating Volatge: 10kV	10		
			Accuracy at the highest decade: ±0.01%	5		
			Stability: 10ppm/yr	5		
			Voltage Coefficient: 0.2ppm/V	8		
			Resolution at the smallest decade: 10Ω	10		
			Terminals : 2- Terminal connection	10		
			Connection posts made from copper or copper alloy	5		
			3rd post ground shield	3		
			Dial electrical Contacts: Silver alloy	5		
			Casing: Well insulated and hermetically sealed	5		
			Supplied with Current and traceable certificate	10		
			Required Decades all rated at 10kV			
			100mΩ per step	2		
			1GΩ per step	2		
			10GΩ per step	2		
			100GΩ per step	2		
			1TΩ per step	2		
			Ideal for calibration of megger testers	2		
			Total	**100**		
			Pass 95%			
14	**4 terminal Low resistance range Decade box**	1	Range: 100 µΩ to 1 MΩ	10		Nairobi
			Accuracy at the highest decade: 20ppm + 5mΩ	10		
			Stability: 5ppm/yr	10		
			Temperature Coefficient: 3ppm/◦C	8		
			Resolution at the smallest decade: 20 µΩ	8		
			Terminals : 4- Terminal connection	10		
			Connection posts made from low resistance gold plated tellurm-copper posts	5		
			5th ground shield connection attached to a metal casing	3		
			Dial electrical Contacts: Silver	5		
			Casing: Mettalic	5		
			Supplied with Current and traceable certificate	10		
			Required Decades			
			100 µΩ per step	2		
			10 mΩ per step	2		
			1 Ω per step	2		

SN	EQUIPMENT	Quantity	SPECIFICATION	Weighting (%)	Score (%)	Place of delivery
			10 Ω per step	2		
			100 Ω per step	2		
			1 kΩ per step	2		
			10 kΩ per step	2		
			100 kΩ per step	2		
			Total	**100**		
			Pass 95%			
15	**2 terminal high resistance range Decade box**	1	Range: 1 Ω to 10 MΩ	10		Nairobi
			Accuracy at the highest decade: ±0.01%	10		
			Stability: 10ppm/yr	10		
			Temperature Coefficient: 5ppm/◦C	8		
			Resolution at the smallest decade: 1 Ω (2A Current)	8		
			Terminals : 2- Terminal connection	10		
			Connection posts made from low resistance gold plated tellurm-copper posts	5		
			3rd post ground shield connection attached to a metal casing	3		
			Dial electrical Contacts: Silver	5		
			Casing: Mettalic	5		
			Supplied with Current and traceable certificate	10		
			Required Decades			
			1Ω per step	2		
			10 Ω per step	2		
			100 Ω per step	2		
			1 kΩ per step	2		
			10 kΩ per step	2		
			100 kΩ per step	2		
			1 MΩ per step	2		
			With position 10 an overlap reserved for fine tuning	2		
			Total	**100**		
			Pass 95%			
16	**Reference Clamp mater**	1	Minimum Range: 1000A Single phase or 3 phase AC or DC	**6**		Nairobi
			Accuracy AC Current (40-500Hz): 1000A ±(1.5%rdg+5d) at 0.1 A resolution	**4**		
			DC Current: 1000A ±(1.5%rdg+5d) at 0.1 A resolution	**4**		
			Accuracy AC Voltage (40-500Hz): ±(0.5%rdg+5d)600V at 100mV resolution	**4**		
			Accuracy DC Voltage: ±(0.5%rdg+5d)600V at 100mV resolution	**4**		
			•Dual display of kW+PF, kVA+PF, V+A, A+Hz or V+Hz	**2**		
			25 point memory viewable on display	**2**		
			Full function display on large 4-digit LCD with fast 40 seg. bargraph, Peak Hold, MIN/MAX	**5**		
			Clamp jaws open to 1.8"" (46mm)	**2**		

SN	EQUIPMENT	Quantity	SPECIFICATION	Weighting (%)	Score (%)	Place of delivery
			RS-232 module with PC software to capture and display data	**5**		
			Supplied with:			
			RS-232 module	**5**		
			Windows 95/98/NT/2000/ME/XP compatible data acquisation software	**5**		
			Cable	**1**		
			9V battery	**1**		
			Alligator clips	**2**		
			Test leads	**3**		
			Carrying case	**3**		
			Supplied with English user manual	**2**		
			Supplied with Current and traceable certificate	5		
		2	Clamp on Sensor accessory			
			Minimum Range: 1A to 600A AC rms and 1A to 1000A DC	**5**		
			Accuracy AC Current 1000A ±(3.5%+0.5A)	**6**		
			DC Current: 1000A ±(2.0%+0.5A)	**6**		
			Supplied with English user manual	**3**		
			Supplied with Current and traceable certificate	5		
			Leads	**5**		
			Batteries	**5**		
			Total	**100**		
			Pass 95%			
17	**Automatic dial indicator testing equipment**	1	Performance Specifications			Nairobi
			i. Range: 0-100 mm	12		
			ii. Digital resolution: 0.02 µm	12		
			iii. Accuracy: (0.2+L/250) µm (L in mm) at T=20°C	12		
			iv. Positioning speed: 2 mm/s	10		
			v. Automatic pre-positioning	11		
			Other Requirements			
			I. Supply voltage: 110-230V AC	4		
			II. Software assisted operation with certificate printing capabilities	10		
			III. Accessories: Mount for lever-type indicators, Full set of adaptors for digital indicators and inductive probes	10		
			IV. Calibration: Certificate of calibration from a National Metrology Institute which has posted its Calibration and Measurement Capabilities at the Bureau International des Poids et Mesures (BIPM)	5		
			V. To be supplied with Colour printer and Laptop PC (minimum RAM 4GB; processor core i7, 2.8 GHz)	9		
			VI. Warranty (At least 3 years)	5		
			TOTAL SCORE	**100**		

SN	EQUIPMENT	Quantity	SPECIFICATION	Weighting (%)	Score (%)	Place of delivery
			MINIMUM SCORE REQUIRED	**95%**		
18	**MILLER MIGMATIC**	1	External dimensions, W x H x L, mm 480x700x920 Weight: 81 kg Input Power: 220v, 50/60Hz 34amps, Single Phase Rated Output : 250 A at 26.5 VDC, 35% Duty Cycle Max. OCV 43 VDC Voltage Range 17 - 43 V Solid Steel Wire Diameter 0.6 - 1.2 mm Aluminium Wire Diameter 0.8 - 1.2 mm Stainless Steel 0.8 - 1.2 mm Flux Cored Wire Diameter 1.0 - 1.2 mm Wire Feed Speed 1.0 - 28.2 m/min (39-1110 IPM) Warranty Information True Blue 3 Year Parts and Labour Warranty. Training and installation.	5 5 10 5 10 10 5 5 5 5 5 10 20		Nairobi
			Total	**100**		
			MINIMUM SCORE REQUIRED	**90%**		
19	**TIG Welder,**	1	• Series Dynasty 200 SD • Polarity AC/DC T • Welded Material: Aluminum, Steel • Material Thickness Mild Steel 0.004" to 1/4" • Material Thickness Aluminum 0.020" to 1/4" • Weight 45 lb. • Rated Output 150A@16V, 60% • Input (Amps) 31/20/13/10A; • Frequency 50/60 Hz • Overall Height 13-1/2" ;Overall Width 7-1/2" ; Overall Depth 21-1/2" • Application Portable Precision Metal Fabrication, Maintenance and Repair, Light and Heavy Manufacturing, Aerospace, Shipbuilding, Tube and Pipe, Automotive • Features Advanced Squareware Arc, Extended Balance Control Range, AC Frequency Control Range of 20-250 Hz, Built-In Pulser, Portable, Inverter-Based, AC/DC Power Source, HF Arc Starting, Programmable HF Start Parameters **Input Power** • 3- or 1-Phase Power (Input Voltage 120 to 480VAC) **TIG Rated Output** • 200 A at 18 V, 20% Duty Cycle	3 3 3 3 3 3 3 3 3 3 3 5 5 5 5		Nairobi

SN	EQUIPMENT	Quantity	SPECIFICATION	Weighting (%)	Score (%)	Place of delivery
			• 150 A at 16 V, 60% Duty Cycle • 140 A at 15.6 V, 40% Duty Cycle • 100 A at 14 V, 100% Duty Cycle **Stick Rated Output** • 200 A at 28 V, 20% Duty Cycle • 130 A at 25.2 V, 60% Duty Cycle • 100 A at 24 V, 60% Duty Cycle • 90 A at 23.6 V, 100% Duty Cycle **Welding Amperage Range** • 1-200 Amps (1-150 on 120 VAC) **Net Weight** • 45 lb (20.5 kg) **Warranty Information** Three Years **Training and installation including the following.** • Dynasty 200 SD power source • Quick Reference Guide: English | Spanish • 8 ft (2.4 m) primary cord • DVD set-up video • (2) Dinse 50 mm connectors • Air-cooled torch adapter (195378) • Adjustable shoulder strap • Includes Air-Cooled Tig Torch Adapter and 2 Dinse 50mm International-Style Power Cable Connectors **Includes:** • Power Source • Protective Carrying Case DB1712RD125 Torch with adapter Gas hose and regulator. • Adjustable shoulder strap • 10 ft primary cord • (2) international (Dinse 50 mm) connectors • RCCS-14 remote finger tip control • Weldcraft® 25 ft WP17 TIG torch with adapter • Smith® flow gauge regulator with 12 ft gas hose • AK2C accessory kit • .040", 1/16", and 3/32" cerium tungsten • Collets and cups • 200 amp 15 ft stick electrode holder • Work clamp with 15 ft #4 cable • Air-cooled TIG torch adapter	5 5 5 16 14		
			Total	**100 %**		

SN	EQUIPMENT	Quantity	SPECIFICATION				Weighting (%)	Score (%)	Place of delivery
			MINIMUM SCORE REQUIRED				**90 %**		
20	**Intrinsically Safe Handheld Multifunction Process Calibrator**	4 pcs	Voltage DC	30.000 V	0.02% + 2 counts (upper display)		1		Nairobi
				10.000 V	0.02% + 2 counts (lower display)		1		
				90.00 mV	0.02% + 2 counts		1		
				-10.00 mV to 75.00 mV	0.025% + 1 count (via TC connector)		1		
			Current DC	24.000 mA	0.02% + 2 counts		2		
			Resistance	**0.0 to 400.0 Ω**	0.1 Ω (4-wire), 0.15 Ω (2- and 3-wire)		1		
				401 to 1500 Ω	0.5 Ω (4-wire), 1 Ω (2- and 3-wire)		1		
				1500 to 3200 Ω	1 Ω (4-wire), 1.5 Ω (2- and 3-wire)		1		
			Frequency	**2.0 to 1000.0 CPM**	0.05% + 1 count		1		
				1.0 to 1100.0 Hz	0.05% + 1 count		1		
				1.00 to 10.00 kHz	0.05% + 1 count		1		
				Sensitivity	1 V peak-to-peak-minimum		1		
			Pressure	Accuracy from 0.025% of range using any of 8 intrinsic safe pressure modules (for detailed specifications refer to pressure modules in options and accessories). Modules available for differential, gauge, vacuum, absolute, dual and high pressure.		4			
			SOURCE ACCURACY						
			Voltage DC	**100.00 mV**	0.02% + 2 counts		1		
				10.000 V	0.02% + 2 counts		1		
				-10.00 mV to 75.00 mV	0.025% + 1 count (via TC connector)		1		
			Current DC	**24.000 mA (source)**	0.02% + 2 counts		1		
				24.000 mA (simulate)	0.02% + 2 counts		1		
			Resistance	**15.0 to 400.0 Ω**	0.15 Ω (exc. current 0.15 to 0.5 mA), 0.1 Ω (exc. current 0.5 to 2 mA)		1		
				401 to 1500 Ω	0.5 Ω (excitation current 0.05 to 0.8 mA)		1		
				1500 to 3200 Ω	1 Ω (excitation current 0.05 to 0.4 mA)		1		
			Frequency	**2.0 to 1000.0 CPM**	0.05%		1		
				1.0 to 1100.0 Hz	0.05%		1		
				1.00 to 10.00 kHz	0.25%		1		
				Waveform	5 V p-p squarewave, -0.1 V offset		1		
			RTDS AND THERMOCOUPLES						
			Measure accuracy	**NI-120**	0.2°C		1		
				PT-100 (385)	0.33°C		1		

SN	EQUIPMENT	Quantity	SPECIFICATION			Weighting (%)	Score (%)	Place of delivery
				PT-100 (393)	0.3°C	1		
				PT-100 (JIS)	0.3°C	1		
				PT-200 (385)	0.2°C	1		
				PT-500 (385)	0.3°C	1		
				PT-1000 (385)	0.2°C	1		
				Resolution	0.1°C	1		
				J	0.7°C	1		
				K	0.8°C	1		
				T	0.8°C	1		
				E	0.7°C	1		
				R	1.8°C	1		
				S	1.5°C	1		
				B	1.4°C	1		
				L	0.7°C	1		
				U	0.75°C	1		
				N	0.9°C	1		
				Resolution	J, K, T, E, L, N, U: 0.1°C, 0.1°F B, R, S: 1°C, 1°F	1		
				XK	0.6°C	1		
				BP	1.2°C	1		
			Source accuracy	**NI-120**	0.2°C	1		
				PT-100 (385)	0.33°C	1		
				PT-100 (393)	0.3°C	1		
				PT-100 (JIS)	0.3°C	1		
				PT-200 (385)	0.2°C	1		
				PT-500 (385)	0.3°C	1		
				PT-1000 (385)	0.2°C	1		
				Resolution	0.1°C	1		
			Accuracy stated for 4-wire measurement.					
				J	0.7°C	1		
				K	0.8°C	1		
				T	0.8°C	1		
				E	0.7°C	1		
				R	1.4°C	1		
				S	1.5°C	1		
				B	1.4°C	1		
				L	0.7°C	1		
				U	0.75°C	1		
				N	0.9°C	1		
				Resolution	J, K, T, E, L, N, U: 0.1°C, B, R, S:	1		

SN	EQUIPMENT	Quantity	SPECIFICATION			Weighting (%)	Score (%)	Place of delivery
					1°C			
				XK	0.6°C	1		
				BP	1.2°C	1		
			FUNCTION SPECIFICATIONS					
			Ramp functions	**Source functions**	**Source functions**	1		
				Ramps	**Ramps**	1		
			Loop power function	**Voltage**	**Voltage**	1		
				Accuracy	**Accuracy**	1		
				Maximum current	**Maximum current**	1		
			Step functions	**Source functions**	**Source functions**	1		
				Steps	**Steps**	1		
			SAFETY SPECIFICATIONS					
			Agency approvals	ATEX II 1 G Ex ia IIB 171°C		1		
				I.S. Class I, Division 1 Groups B-D		1		
			MECHANICAL AND GENERAL SPECIFICATIONS					
			Size	130 x 236 x 61 mm (5.188 x 9.291 x 2.402 in)		1		
			Weight	0.85 kg (1.874 lbs.)		1		
			Batteries	4 AA alkaline batteries		1		
			Warranty	Three years		1		
			Battery replacement	Separate battery compartment, accessible without breaking calibration seal		1		
			Side port connections	Pressure module connector		1		
			ACCESSORIES THAT MUST BE SUPPLIED					
			Accessories	set of test leads with alligator clips		2		
				FLK-TL75 test leads		2		
				crocodile clips FLK-AC72		2		
				Protective red holster		2		
				one pair of stackable test leads		2		
				CD users manuals (English		1		
				725Ex CCD control drawing		1		
				NIST traceable calibration certificate		2		
				TOTAL		**100**		
			MINIMUM SCORE REQUIRED			**90%**		
21	**Hand held shaker**	1	Nominal, 160 Hz, 10 m/s^2 acceleration, 10 mm/s velocity and 10 micro meter displacement			30		Nairobi
			Payload up to 150 g			20		
			Battery operated			15		

SN	EQUIPMENT	Quantity	SPECIFICATION				Weighting (%)	Score (%)	Place of delivery
			Transportation case with necessary accessories				15		
			Certificate of calibration				20		
			TOTAL SCORE				**100**		
			MINIMUM SCORE REQUIRED				**95%**		
22	**Insert Voltage Preamplifier with cable**	1	0.5 dB frequency response between 30Hz to 200 kHz re 1 kHz				20		Nairobi
			Attenuation less than 0.05 dB				20		
			less than 2 degrees phase linearity between 250 Hz and 50 kHz				10		
			More than 1 G ohm input impedance at 0.05 pF				10		
			Less than 25 ohm output impedance				10		
			Lemo FGJ.OB.307 at preamp and FGG.1B.307 for instrument input socket				10		
			Less than 2.7 micro volt A weighted max				10		
			Polarisation voltage support (200V)				10		
			TOTAL SCORE				**100**		
			MINIMUM SCORE REQUIRED				**95%**		
23	**Digital high precision measuring amplifier**	1	i.	Type		DMP41-T6	5		Nairobi
			ii.	Accuracy class		0.0005	5		
			iii.	Number of amplifiers Transducers that can be connected		6 SG full bridges	5		
			iv.	Excitation voltage	V	2.5; 5; 10	5		
			v.	Carrier frequency	Hz	225± 100ppm	5		
			vi.	Measuring ranges	mV/V	±2.5; ±5; ±10	5		
			vii.	Digital filter (6th order)	Hz	40..0.01 (15 step)	5		
			viii.	Weight (net Weight)	Kg	approx. 9.5	5		
			ix.	Dimensions (WxHxD)	mm	458x171x367	5		
			x.	Carrier frequency		225 Hz	5		
			xi.	Usability		Touch screen and functional keys	5		
			xii.	Connections for SD transducer six-wire configuration Temperature sensor (1-wire) max. 4 sensor Digital input and outputs Computer interface Ethernet Computer interface USB USB host inteface Computer interface serial (optional)		 6xD-SUB-15 RJ45 D-SUB-15 RJ45 USB device 2xUSB Host Adapter D-SUB-9	4		
			xiii.	Operating voltage (mains Voltage)	v	85...264 (50...60 Hz)	4		
			xiv.	Degree of protection		IP 20 per DIN EN 60529	4		
			xv.	Display Resolution		> 1,000, 000	4		
			xvi.	Rack-mount version		1-DMP41-E6	4		
			xvii.	RJ45 Connector for tool –free fitting		1-RJ45	4		
			xxxi.	c) Calibration certificate		Calibration certificate required from an	4		

SN	EQUIPMENT	Quantity	SPECIFICATION				Weighting (%)	Score (%)	Place of delivery
						ISO 17025 accredited lab			
			xxxii.	d) Training		On-factory training of the technical users	4		
			xxxiii.	d) Warranty		Warranty for at least two years for parts and labour to be provided	4		
			xxxiv.	e) Operating manuals		2 copies in English	4		
			xxxv.	f) Installation and Commissioning		Not required			
				TOTAL SCORE			**100**		
				MINIMUM SCORE REQUIRED	**95%**				
24	**Force transducer**	1	i.	Type		C9C	4		Nairobi
			ii.	Nominal rated force	kN	50	4		
			iii.	Accuracy class		0.2	4		
			iv.	Direction of force		Compressive			
			v.	Relative reproducibility and repeatability errors without rotation	%	< 0.2	3		
			vi.	Relative reversibility error	%	< 0.2	3		
			vii.	Nonlinearity error	%	< 0.2	3		
			viii.	Relative creep	%	< 0.1	3		
			ix.	Electrical characteristics					
			x.	Nominal (rated) sensitivity	mV/V	1	3		
			xi.	Relative zero signal error	mV/V	± 0.2	3		
			xii.	Sensitivity error	%	< 1	3		
			xiii.	Input resistance	Ω	300 - 450	4		
			xiv.	Output resistance	Ω	100 - 450	4		
			xv.	Insulation resistance	Ω	> $1*10^{9}$	3		
			xvi.	Operating range of the excitation voltage	V	0.5 - 12	3		
			xvii.	Reference excitation voltage		5	3		
			xviii.	Connection		4-wire circuit	3		
			xix.	Nominal (rated) temperature range	°C	-10 to +70	4		
			xx.	Max. operating force	% of F_{nom}	120	5		
			xxi.	Degree of protection per EN 60529		IP67	3		
			xxii.	Spring element material		steel	3		
			xxiii.	Measuring point protection		Hermetically welded	3		
			xxiv.	Cable length	m	6m	3		
			xxv.	Weight	g	260	3		
				b) Accessories			3		
			xxvi.	Mounting accessories		Load button and trust piece			
				c) Calibration certificate			3		
			xxvii.	Calibration certificate to be provided		Calibration certificate to be provided	3		

SN	EQUIPMENT	Quantity	SPECIFICATION				Weighting (%)	Score (%)	Place of delivery
				according to ISO 376:2011 and the transducer classified as class 0.2					
				d) Warranty		Warranty provided	3		
			xxviii.	Warranty for at least two years for parts and labour		Warranty to be provided	3		
			xxix.	e) User, operation and service manual		Required in English	3		
			xxx.	f) Installation and Commissioning		Not required	3		
			xxxi.	g) Training		Not required	4		
				Total			**100**		
				h) MINIMUM SCORE REQUIRED			**90%**		
25	**Force transducer**	1		Type		C6A	4		Nairobi
			i.	Nominal rated force	MN	2MN	4		
			ii.	Accuracy class		0.5	4		
			iii.	Direction of force		Compressive	4		
			iv.	Relative reversibility error	%	< 0.2	4		
			v.	Linearity deviation	%	< ±1	4		
			vi.	Relative creep	%	< 0.1	4		
			vii.	Electrical characteristics					
			viii.	Nominal (rated) sensitivity	mV/V	2	4		
			ix.	Relative zero signal deviation	mV/V	± 1	4		
			x.	Sensitivity deviation	%	± 2.5	4		
			xi.	Input resistance	Ω	>345	4		
			xii.	Output resistance	Ω	356±1.5	4		
			xiii.	Insulation resistance	Ω	$> 5*10^{9}$	4		
			xiv.	Reference excitation voltage	V	5	4		
			xv.	Operating range of the excitation voltage	V	0.5 - 12	3		
			xvi.	Nominal (rated) temperature range	°C	-10 to +70	3		
			xvii.	Limit force	% of F_{nom}	150	3		
			xviii.	Degree of protection per EN 60529		IP67	3		
			xix.	Spring element material		steel	4		
			xx.	Measuring point protection		Hermetically welded	4		
			xxi.	Cable length , 6-wire circuit	m	6m	4		
			xxii.	Weight (without cable)	Kg	12.2			
			xxiii.	b) Accessories			4		
			xxiv.	Mounting accessories		Load button and trust piece			
			xxv.	c) Calibration certificate			4		
			xxvi.	Calibration certificate to be provided according to ISO 376:2011 and the		Calibration certificate to be provided			

SN	EQUIPMENT	Quantity	SPECIFICATION				Weighting (%)	Score (%)	Place of delivery
				transducer classified as class 0.2					
			xxvii.	d) Warranty			3		
			xxviii.	Warranty for at least two years for parts and labour		Warranty provided	3		
			xxix.	d) Warranty			3		
			xxx.	Warranty for at least two years for parts and labour		Warranty provided	3		
			xxxi.	e) User, operation and service manual		Required in English			
			xxxii.	f) Installation and Commissioning		Not required			
			xxxiii.	g) Training		Not required			
				Total marks			100		
				pass marks	**90%**				
26	**Reference Generator**	1	Internal Oscillator Ultra Low Phase Noise Oscillator Oscillator frequency 5/10 MHz Short term stability 1 s 1.3 x 10^{-13} 10 s 8.0 x 10^{-14} Phase Noise 1 Hz - 118 dBc/Hz @ 10 MHz 10 Hz - 134 dBc/Hz 100 Hz - 142 dBc/Hz 1 kHz - 146 dBc/Hz 10 kHz - 146 dBc/Hz Ageing** per day 2 x 10^{-11} per month 5 x 10^{-10} per year 4 x 10^{-9} **) The aging performance specification applies after 30 days of continuous operation.				20		Nairobi
			Frequency Inputs Number of inputs 1 Impedance 50 Ω Input Level +3 to +10 dBm Frequency 5 or 10 MHz, sine wave Frequency configuration Automatic frequency detection Input return loss > 35 dB Pulse Inputs Number of inputs 3 Impedance 50 Ω or high impedance Input level 1 Vpp to 5 Vpp Trigger level Configurable Signal type 1 PPS			Connector SMA 1 x SMA 2 x BNC	20		

SN	EQUIPMENT	Quantity	SPECIFICATION	Weighting (%)	Score (%)	Place of delivery
			Time Code Inputs Serial Time Code RS232 Sub-D 9 NTP TCP/IP 10 Mbit/s RJ45			
			Frequency Outputs Connector 5 MHz Signal Output Number of outputs 4 BNC Impedance 50 Ω Output Level +12.5 ± 0.5 dBm Output return loss > 33 dB Output / Output Isolation > 80 dB Harmonics (1st, 2nd, 3rd) -47 -47 -47 dBc	10		
			10 MHz Signal Output Number of outputs 4 BNC Impedance 50 Ω Output Level +12.5 ± 0.5 dBm Output return loss > 33 dB Output / Output Isolation > 90 dB Harmonics (1st, 2nd, 3rd) -47 -47 -47 dBc Pulse Outputs 1 PPS Pulse Outputs Number of outputs 4 BNC Impedance 50 Ω Level 5 / 10 V_{0p} (unloaded), 2.5 / 5 V_{0p} (loaded with 50 W) Rise / fall times / width tr < 6 ns, tf < 6 ns, pulse width ~ 20 µs Number of outputs 1 SMA Level 5 V_{0p} (unloaded), 2.5 V_{0p} (loaded with 50 W) Time Code Outputs IRIG Code Generator IRIG codes IRIG A, B, D, E, G, H, NASA 36, IRIG B 5 MHz Number of codes 4 different codes on 4 channels is possible Data content BCD hour, minute, seconds, day of year straight binary seconds, extension field: year IRIG Signal Outputs BNC Number of outputs 8 (with option 6: 12 outputs) 4 outputs on IRIG generator (standard spec) and on IRIG distributor each Configurable items Code, amplitude, modulation frequency, DC shift Signal amplitude Configurable per output module: modulated or DC shift output Modulated output Std: 0.3 to 2.8 Vpp, high power 2 to 9 Vpp (both loaded with 50 Ω)	20		

SN	EQUIPMENT	Quantity	SPECIFICATION							Weighting (%)	Score (%)	Place of delivery
			t output	RS232 interface spec with std: +2.8V/-2.8V, high power: +10V/-10V (unloaded) or TTL level (0V/+5V) into 50 Ω load, configurable								
			Output impedance	50 Ω								
			standard distribution module									
			Time Code Output									
			Number of outputs	1 (uses serial interface)								
			9 pin Sub-D male									
			Protocol	European Telephone Time code or plain ASCII, configurable								
			Level	RS232								
			Electrical interface							10		
			Supply voltage	DC 24 to 32 V DC								
			Supply voltage	AC 230 V AC, 47 to 65 Hz								
			Source selection	Load sharing between AC and DC inputs								
			Monitoring and Control interface							10		
			Serial line	RS232 9 pin Sub-D male								
			Protocol	19200 bps 8N1, plain ASCII								
			Availability	If not used for time code input or output.								
			Ethernet	10 Mbit/s twisted pair		RJ45						
			Service	Port	Service	Port						
			TCP services			Telnetd	23	Data output	2001			
						Command	2000					
			UDP services			Syslog client	514	Data output				
			configurable									
						TFTP server	69	NTP	123			
			Front panel To indicate time in terms of day of year, hour, minute and seconds To indicate Control details like instrument status and configuration, levels of input and output selected input, alarms and messages, event history. Keyboard for access to vital functions such as instrument set-up and configuration, input and output monitoring, input selection etc Alarm LEDs indicating the status of the unit and any malfunctions							10		
			Total							**100**		
			Pass mark							**95**		
27	**Thermal Imaging Multimeter with Infrared Guided measurement (IGM)**	**5**	**Thermal Imaging**							25		Nairobi
			IR Resolution	160 x 120 (19,200 pixels)						2		
			Thermal Imaging Detector	FLIR Lepton® microbolometer						2		
			Temperature Sensitivity	150mK						2		
			Emissivity Settings	4 presets with custom adjustment						1		
			Temperature Accuracy	3°C or 3%						1		

SN	EQUIPMENT	Quantity	SPECIFICATION			Weighting (%)	Score (%)	Place of delivery
			Temperature Range	14 to 302°F (-10 to 150°C)		2		
			Field of View	50.0° x 38°		2		
			Laser Pointer	Yes		2		
			Focus	Fixed		2		
			Thermal Imaging Palette	Iron, Rainbow, Grayscale		1		
			Level & Span	Class 1 laser pointer, crosshair on display		1		
			Emissivity Settings	4 Presets with custom adjustment		2		
			Temperature Range	Auto		2		
			Continuity Check	20Ω and 200Ω		1		
			Data Logging & Storage	10 sets of 40K scalar measurements, 100 images		2		
			Electrical Specifications			25		
			AC / DC Volts	**Range**	**Basic Accuracy**			
			AC / DC mVolt	1000 V	±1.0% / 0.09%	2		
			VFD AC Volts	600 mV	±1.0% / 0.5%	2		
			AC / DC LoZ V	1000 V	±1.0%	2		
			AC / DC Amps	1000 V	±2.0%	2		
			AC / DC mAmps	10.00 A	±1.5% / 1.0%	1		
			AC / DC µAmps	400.0 mA	±1.5% / 1.0%	1		
			Resistance	4,000 µA	±1.0%	2		
			Capacitance	6.000 MΩ	±0.9%	2		
			Diode Test	50.00 MΩ	±3.0%	2		
			Flex Clamp Range	10.00 mF	±1.9%			
			Frequency Counter					
			1.500 V	±0.9%		2		
			3000 A AC (Optional TA72/74)	±3.0% + 5 digits		2		
			100.00 kHz	±0.1%		2		
			-40°F to 752.0°F -40°C to 400°C	±1.0% + 5.4°F ±1.0% + 3°C		3		
			Additional Measurements			10		
			True RMS	Yes		2		
			Continuity Check	20 Ω and 200 Ω		4		
			Measuring Rate	3 samples per second		2		
			Min/Max/Avg	Yes		2		
			Other Required Specifications			20		
			Connectivity	Bluetooth®		1		
			Data Logging & Storage	3 samples per second		1		
			Auto Power Off	Yes		1		
			Worklights	Yes		1		
			Display Size	2.8 in TFT screen		2		

SN	EQUIPMENT	Quantity	SPECIFICATION		Weighting (%)	Score (%)	Place of delivery
			Battery	4 A A A batteries; optional TA04 Li-Poly rechargeable battery	3		
			Drop Test	3 m	2		
			IP Rating	IP54	1		
			Safety Category Rating	CAT III-1000V, CAT IV-600V	1		
			Size (L x W x H)	200 x 95 x 49 mm (7.9 × 3.7 × 1.9 in)	1		
			Weight	537 g (18.9 oz)	1		
			Warranty	10 year on product and detector	5		
			Accessories That Must Be Supplied		20		
			Accessories	Batteries	3		
				Premium Silicone Test Leads	3		
				CAT IV Insulated Alligator Probes	3		
				Soft Carrying Case	3		
				Test Lead Storage/Tripod Accessory	3		
				Type K thermocouple	3		
				Documentation	2		
			Total marks		100		
			Pass mark		**95**		
28	**200 litres prover tank**	2	Temperature Gauge with thermo well capable of reading from 10-60° C		6		Nairobi
			Top cover 2mm thick made of SS 304		4		
			Neck tube 2mm thick made of SS 304		4		
			Over flow pipe with valve 1 inch NB thread made of SS 304		8		
			Displaceable tube made of SS 304		4		
			Cylindrical shell 2mm thick made of SS 304		4		
			Bottom cone 2mm thick made of SS 304		4		
			Gauge glass Borosilicate		4		
			Rage of neck 190-210 litres		4		
			Adjustable support leg assembly material- SS 304 with level gauge		8		
			Drain ball valve 1/2 inch NB CS+SS 304		4		
			Drain pipe 2 inch NB SS 304		4		
			Rolled bead /welded band at neck		4		
			Tank must be manufactured as per IS 2341 – 1963		6		
			Displacement tube volume + /- 0.5 % of tank capacity		4		
			Displacement tube for accurate volumetric adjustment		4		
			Process digital Thermometers		4		
			Permissible error in the capacity of the measure shall be +/- 0.1 % of the capacity		4		

SN	EQUIPMENT	Quantity	SPECIFICATION		Weighting (%)	Score (%)	Place of delivery
			measure				
			Ball valve CS + SS 304Level gauge scale rage 190-210 litres		7		
			Calibration certificate from accredited laboratory		9		
			TOTAL		**100**		
			PASS MARK		**90 %**		
29	**100 litres prover tank**	2	Temperature Gauge with thermo well capable of reading from 10-60° C		5		Nairobi
			Top cover 2mm thick made of SS 304		4		
			Neck tube 2mm thick made of SS 304		4		
			Over flow pipe with valve 1 inch NB thread made of SS 304		7		
			Displaceable tube made of SS 304		4		
			Cylindrical shell 2mm thick made of SS 304		4		
			Bottom cone 2mm thick made of SS 304		4		
			Gauge glass Borosilicate		4		
			Rage of neck 95-105 litres		4		
			Adjustable support leg assembly material- SS 304 with level gauge		8		
			Drain ball valve 1/2 inch NB CS+SS 304		4		
			Drain pipe 2 inch NB SS 304		4		
			Rolled bead /welded band at neck		4		
			Tank must be manufactured as per IS 2341 – 1963		4		
			Displacement tube volume + /- 0.5 % of tank capacity		4		
			Displacement tube for accurate volumetric adjustment		4		
			Thermometers mercury in steel types		4		
			Permissible error in the capacity of the measure shall be +/- 0.1 % of the capacity measure		4		
			Ball valve CS + SS 304Level gauge scale rage 95-105 litres		7		
			Calibration certificate from accredited laboratory		7		
					6		
			TOTAL		**100**		
			Pass mark 90 %				
30	**500 litres Prover tank**	1	Temperature Gauge with thermo well capable of reading from 10-60° C		6		
			Top cover 2mm thick made of SS 304		4		
			Neck tube 2mm thick made of SS 304		4		
			Over flow pipe with valve 1 inch NB thread made of SS 304		8		
			Displaceable tube made of SS 304		4		
			Cylindrical shell 2mm thick made of SS 304		4		
			Bottom cone 2mm thick made of SS 304		4		

SN	EQUIPMENT	Quantity	SPECIFICATION		Weighting (%)	Score (%)	Place of delivery
			Gauge glass Borosilicate		4		
			Range of neck 490-520 litres		4		
			Adjustable support leg assembly material- SS 304 with level gauge		8		
			Drain ball valve 1/2 inch NB CS+SS 304		4		
			Drain pipe 2 inch NB SS 304		4		
			Rolled bead /welded band at neck		4		
			Tank must be manufactured as per IS 2341 – 1963		6		
			Displacement tube volume + /- 0.5 % of tank capacity		4		
			Displacement tube for accurate volumetric adjustment		4		
			Thermometers mercury in steel types		4		
			Permissible error in the capacity of the measure shall be +/- 0.1 % of the capacity measure		4		
			Ball valve CS + SS 304Level gauge scale rage 490-520 litres		7		
			Calibration certificate from accredited laboratory		9		
			TOTAL		**100**		
			Pass mark 90 %				

Temperature Data loggers- MATERIALS LABORATORY

S/N	**ITEM**	**SPECIFICATIONS**	**Weight**	**Qty**
7	**Temperature Data loggers**	Temperature range -40^{0}C to 140^{0}C	10	10 pcs
		Accuracy ±1^{0}C	10	
		Micro pack radio frequency	10	
		Real time data transmission	10	
		Operating pressure up to 10 Bars	5	
		Wireless range up to 100 feet	5	
		Sampling rate 5 seconds minimum (adjustable)	5	
		Factory calibrated (NIST traceable)	5	
		Battery type AA lithium	5	
		Windows® 2000, XP, 7 and Vista compatible software compatible with the temperature data loggers	10	
		Software should have password protection, automatically download data and create graphs, electronic signatures, real time data collection. Ability to synchronize multiple temperature data loggers	10	
		Warranty minimum 1 year	5	

		Manuals in English	5	
		Installation, commissioning and training	5	
		Total score	**100**	
		Minimum score	**90**	

GENERAL REQUIREMENTS

The supplier shall ensure that the following conditions are met as part of the procurement contract:

1. The supplier shall provide the English versions of the Operational and Service manuals.
2. The supplier shall provide information on where else similar equipment has been supplied in the region.
3. The supplier to indicate the date of delivery to Kenya Bureau of Standards (KEBS) upon receipt of order.
4. The supplier shall provide evidence of the nearest service centre.
5. The supplier shall provide proof of dealership from the manufacturer
6. The supplier shall install commission and provide user training on operation of equipment.
7. Specialized equipment requires training of laboratory personnel
8. The supplier shall provide warranty for a period of not less than 12 Months.
9. Brochures for equipment to be attached with quotation

Section G. Tender Form and Price Schedules
(i) Form of Tender

Date:_____

Tender Nº: _____

To: ……
……..
[Name and address of procuring entity]

Gentlemen and/or Ladies:

1. Having examined the tender documents including Addenda Nos…….. *[Insert numbers],*
The receipt of which is hereby duly acknowledged, we, the undersigned, offer to supply and deliver…… ……. *[Description of goods]*
In conformity with the said tender documents for the sum of…… *[Total tender amount in words and figures]*
2. We undertake, if our Tender is accepted, to deliver the goods in accordance with the delivery schedule specified in the Schedule of Requirements.
3. If our Tender is accepted, we will obtain the guarantee of a bank in a sum equivalent to 10 percent of the Contract Price for the due performance of the Contract, in the form prescribed by ……(Procuring entity).
4. We agree to abide by this Tender for a period of. ……[*Number]* days from the date fixed for tender opening of the Instructions to tenderers, and it shall remain binding upon us and may be accepted at any time before the expiration of that period.
5. Until a formal Contract is prepared and executed, this Tender, together with your written acceptance thereof and your notification of award, shall constitute a binding Contract between us.

6. We understand that you are not bound to accept the lowest or any tender you may receive.

Dated this _____ day of _____ 20_____.

_____ _____
[Signature] *[In the capacity of]*

Duly authorized to sign tender for and on behalf of _____

(ii) Price Schedule for Goods

Name of tenderer ___ Tender Number __. Page____ of ___.

1	2	3	4	5	6	7
Item	Description	Country of origin	Qty	Unit price	Total price DDP per item (cols.4 x 5)	Unit price of other incidental services payable
	As per attached specifications					

Signature of tenderer _____

Note: In case of discrepancy between unit price and total, the unit price shall prevail.

CONFIDENTIAL BUSINESS QUESTIONNAIRE

You are requested to give the particulars indicated in Part 1 and either Part 2 (a), 2(b) or 2(c) whichever applies to your type of business.

You are advised that it is a serious offence to give false information on this form.

Part 1 General

Business Name.....
Location of Business Premises .....
Plot No, ...Street/Road .....
Postal address ..... Tel No. ..... Fax Email .....
Nature of Business .....
Registration Certificate No. .....
Maximum value of business which you can handle at any one time – Kshs. .....
Name of your bankers.....
Branch .....

	Part 2 (a) – Sole Proprietor Your name in full……Age……. Nationality……Country of Origin…….. Citizenship details..... **Date……Signature of Tenderer…….....**
	Part 2 (b) – Partnership Given details of partners as follows Name Nationality Citizenship details Shares 1. …… 2. …… 3. …… 4. …… **Date……Signature of Tenderer…….....**
	Part 2 (c) – Registered Company Private or Public State the nominal and issued capital of company Nominal Kshs. Issued Kshs. Given details of all directors as follows Name Nationality Citizenship details Shares 1. …… 2. …… 3. …… 4. …… **Date……Signature of Tenderer…….....**

Section H. Tender Security Form

Whereas……. *[Name of the tenderer]*
(Hereinafter called "the tenderer") has submitted its tender dated ……..*[Date of submission of tender]* for the supply of…… …… .. *[Name and/or description of the goods]*
(Hereinafter called "the Tender")…….
KNOW ALL PEOPLE by these presents that WE…….……
Of…….. Having our registered office at …… (Hereinafter called "the Bank"), are bound unto…….. *[Name of procuring entity]* (Hereinafter called "the Procuring entity") in the sum of …….
For which payment well and truly to be made to the said Procuring entity, the Bank binds itself, its successors, and assigns by these presents. Sealed with the Common Seal of the said Bank this _____ day of _____20____.

THE CONDITIONS of this obligation are:

1. If the tenderer withdraws its Tender during the period of tender validity specified by the tenderer on the Tender Form; or

2. If the tenderer, having been notified of the acceptance of its Tender by the Procuring entity during the period of tender validity:

(a) Fails or refuses to execute the Contract Form, if required; or
(b) Fails or refuses to furnish the performance security, in accordance with the Instructions to tenderers;

We undertake to pay to the Procuring entity up to the above amount upon receipt of its first written demand, without the Procuring entity having to substantiate its demand, provided that in its demand the Procuring entity will note that the amount claimed by it is due to it, owing to the occurrence of one or both of the two conditions, specifying the occurred condition or conditions.

This guarantee will remain in force up to and including thirty (30) days after the period of tender validity, and any demand in respect thereof should reach the Bank not later than the above date.

[Signature of the bank]

Section I. Contract Form

THIS AGREEMENT made the _____ day of _____ 20_____ between……
[name of Procurement entity) of…… *[Country of Procurement entity]*
(Hereinafter called "the Procuring entity") of the one part and……
[Name of tenderer] of……. *[City and country of tenderer]* (Hereinafter called "the tenderer") of the other part:

WHEREAS the Procuring entity invited tenders for certain goods,
viz.,…… *[Brief description of goods]* and has accepted a tender by the tenderer for the supply of those goods in the sum
of…… *[Contract price in words and figures]*
(Hereinafter called "the Contract Price").
NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract referred to.
2. The following documents shall be deemed to form and be read and construed as part of this Agreement, viz.:

(a) The Tender Form and the Price Schedule submitted by the tenderer;
(b) The Schedule of Requirements;
(c) The Technical Specifications;
(d) The General Conditions of Contract;
(e) The Special Conditions of Contract; and
(f) The Procuring entity's Notification of Award.

3. In consideration of the payments to be made by the Procuring entity to the tenderer as hereinafter mentioned, the tenderer hereby covenants with the Procuring entity to provide the goods and to remedy defects therein in conformity in all respects with the provisions of the Contract
4. The Procuring entity hereby covenants to pay the tenderer in consideration of the provision of the goods and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the contract at the times and in the manner prescribed by the contract.

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with their respective laws the day and year first above written.

Signed, sealed, delivered by _____ the _____ (for the Procuring entity)

Signed, sealed, delivered by _____ the _____ (for the tenderer)

In the presence of_____

Section J. Performance Security Form

To:

[Name of procuring entity]

WHEREAS. …….. *[Name of tenderer]*
(Hereinafter called "the tenderer") has undertaken, in pursuance of Contract No._____ [*reference number of the contract]* dated _____ 20_____ to supply……..……. *[Description of goods] (*Hereinafter called "the Contract").

AND WHEREAS it has been stipulated by you in the said Contract that the tenderer shall furnish you with a bank guarantee by a reputable bank for the sum specified therein as security for compliance with the Tenderer's performance obligations in accordance with the Contract.

AND WHEREAS we have agreed to give the tenderer a guarantee:

THEREFORE WE hereby affirm that we are Guarantors and responsible to you, on behalf of the tenderer, up to a total of…… *[Amount of the guarantee in words and figures],* and we undertake to pay you, upon your first written demand declaring the tenderer to be in default under the Contract and without cavil or argument, any sum or sums within the limits of…… *[Amount of guarantee]* as aforesaid, without your needing to prove or to show grounds or reasons for your demand or the sum specified therein.

This guarantee is valid until the _____ day of _____20_____.

Signature and seal of the Guarantors

_____
[Name of bank or financial institution]

_____
[Address]

_____
[Date]

Section K. Manufacturer's Authorization Form

To: *[name of the Procuring entity]……...*

WHEREAS…….. *[Name of the Manufacturer]*

Who are established and reputable manufacturers
of……. *[Name and/or description of the goods]*

having factories at…… *[Address of factory]*
Do hereby authorize…… *[Name and address of Agent]*

To submit a tender, and subsequently negotiate and sign the Contract with you against tender No…….. …… *[Reference of the Tender]*

For the above goods manufactured by us

We hereby extend our full guarantee and warranty as per the General Conditions of Contract for the goods offered for supply by the above firm against this Invitation for Tenders.

_____
[Signature for and on behalf of Manufacturer]

Note: This letter of authority should be on the letter head of the Manufacturer and should be signed by a person competent.

LETTER OF NOTIFICATION OF AWARD

Address of Procuring Entity
_____
_____

To:_____
_____
_____
_____

RE: Tender No._____

Tender Name_____

This is to notify that the contract/s stated below under the above mentioned tender have been awarded to you.

_____
_____

1. Please acknowledge receipt of this letter of notification signifying your acceptance.

2. The contract/contracts shall be signed by the parties within 30 days of the date of this letter but not earlier than 14 days from the date of the letter.

3. You may contact the officer(s) whose particulars appear below on the subject matter of this letter of notification of award.

   *(FULL PARTICULARS)*_____
   _____

SIGNED FOR ACCOUNTING OFFICER