



TITLE:
SPECIFICATION FOR PERSONAL
PROTECTIVE EQUIPMENT (PPE)
FOR
MOTORCYCLE RIDERS
Part 4: Gloves

Doc. No.	KP1/6C.1/13/TSP/01/009-4
Issue No.	1
Revision No.	0
Date of Issue	2015-10-09
Page 1 of 12	

TABLE OF CONTENTS

0.1 Circulation List

0.2 Amendment Record

FOREWORD

1. SCOPE
2. REFERENCES
3. TERMS AND DEFINITIONS
4. REQUIREMENTS
5. TESTS AND INSPECTION
6. MARKING AND PACKING
7. DOCUMENTATION

ANNEX A: *Guaranteed Technical Particulars (to be filled and signed by the Manufacturer and submitted together with relevant copies of the Manufacturer's catalogues, brochures, drawings, technical data, sales records, four customer reference letters, the manufacturer's experience and copies of complete test reports for tender evaluation, all in English Language)*

Issued by: Head of Section, Standards development

Authorized by: Head of Department, Standards

Signed:

Signed:

Date: 2015-10-09

Date: 2015-10-09



TITLE:
SPECIFICATION FOR PERSONAL PROTECTIVE EQUIPMENT (PPE) FOR MOTORCYCLE RIDERS
 Part 4: Gloves

Doc. No.	KP1/6C.1/13/TSP/01/009-4
Issue No.	1
Revision No.	0
Date of Issue	2015-10-09
Page 2 of 12	

0.1 Circulation List

COPY NO.	COPY HOLDER
1	Manager, Standards
Electronic copy (pdf) on Kenya PowerServer (currently :Network-\\stima-fprnt-001\techstd&specs	

0.2 Amendment Record

Rev No.	Date (YYYY-MM-DD)	Description of Change	Prepared by (Name & Signature)	Approved by (Name & Signature)
0	2015-08-09	New Issue	Michael Apudo	Dr. Peter Kimemia

Issued by: Head of Section, Standards development

Authorized by: Head of Department, Standards

Signed:

Signed:

Date: 2015-10-09

Date: 2015-10-09



**TITLE:
SPECIFICATION FOR PERSONAL
PROTECTIVE EQUIPMENT (PPE)
FOR
MOTORCYCLE RIDERS**

Part 4: Gloves

Doc. No.	KP1/6C.1/13/TSP/01/009-4
Issue No.	1
Revision No.	0
Date of Issue	2015-10-09
Page 3 of 12	

FOREWORD

This specification has been prepared by the Standards Department in collaboration with Human Resource & Administration Department; Safety, Health & Environment Department (SHE) of The Kenya Power and Lighting Company Limited (KPLC/Kenya Power) and The Kenya Electrical Trade & Allied Workers Union. The specification lays down requirements for personal protective equipment (PPE) – Gloves - for motorcycle riders. It is intended for use by Kenya Power in purchasing these PPEs.

The supplier shall submit information which confirms satisfactory service experience with products which fall within the scope of this specification

1. SCOPE

- 1.1. This document specifies the general requirements for professional motorcycle rider's gloves which are intended to protect the wearer against mechanical injury.
- 1.2. It also specifies the requirements for protection, ergonomic characteristics, innocuousness, mechanical properties, marking and information for users. It also describes the appropriate test methods.
- 1.3. The specification stipulates the minimum requirements for personal protective equipment (PPE) for motorcycle riders in the company and it shall be the responsibility of the supplier to ensure adequacy of the design, good engineering practice, adherence to the specification and applicable standards and regulations as well as ensuring good workmanship in the manufacture of the items for The Kenya Power & Lighting Company.
- 1.4. The specification does not purport to include all the necessary provisions of a contract.

2. REFERENCES

The following standards contain provisions which, through reference in this text constitute provisions of this specification. Unless otherwise stated, the latest editions (including amendments) apply.

ISO 4045: Leather -- Chemical tests -- Determination of pH

ISO 11642: Leather tests – Colour fastness – Colour fastness to water

ISO 3377: Leather determination of tearing load.

Issued by: Head of Section, Standards development

Authorized by: Head of Department, Standards

Signed:

Signed:

Date: 2015-10-09

Date: 2015-10-09



TITLE:
**SPECIFICATION FOR PERSONAL
PROTECTIVE EQUIPMENT (PPE)
FOR
MOTORCYCLE RIDERS**

Part 4: Gloves

Doc. No.	KP1/6C.1/13/TSP/01/009-4
Issue No.	1
Revision No.	0
Date of Issue	2015-10-09
Page 4 of 12	

- EN 13594: Protective gloves for professional motorcycle riders – Requirements and test methods
- BS EN 420: Specification for Protective gloves – General requirements and test methods
- BS EN 388: Protect against mechanical hazards

3. TERMS AND DEFINITIONS

For the purpose of this specification, the definitions given in the reference standards shall apply.

4. REQUIREMENTS

4.1. Service Conditions

The leather motorcycling gloves for motorcycle riders shall be suitable for use outdoors in tropical climate with average ambient temperature of +30°C with a minimum of -1°C and a maximum of +40°C.

4.2. Design and Construction

4.2.1. General

- 4.2.1.1. Leather motorcycling gloves shall be designed, manufactured and tested in accordance with EN 13594, BS EN 420 and BS EN 388.
- 4.2.1.2. Leather motorcycling gloves shall be a high gauntlet-type with two layers of leather over the palm area.
- 4.2.1.3. Motorcyclist's gloves shall meet all the requirements in 4.2.2 to 4.2.14.

4.2.2. Dye fastness

Gloves shall not be manufactured from material containing dyes which will readily migrate when the gloves become wet with water. When tested in accordance with ISO 11642, the change in colour of any component of the multi-fibre fabric shall not be worse than Grey Scale Rating 3. All colours in a series of gloves shall be tested.

Issued by: Head of Section, Standards development

Authorized by: Head of Department, Standards

Signed:

Signed:

Date: 2015-10-09

Date: 2015-10-09



TITLE:
**SPECIFICATION FOR PERSONAL
PROTECTIVE EQUIPMENT (PPE)
FOR
MOTORCYCLE RIDERS**

Part 4: Gloves

Doc. No.	KP1/6C.1/13/TSP/01/009-4
Issue No.	1
Revision No.	0
Date of Issue	2015-10-09
Page 5 of 12	

4.2.3. pH of leather

The gloves shall meet the requirements of clause 4.4.2 of EN 420:1994. All colours in a series of gloves shall be tested.

4.2.4. Chromium (VI) content of leather

The gloves shall meet the requirements of clause 4.4.3 of EN 420: 1994. All colours in a series of gloves shall be tested.

4.2.5. Hard inclusions

Hard materials shall only be present external to the protective layer of the glove. There shall not be hard or sharp edges, seams, buckles or other items on the inner surfaces of the glove's protective layer. Metallic, ceramic or similar hard materials shall not be present as studs, staples, rivets or similar structures penetrating the protective surfaces of gloves or their cuffs. Examinations shall be made according to clause 6.3 of EN 13594.

4.2.6. Ergonomic requirements

When tested in accordance with the method described in annex 8 of EN 13594, the assessor shall be able to carry out all the defined movements without any significant problem or hazard being encountered.

4.2.7. Sizing

Motorcyclists' gloves shall be marked with their numerical sizes conforming to hand circumference measurements in EN 420 and hand length measurements conforming to Annex B of EN 1082-1: 1996, Sizing shall be verified according to Annex B of EN 1082-1: 1996. The range of sizes supplied shall be included in the information presented to the user.

NOTE: The length and circumference ratios of hands are not constant between populations, or sexes, or with age. To maintain dexterity and to ensure a continuity of blood flow, the digit lengths of gloves need to be correct for the particular rider. Hand length designation is provided for in EN 420, but not defined.

4.2.8. Coverage

Motorcyclist's gloves shall provide protective coverage to the whole hand, from the fingertips to a position not less than 50 mm beyond the wrist joint. The construction of gloves throughout this area of coverage shall meet the requirements of 4.2.10, 4.2.11, 4.2.12.2.13 and 4.2.14.

Issued by: Head of Section, Standards development

Authorized by: Head of Department, Standards

Signed:

Signed:

Date: 2015-10-09

Date: 2015-10-09



**TITLE:
SPECIFICATION FOR PERSONAL
PROTECTIVE EQUIPMENT (PPE)
FOR
MOTORCYCLE RIDERS**

Part 4: Gloves

Doc. No.	KP1/6C.1/13/TSP/01/009-4
Issue No.	1
Revision No.	0
Date of Issue	2015-10-09
Page 6 of 12	

4.2.9. Restraint

When tested in accordance with clause 6.5 of EN 13594 the restraint system shall resist a force of 35 N to minimize the danger of being pulled off in an accident. The adjustment range of the restraint system shall be not less than 30 mm. At least one size of glove between 8 and 9-1/2 shall be tested.

4.2.10. Tear strength

When tested according to clause 6.3 of EN 388:1994 the tear strength of the strongest layer of material within the protective layer of gloves shall be at least 40 N. This requirement applies to the whole of the required coverage of the glove.

4.2.11. Strength of seams

- 4.2.11.1. All seams or joints between pieces of material forming the protective layer of motorcyclists' gloves shall have at least the minimum strengths specified when tested with the appropriate methods.
- 4.2.11.2. Woven textiles and leather seams shall have a tensile strength of more than 15 N/mm when tested according to clause 6.6.1 and annex C of EN 13594.
- 4.2.11.3. Knitted fabric seams and complex seams which cannot easily be tested in accordance with annex C shall have a bursting pressure of more than 600 kPa when tested according to clause 6.6.2 of EN 13594. Seams attaching overlays to the protective layer are not subject to this requirement.

4.2.12. Cut resistance

Cut resistance shall be provided over the whole of the required coverage of the glove excluding the area between the fingers. The minimum cut resistance (index) determined according to clause 6.2 of EN 388:1994 shall be at least 2.2.

4.2.13. Abrasion resistance

When tested in accordance with clause 6.7 of EN 13594, the abrasion time shall be at least 2.5 s. Abrasion resistance shall be provided over the whole of the required coverage of the glove.

Issued by: Head of Section, Standards development

Authorized by: Head of Department, Standards

Signed:

Signed:

Date: 2015-10-09

Date: 2015-10-09



TITLE:
**SPECIFICATION FOR PERSONAL
PROTECTIVE EQUIPMENT (PPE)
FOR
MOTORCYCLE RIDERS**

Part 4: Gloves

Doc. No.	KP1/6C.1/13/TSP/01/009-4
Issue No.	1
Revision No.	0
Date of Issue	2015-10-09
Page 7 of 12	

4.2.14. Impact energy attenuation

4.2.14.1. Motorcycle riders' gloves may be designed and constructed to attenuate impact energy, providing specific impact protection. The following requirements shall be met by such gloves.

4.2.14.2. When tested according to clause 6.8.2 of EN 13594, with impact energy of 5 J, the mean peak transmitted force shall not exceed 4 kN .In addition, no part of the glove shall crack or shatter producing sharp edges, and the chamois leather between the specimen and anvil shall not be torn or holed.

4.3. Colour finish

The motor rider's gloves shall be black in colour.

4.4. QUALITY MANAGEMENT SYSTEM

4.4.1. The supplier shall submit a quality assurance plan (QAP) that will be used to ensure that the requirements for protection, ergonomic characteristics, innocuousness, mechanical properties, marking of the gloves for motorcycle riders, will fulfill the requirements stated in the contract documents, standards, specifications and regulations.

4.4.2. The Manufacturer's Declaration of Conformity to applicable standards and copies of quality management certifications shall be submitted with the tender for evaluation.

5. TESTS AND INSPECTION

5.1. The motorcycle riders' gloves shall be inspected and tested in accordance with EN 13594, EN 388, EN 420 and the requirements of this specification. It shall be the responsibility of the supplier to perform or to have performed all the tests specified.

5.2. Copies of previous **Test Reports confirming conformity to clause 4 for the protective gloves for motorcycle riders issued by a third party testing laboratory that is accredited to ISO/IEC 17025** shall be submitted with the tender for the purpose of technical evaluation. The accreditation certificate for the third party testing laboratory shall also be submitted with the tender (all in English Language).

5.3. Test Reports for the motorcycle riders' gloves to be supplied under the contract shall be submitted to The Kenya Power& Lighting Company for approval before shipment/delivery.

Issued by: Head of Section, Standards development

Authorized by: Head of Department, Standards

Signed:

Signed:

Date: 2015-10-09

Date: 2015-10-09



TITLE:
**SPECIFICATION FOR PERSONAL
PROTECTIVE EQUIPMENT (PPE)
FOR
MOTORCYCLE RIDERS**

Part 4: Gloves

Doc. No.	KP1/6C.1/13/TSP/01/009-4
Issue No.	1
Revision No.	0
Date of Issue	2015-10-09
Page 8 of 12	

- 5.4. The motorcycle riders' gloves shall be subject to acceptance tests at the manufactures' works before dispatch. Acceptance tests (routine & sample tests) will be witnessed by at least two (2) Tender Processing Committee (TPC) members appointed by The Kenya Power and Lighting Company Limited (KPLC). Routine and sample test reports for the motorcycle riders' gloves to be supplied shall be submitted to KPLC for approval before shipment of the goods.
- 5.5. On receipt of the motorcycle riders' gloves, KPLC will inspect them and may perform or have performed any of the relevant tests in order to verify compliance with the specification. The supplier shall replace without charge to KPLC, gloves which upon examination, test or use fail to meet any of the requirements in the specification

6. MARKING AND PACKING

6.1. Marking

Gloves for motor cycle riders shall be permanently and conspicuously marked with at least the following:

- The name or trademark of the manufacturer,
- The manufacturer's designation of the glove type, commercial name or code that uniquely identified the glove;
- The size designation of the glove;
- The standards of manufacture;
- The letters, "**Property of KPLC**".

6.2. Packing

6.2.1. The motorcycle gloves shall be packed in a clean, sound and dry containers made of a material, which does not affect the product it protects from excessive loss of moisture and contamination. The container provided shall be used as a storage for the motor cycle gloves while in use.

6.2.2. The following information should be given on the glove whenever practical or on the packaging:

- The type of use for which the glove is intended. This request is fulfilled by the pictogram, see clause 9 of EN 13594;
- The textile and material types present in the glove;
- International care label symbols;
- The number of this European Standard.
- The letters, "**Property of KPLC**".

Issued by: Head of Section, Standards development

Authorized by: Head of Department, Standards

Signed:

Signed:

Date: 2015-10-09

Date: 2015-10-09





**TITLE:
SPECIFICATION FOR PERSONAL
PROTECTIVE EQUIPMENT (PPE)
FOR
MOTORCYCLE RIDERS**

Part 4: Gloves

Doc. No.	KP1/6C.1/13/TSP/01/009-4
Issue No.	1
Revision No.	0
Date of Issue	2015-10-09
Page 9 of 12	

7. DOCUMENTATION

- 7.1. The bidder shall submit its tender complete with technical documents required by Annex A (Guaranteed Technical Particulars) for tender evaluation. The technical documents to be submitted (all in English language) for tender evaluation shall include the following:
- a) Guaranteed Technical Particulars signed by the manufacturer;
 - b) Copies of the Manufacturer's catalogues, brochures, drawings and technical data;
 - c) Sales records for the last five years and at least four customer reference letters;
 - d) Details of the manufacturer's experience;
 - e) Copies of required test reports by a third party testing laboratory accredited to ISO/IEC 17025 and a copy of accreditation certificate to ISO/IEC 17025 for the third party testing laboratory;
 - f) Manufacturers letter of authorization, QMS certificate and other technical documents required in the tender.
 - g) Packaging details (including packaging materials).
- 7.2. The successful bidder (supplier) shall submit the following documents/details to The Kenya Power & Lighting Company for approval before manufacture:
- a) Guaranteed Technical Particulars signed by the manufacturer;
 - b) Design Drawings with details of the motorcyclist gloves to be manufactured for KPLC.
 - c) Quality assurance plan (QAP) that will be used to ensure that the design, material; workmanship, tests, service capability, maintenance and documentation will fulfil the requirements stated in the contract documents, standards, specifications and regulations. The QAP shall be based on and include relevant parts to fulfil the requirements of ISO 9001:2008
 - d) Detailed test program to be used during factory testing;
 - e) Marking details and method to be used in marking the motorcyclist gloves;
 - f) Manufacturer's undertaking to ensure adequacy of the design, good engineering practice, adherence to the specification and applicable standards and regulations as well as ensuring good workmanship in the manufacture of the motorcyclist gloves for The Kenya Power & Lighting Company;
 - g) Packaging details (including packaging materials).
- 7.3. The motorcycle gloves shall be supplied with information and instructions for use. Instructions shall be precise, comprehensible and in English language to KPLC store. They shall contain at least the following information:
- a) The information required in clause 6.1 - Marking;
 - b) The full address of the manufacturer;
 - c) A statement of the intended use of the gloves;
 - d) Information of the specific hazards against which protection is given;

Issued by: Head of Section, Standards development	Authorized by: Head of Department, Standards
Signed: 	Signed: 
Date: 2015-10-09	Date: 2015-10-09



**TITLE:
SPECIFICATION FOR PERSONAL
PROTECTIVE EQUIPMENT (PPE)
FOR
MOTORCYCLE RIDERS**

Part 4: Gloves

Doc. No.	KP1/6C.1/13/TSP/01/009-4
Issue No.	1
Revision No.	0
Date of Issue	2015-10-09
Page 10 of 12	

- e) Advice on how to select the correct size of glove and how to check its fit;
- f) Advise on how to adjust the restraint system on the gloves;
- g) Advice about wearing other PPE to obtain the protection desired;
- h) A warning about the limits of protection provided by the gloves;
- i) These gloves do not provide specific impact attenuation;
- j) A warning about any environmental conditions or misuse that would seriously reduce the protection provided;
- k) Instructions on how to clean and care for the gloves;
- l) Instructions on how to examine the gloves for wear and degradation to identify gloves which are no longer suitable to use;
- m) The significance of any markings, for example, pictograms on the gloves;
- n) The zones where impact protection meeting the requirements of 4.2.14 shall be specified.

-----SPACE LEFT BLANK-----

Issued by: Head of Section, Standards development	Authorized by: Head of Department, Standards
Signed: 	Signed: 
Date: 2015-10-09	Date: 2015-10-09



**TITLE:
SPECIFICATION FOR PERSONAL
PROTECTIVE EQUIPMENT (PPE)
FOR
MOTORCYCLE RIDERS**

Part 4: Gloves

Doc. No.	KP1/6C.1/13/TSP/01/009-4
Issue No.	1
Revision No.	0
Date of Issue	2015-10-09
Page 11 of 12	

ANNEX A: Guaranteed Technical Particulars (to be filled and signed by the Manufacturer and submitted together with relevant copies of the Manufacturer's catalogues, brochures, drawings, technical data, sales records, four customer reference letters, the manufacturer's experience and copies of complete type test reports for tender evaluation, all in English Language)

Tender No.

Clause number	KPLC requirement		Bidder's offer (indicate full details of the offered for the helmet for motorcyclists)	
Manufacturer's Name and address			specify	
Country of Manufacture			specify	
Bidder's Name and address			specify	
Type designation/ model number as per the catalogue				
1.	Scope		specify	
1.1-1.3				
2.	Applicable Standards		specify	
3.	Terms & Definitions		specify	
4.	REQUIREMENTS		specify	
4.1	Service Conditions		specify	
4.2	Design & Construction		specify	
4.2.1	General requirements			
4.2.1.1-4.2.1.3			specify	
4.2.2	Dye fastness	Shall not be worse than Grey Scale Rating 3	Attach test report	
4.2.3	pH of leather	As per EN 420:1994 clause 4.4.2	Attach test report	
4.2.4	Chromium (VI) content of leather	As per EN 420: 1994, clause 4.4.3	Attach test report	
4.2.5	Hard inclusions	As per EN 13594 clause 6.3	Attach test report	
4.2.6	Ergonomic requirements	As per EN 13594 annex 8	Attach test report	
4.2.7	Sizing	As per EN 420 and EN 1082-1: 1996, annex B	Attach test report	
4.2.8	Coverage	Protective coverage from the fingertips to a position not less than 50 mm beyond the wrist joint	Attach test report	
4.2.9	Restraint	Shall resist a force of 35 N	Attach test report	
		Adjustment range shall be not less than 30 mm		
4.2.10	Tear strength		Shall be at least 40 N	Attach type test reports
4.2.11	Strength of seams	Woven textiles and leather seams	A tensile strength >15 N/mm	Attach type test reports
		Knitted fabric seams and	Bursting pressure > 600 kPa	Attach type test reports

Issued by: Head of Section, Standards development

Authorized by: Head of Department, Standards

Signed:

Signed:

Date: 2015-10-09

Date: 2015-10-09



**TITLE:
SPECIFICATION FOR PERSONAL
PROTECTIVE EQUIPMENT (PPE)
FOR
MOTORCYCLE RIDERS**

Part 4: Gloves

Doc. No.	KP1/6C.1/13/TSP/01/009-4
Issue No.	1
Revision No.	0
Date of Issue	2015-10-09
Page 12 of 12	

Clause number	KPLC requirement	Bidder's offer (indicate full details of the offered for the helmet for motorcyclists)
	complex seams	
4.2.12	Cut resistance	As per 6.2 of EN 388:1994 shall be at least 2.2
4.2.13	Abrasion resistance	Abrasion time shall be at least 2.5 s
4.2.14	Impact energy attenuation	With impact energy of 5 J, the mean peak transmitted force shall not exceed 4 kN
4.3	Colour finish	State
4.4	Quality Management System	Provide
	Quality Assurance Plan	Provide
	Copy of ISO 9001:2008 Certificate	Provide
	Manufacturer's experience	Provide
	Manufacturing Capacity (units per month)	Provide
	List of previous customers	Provide
	Customer reference letters	Provide
5.1	Test standards and responsibility of carrying out tests	Provide
5.2	Copies of Type Test Reports submitted with tender	Provide
5.3	Acceptance tests to be witnessed by KPLC at factory before shipment	Provide
5.4	Test reports to be submitted by supplier to KPLC for approval before shipment	Provide
5.5	Replacement of rejected footwear	Provide
6.1	Markings	Provide
6.2	Packing	Provide
7.1	Documents submitted with tender	Provide
7.2	Documents to be submitted by supplier to KPLC for approval before manufacture	Provide
7.3	Instruction manual contents	Provide
8.0	Statement of compliance to specification	Provide

.....
Manufacturer's Name, Signature, Stamp and Date

NOTE: *The Guaranteed Technical Particulars (GTP) shall form the basis of technical tender evaluation. Bidders shall ensure that the offered values for the item conform to the values in the test reports and their certificates, catalogue references and/or brochures. Failure to adhere by this requirement shall lead to automatic disqualification at the technical evaluation stage.*

Issued by: Head of Section, Standards development	Authorized by: Head of Department, Standards
Signed: 	Signed: 
Date: 2015-10-09	Date: 2015-10-09



TITLE:
**SPECIFICATION FOR
HEARING PROTECTORS**

Part 1: Earmuffs

Doc. No.	KP1/6C.1/13/TSP/01/013-1
Issue No.	1
Revision No.	0
Date of Issue	2015-10-09
Page 1 of 15	

TABLE OF CONTENTS

0.1 Circulation List

0.2 Amendment Record

FOREWORD

1. SCOPE
2. REFERENCES
3. TERMS AND DEFINITIONS
4. REQUIREMENTS
5. TESTS AND INSPECTION
6. MARKING AND PACKING
7. DOCUMENTATION

ANNEX A: **Guaranteed Technical Particulars** (to be filled and signed by the Manufacturer and submitted together with relevant copies of the Manufacturer's catalogues, brochures, drawings, technical data, sales records, four customer reference letters, the manufacturer's experience and copies of complete test reports for tender evaluation, all in English Language)

Issued by: Head of Section, Standards Development

Authorized by: Head of Department, standards

Signed:

Signed:

Date: 2015-10-09

Date: 2015-10-09



TITLE:
**SPECIFICATION FOR
HEARING PROTECTORS**
Part 1: Earmuffs

Doc. No.	KP1/6C.1/13/TSP/01/013-1
Issue No.	1
Revision No.	0
Date of Issue	2015-10-09
Page 2 of 15	

0.1 Circulation List

COPY NO.	COPY HOLDER
1	Manager, Standards
Electronic copy (pdf) on Kenya Power server (http://172.16.1.40/dms/browse.php?fFolderId=23)	

0.2 Amendment Record

Rev No.	Date (YYYY-MM-DD)	Description of Change	Prepared by (Name & Signature)	Approved by (Name & Signature)
0	2015-10-09	New Issue	Michael Apudo	Dr. Eng. Peter Kimemia

Issued by: Head of Section, Standards Development

Authorized by: Head of Department, standards

Signed:

Signed:

Date: 2015-10-09

Date: 2015-10-09



TITLE:
**SPECIFICATION FOR
HEARING PROTECTORS**
Part 1: Earmuffs

Doc. No.	KP1/6C.1/13/TSP/01/013-1
Issue No.	1
Revision No.	0
Date of Issue	2015-10-09
Page 3 of 15	

FOREWORD

This specification has been prepared by the Standards Department in collaboration with Human Resource Services Department; Safety, Health & Environment Department (SHE) of The Kenya Power and Lighting Company Limited (KPLC/Kenya Power) and The Kenya Electrical Trade & Allied Workers Union (KETAWU). The specification lays down requirements for – Hearing protectors - Earmuffs. It is intended for use by Kenya Power in purchasing these items.

The supplier shall submit information which confirms satisfactory service experience with products which fall within the scope of this specification

1. SCOPE

- 1.1. This document specifies the design and performance, methods of test, marking and user information for Earmuffs for general use by KPLC.
- 1.2. The specification also covers inspection and test of the earmuffs as well as schedule of Guaranteed Technical Particulars (GTP) to be filled, signed by the manufacturer and submitted for tender evaluation.
- 1.3. The specification stipulates the minimum requirements for the Hearing protectors - Earmuffs in the company and it shall be the responsibility of the supplier to ensure adequacy of the design, good engineering practice, adherence to the specification and applicable standards and regulations as well as ensuring good workmanship in the manufacture of the items for The Kenya Power & Lighting Company.
- 1.4. The specification does not purport to include all the necessary provisions of a contract.

2. REFERENCES

The following standards contain provisions which, through reference in this text constitute provisions of this specification. Unless otherwise stated, the latest editions (including amendments) apply.

ISO 4869: Acoustics – Hearing protectors -- Part 1: Subjective method for the measurement of sound attenuation – Part 2: Estimation of effective A-weighted sound pressure levels when hearing protectors are worn

KS 2093-1: Hearing protectors — Part 1: Ear-muffs — Specification

Issued by: Head of Section, Standards Development

Authorized by: Head of Department, standards

Signed:

Signed:

Date: 2015-10-09

Date: 2015-10-09



TITLE:
**SPECIFICATION FOR
HEARING PROTECTORS**
Part 1: Earmuffs

Doc. No.	KP1/6C.1/13/TSP/01/013-1
Issue No.	1
Revision No.	0
Date of Issue	2015-10-09
Page 4 of 15	

3. TERMS AND DEFINITIONS

For the purpose of this specification, the definitions given in the reference standards shall apply

4. REQUIREMENTS

4.1. Service Conditions

The earmuffs shall be suitable for use outdoors in tropical climate with:

- a) Altitudes of up to 2200m above sea level,
- b) Humidity of up to 95%,
- c) Average ambient temperature of +30°C with a minimum of -1°C and a maximum of +40°C
- d) Heavy saline conditions along the coast and
- e) Isokeraunic levels of up to 180 thunderstorm days per year.

4.2. MATERIALS AND CONSTRUCTION

4.2.1. Materials

4.2.1.1. Those parts of the earmuff that may come into contact with the skin:



- a) Shall be non-staining, soft, pliable and not known to be likely to cause skin irritation, allergic reaction or any other adverse effect on health.
- b) Shall be resistant to skin oil, hair oil and ear wax.
- c) Shall be moisture proof, heat resistant and cold proof.

4.2.1.2. The materials used shall not be damaged readily under normal handling and its strength, hardness and elasticity shall be suitable for the purpose it is to serve.

4.2.1.3. Earmuffs shall be made of materials that are capable of being cleaned or sterilized. All materials shall be visibly unimpaired after cleaning by the method specified by the manufacturer.

4.2.2. Construction

4.2.2.1. Hearing protectors – earmuffs shall be designed, manufactured and tested in accordance with KS 2093-1 and ISO 4869.

Issued by: Head of Section, Standards Development	Authorized by: Head of Department, standards
Signed: 	Signed: 
Date: 2015-10-09	Date: 2015-10-09



TITLE:
**SPECIFICATION FOR
HEARING PROTECTORS**
Part 1: Earmuffs

Doc. No.	KP1/6C.1/13/TSP/01/013-1
Issue No.	1
Revision No.	0
Date of Issue	2015-10-09
Page 5 of 15	

- 4.2.2.2. All parts of the earmuffs shall be radiused, finished smooth and be free from sharp edges.
- 4.2.2.3. Earmuffs whose cushions and/ or liners are intended by the manufacturers to be replaced by the wearer shall not require the use of tools for this purpose.
- 4.2.2.4. All universal earmuffs shall be provided with a head strap.

4.3. PERFORMANCE REQUIREMENTS

4.3.1. General

The requirements specified in clauses 4.3.2 to 4.3.12 shall be satisfied. Specimens of earmuffs shall be conditioned and tested as specified in clauses 7.1.1 and 7.1.2 of KS 2093-1. The scheme of testing shall be as specified in clause 7.1.3 of KS 2093-1.

4.3.2. Adjustability

When tested in accordance with clause 7.2 of KS 2093-1, the adjustability shall be as below:

a) Normal size range' earmuffs - Over-the-head and under-the-chin earmuffs.

For each of the combinations of test dimensions shown by the letter N in Table 1, the range of adjustment of the cups/headband and of the width between the cushions shall enable the ear-muffs to be fitted to the fixture.

b) Small size range' earmuffs - Over-the-head earmuffs

For each of the combinations of test dimensions shown by the letter S in Table 1, the range of adjustment of the cup/headband and of the width between the cushions shall enable the ear -muffs to be fitted to the fixture.

c) 'Large size range' ear muffs - Over-the-head earmuffs.

For each of the combinations of test dimensions shown by the letter L in Table 1, the range of adjustment of the cup/headband and of the width between the cushions shall enable the earmuffs to be fitted to the fixture.

Issued by: Head of Section, Standards Development

Authorized by: Head of Department, standards

Signed:

Signed:

Date: 2015-10-09

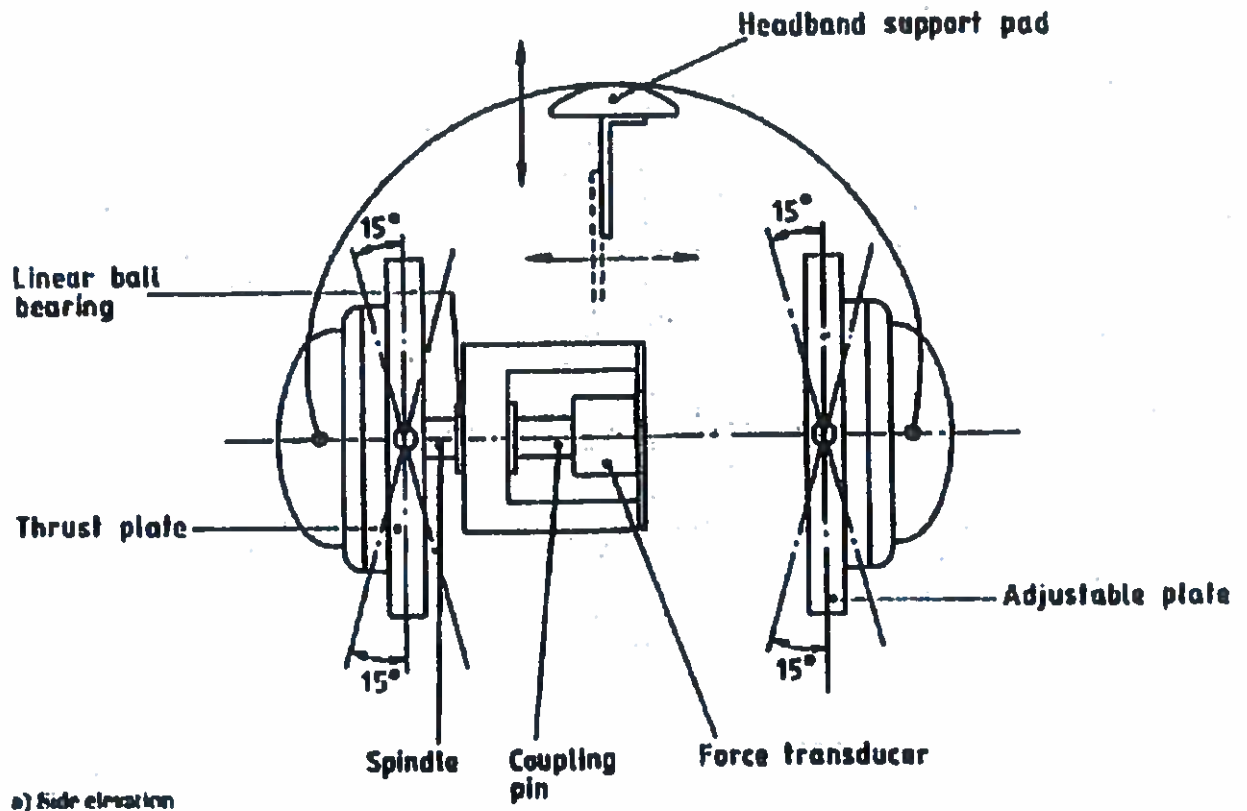
Date: 2015-10-09

Table 1 - Test dimensions (over-the-head and under-the-chin earmuffs)
 Dimensions are in millimetres

Head depth	Width		
	125	145	155
75	S	N	-
90	N	N	N
105	-	N	L

N indicates ear - muffs 'normal' size range
 S indicates ear - muffs 'small' size range
 L indicates ear - muffs 'large' size range
 - Indicates no requirements

Note. The dimensions given in table 1 have chosen to cover appropriate combinations of the head width and head height of the 5th, 50th and 95th "percentiles" of the adult population.



Issued by: Head of Section, Standards Development

Authorized by: Head of Department, standards

Signed:

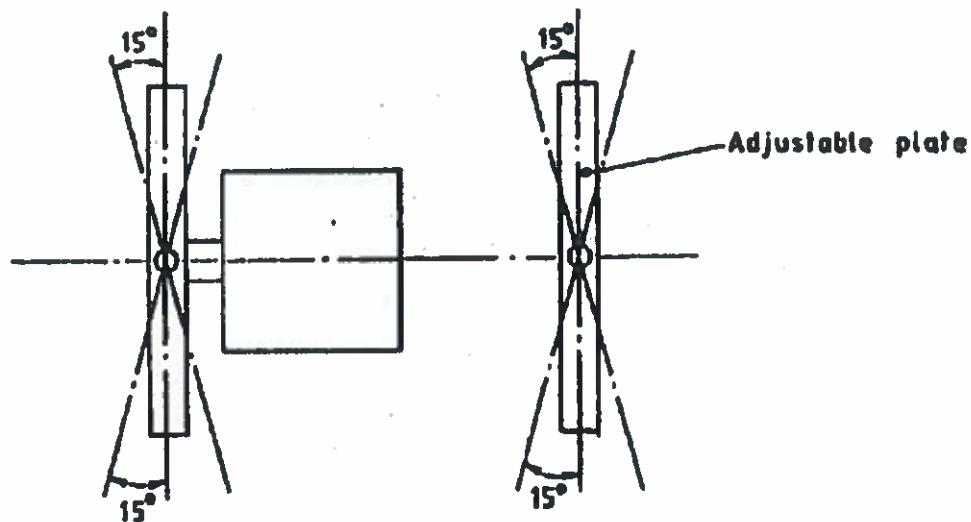


Signed:



Date: 2015-10-09

Date: 2015-10-09



b) plain view

Note: The pinna stimulators shown in figure 2 of KS 2093-1:2006 are fitted to the plates of the fixtures so, that the holes at the centres of the simulators lie on the horizontal axis through the force transducer.

Fig. 1 - Mounting fixture for measurement of rotation of cups and for tests for headband force and cushion pressure and for adjustability.

4.3.3. Cup/Headband rotation

When tested in accordance with clause 7.3 of KS 2093-1., the contact between the cushions and the plates of the fixture shall be continuous insofar as it provides an unbroken barrier between the inside and outside perimeters of the cushions.

4.3.4. Lead and force

When tested in accordance with clause 7.4 of KS 2093-1, the headband force shall be not greater than 14 N.

4.3.5. Cushion pressure

When tested in accordance with clause 7.5 of KS 2093-1, the cushion pressure shall be not greater than 4500 Pa.

Issued by: Head of Section, Standards Development

Authorized by: Head of Department, standards

Signed:



Signed:



Date: 2015-10-09

Date: 2015-10-09



TITLE:
SPECIFICATION FOR HEARING PROTECTORS
Part 1: Earmuffs

Doc. No.	KP1/6C.1/13/TSP/01/013-1
Issue No.	1
Revision No.	0
Date of Issue	2015-10-09
Page 8 of 15	

4.3.6. Resistance to damage when dropped.

Unless clause 4.3.7 is to be satisfied, the ear-muffs (except for replaceable cushions) shall not crack when tested in accordance with clause 7.6 of KS 2093-1. Neither shall any part of the ear-muffs become detached, such that correct reassembly requires the use of either tool or a replacement part.

4.3.7. Resistance to low temperature

When tested in accordance with clause 7.7 of KS 2093-1, the ear-muffs (except for replaceable cushions) shall not crack. Neither shall any part of the earmuffs become detached, such that correct re-assembly requires the use of either a tool or a replacement part.

4.3.8. Change in headband force (including optional resistance to high temperature).

The headband force shall not change by more than $\pm 20\%$ from that measured in accordance with clause 7.4 of KS 2093-1 after the earmuffs have been subjected to the appropriate conditioning and tests specified in clauses 7.1.3.1 to 7.1.3.12 of KS 2093-1.

4.3.9. Insertion loss

The standard deviations reported in accordance with clause 7.11.4 of KS 2093-1, shall be not greater than 4.0 dB in four or more adjacent one-third-octave bands, and not greater than 7.0 dB in any individual one-third-octave band.

4.3.10. Resistance to leakage

In the case of liquid filled cushions, they shall not leak when the earmuffs are tested in accordance with 7.12 of KS 2093-1.

4.3.11. Ignitability

When tested in accordance with clause 7.13 of KS 2093-1, no part of the earmuffs shall ignite or continue to glow after the removal of the heated rod.

4.3.12. Minimum attenuation.

When tested in accordance with clause 7.14 of KS 2093-1 the values (Mf-sf) of the earmuff shall be not less than the data in table 2.

Issued by: Head of Section, Standards Development	Authorized by: Head of Department, standards
Signed: 	Signed: 
Date: 2015-10-09	Date: 2015-10-09

Table 2 - Attenuation requirements for earmuffs.

F in Hz	(Mf -sf) in dB
125	5
250	8
500	10
1,000	12
2,000	12
4,000	12
8,000	12

Mf are the mean attenuation data and sf the standard deviations according to Appendix 1 of KS 2093-1

4.4. WORKMANSHIP AND FINISH

The finished and assembled earmuff shall have no any burrs on edges. All sharp corners shall be removed. The metallic head-strap for fastening over the head shall be smooth, free from seams, pits, die marks and rustproof.

4.5. QUALITY MANAGEMENT SYSTEM

4.5.1. The supplier shall submit a quality assurance plan (QAP) that will be used to ensure that the requirements for protection, ergonomic characteristics, innocuousness, mechanical properties, marking of the earmuff, will fulfill the requirements stated in the contract documents, standards, specifications and regulations.

4.5.2. The Manufacturer's Declaration of Conformity to applicable standards and copies of quality management certifications shall be submitted with the tender for evaluation.

5. TESTS AND INSPECTION

5.1. The earmuff shall be inspected and tested in accordance with ISO 4869, KS 2093-1 and the requirements of this specification. It shall be the responsibility of the supplier to perform or to have performed all the tests specified.

5.2. Copies of previous Test Reports confirming conformity to clause 4 for the earmuff issued by a third party testing laboratory that is accredited to ISO/IEC 17025 shall be submitted with the tender for the purpose of technical evaluation. The accreditation certificate

Issued by: Head of Section, Standards Development

Authorized by: Head of Department, standards

Signed:



Signed:



Date: 2015-10-09

Date: 2015-10-09



TITLE:
SPECIFICATION FOR HEARING PROTECTORS
Part 1: Earmuffs

Doc. No.	KP1/6C.1/13/TSP/01/013-1
Issue No.	1
Revision No.	0
Date of Issue	2015-10-09
Page 10 of 15	

for the third party testing laboratory shall also be submitted with the tender (all in English Language).

- 5.3. Test Reports for the earmuff to be supplied under the contract shall be submitted to The Kenya Power & Lighting Company for approval before shipment/delivery.
- 5.4. The earmuff shall be subject to acceptance tests at the manufacturer's works before dispatch. Acceptance tests (routine & sample tests) will be witnessed by at least two (2) Tender Processing Committee (TPC) members appointed by The Kenya Power and Lighting Company Limited (KPLC). Routine and sample test reports for the earmuffs to be supplied shall be submitted to KPLC for approval before shipment of the goods.
- 5.5. On receipt of the earmuffs, KPLC will inspect them and may perform or have performed any of the relevant tests in order to verify compliance with the specification. The supplier shall replace without charge to KPLC, earmuffs which upon examination, test or use fail to meet any of the requirements in the specification

6. MARKING AND PACKING

6.1. Marking

The earmuffs shall be durably marked with following information:

- a) The name, trade mark or other identification of the manufacturer
- b) Model designation
- c) In the case of ear muffs intended by the manufacturer to be worn in a particular orientation, an indication of the **FRONT** and /or **TOP** of the cups, and /or an indication of **LEFT** and **RIGHT** cup.

6.2. Packing

- 6.2.1. Earmuffs shall be suitably packed in polyethylene envelopes to avoid scratching against each other before packing them in cartons. Each carton shall contain 100 earmuffs.
- 6.2.2. The polyethylene envelopes provided for packaging shall be able to protect the earmuffs every time after use for the lifetime of the earmuffs.
- 6.2.3. The following information should be given on the earmuffs whenever practical or on the packaging:
 - a) The name, trade mark or other identification of the manufacturer
 - b) Model designation
 - c) International care label symbols;

Issued by: Head of Section, Standards Development

Authorized by: Head of Department, standards

Signed:

Signed:

Date: 2015-10-09

Date: 2015-10-09



TITLE:
SPECIFICATION FOR HEARING PROTECTORS
Part 1: Earmuffs

Doc. No.	KP1/6C.1/13/TSP/01/013-1
Issue No.	1
Revision No.	0
Date of Issue	2015-10-09
Page 11 of 15	

- d) The number of Standard of Manufacture.
- e) The letters, "Property of KPLC".

7. DOCUMENTATION


7.1. The bidder shall submit its tender complete with technical documents required by Annex A (Guaranteed Technical Particulars) for tender evaluation. The technical documents to be submitted (all in English language) for tender evaluation shall include the following:

- a) Guaranteed Technical Particulars fully filled and signed by the manufacturer;
- b) Copies of the Manufacturer's catalogues, brochures, drawings and technical data;
- c) Sales records and customer reference letters;
- d) Details of manufacturing capacity and the manufacturer's experience;
- e) Copies of required type test reports by a third party testing laboratory accredited to ISO/IEC 17025;
- f) Copy of accreditation certificate to ISO/IEC 17025 for the testing laboratory.
- g) Manufacturer's warranty and guarantee
- h) Manufacturer's letter of authorization, copy of the manufacturer's ISO 9001:2008/ KEBS Diamond mark certificate and other technical documents required in the tender.

7.2. The successful bidder (supplier) shall submit the following documents/details to The Kenya Power & Lighting Company for approval before manufacture:

- a) Guaranteed Technical Particulars,
- b) Design Drawings and construction details of the earmuffs,
- c) Quality assurance plan (QAP) that will be used to ensure that the earmuffs design, material, workmanship, tests, service capability, maintenance and documentation will fulfill the requirements stated in the contract documents, standards, specifications and regulations. The QAP shall be based on and include relevant parts to fulfill the requirements of ISO 9001:2008
- d) Detailed test program to be used during factory testing,
- e) Marking details and method to be used in marking the earmuffs,
- f) Manufacturer's undertaking to ensure adequacy of the design, good engineering practice, adherence to the specification and applicable standards and regulations as well as ensuring good workmanship in the manufacture of the earmuffs for The Kenya Power & Lighting Company
- g) Packaging details.

7.3. The supplier shall submit recommendations for use, care, storage and routine inspection/testing procedures, all in the English Language, during delivery of the earmuffs to KPLC stores. The following information shall be submitted with the supplied earmuffs:

Issued by: Head of Section, Standards Development	Authorized by: Head of Department, standards
Signed: 	Signed: 
Date: 2015-10-09	Date: 2015-10-09



TITLE:
**SPECIFICATION FOR
HEARING PROTECTORS**

Part 1: Earmuffs

Doc. No.	KP1/6C.1/13/TSP/01/013-1
Issue No.	1
Revision No.	0
Date of Issue	2015-10-09
Page 12 of 15	

7.3.1. Wearer information

The following information for the wearer shall be supplied with earmuffs:

- a) Trade mark, or other means of identification, of manufacturer, importer or distributor
- b) Model designation
- c) As appropriate the statement(s):
 - (i) This model of earmuff has satisfied the optional requirements at 50°C
 - (ii) This model of earmuffs has satisfied the optional requirements at -20°C.

Note: *These statements may be combined.*

- d) Description of the type of headband and of the cushions
- e) Method of fitting/adjustments
- f) For small/large size range' ear-muffs as appropriate a warning on packaging box; "Small /large size range ear-muffs. Refer to wearer information".
- g) For each mode of wearing, the following sounds attenuation values:
 - (i) Mean value and standard deviation at each test frequency
 - (ii) APV value at each test frequency in accordance with ISO/DIS 4869-2 with the parameter a=1
 - (iii) H , M and L Value in accordance with ISO/DIS 4869-2 with the parameter a=1
 - (iv) SNR-value in accordance with ISO/DIS 4869-2 with the parameter a=1;

Note: *Each set of values shall be given equal prominence.*

- h) Recommendation that the wearer should ensure that:
 - (i) The ear-muffs are fitted, adjusted and maintained in accordance with the manufacturer's instructions.
 - (ii) The ear-muffs are worn at all times in noisy surroundings.
 - (iii) The ear -muffs are regularly inspected for serviceability;
 - (iv) Properly stored.
- i) A warning that, if the recommendations given in (i) above are not adhered to the protection afforded by the ear -muffs will be severely impaired
- j) Methods of cleaning and disinfecting which shall specify, and require the use of, cleaning agents that are known not to be harmful to the wearer.
- k) The statement ` This product may be adversely affected by certain chemical substances. Further information should be sought from the manufacturer.'
- l) The statement, "Earmuffs and in particular cushions may deteriorate with use and should be examined at frequent intervals for cracking and leakage", for example.
- m) A warning to avoid accidents and incidents due to impaired hearing.
- n) Recommended storage conditions before and after use.
- o) Recommended product life;
- p) Recommended number of times it

Issued by: Head of Section, Standards Development

Authorized by: Head of Department, standards

Signed:

Signed:

Date: 2015-10-09

Date: 2015-10-09



TITLE:
**SPECIFICATION FOR
HEARING PROTECTORS**
Part 1: Earmuffs

Doc. No.	KP1/6C.1/13/TSP/01/013-1
Issue No.	1
Revision No.	0
Date of Issue	2015-10-09
Page 13 of 15	

- q) The designation/reference and other information required when ordering replacement cushions.

Note: *If appropriate, the method of cushions replacement*

- r) The mass of the earmuffs
s) The address from which additional information can be obtained

7.3.2. Additional information

The following shall be available from the manufacturer on request:

- a) Range of head sizes fitted
b) Information as specified in clause 7.3.1
c) Results of tests performed in accordance with this standard.
d) The name and country of the test laboratory, which performed the test, specified in 7.3.2(c) and the date of the tests.

-----SPACE LEFT BLANK-----

Issued by: Head of Section, Standards Development

Authorized by: Head of Department, standards

Signed:

Signed:

Date: 2015-10-09

Date: 2015-10-09



TITLE:
SPECIFICATION FOR HEARING PROTECTORS
Part 1: Earmuffs

Doc. No.	KP1/6C.1/13/TSP/01/013-1
Issue No.	1
Revision No.	0
Date of Issue	2015-10-09
Page 14 of 15	

ANNEX A: Guaranteed Technical Particulars (to be filled and signed by the Manufacturer and submitted together with relevant copies of the Manufacturer's catalogues, brochures, drawings, technical data, sales records, four customer reference letters, the manufacturer's experience and copies of complete type test reports for tender evaluation, all in English Language)

Tender No.

Clause number	KPLC requirement		Bidder's offer (indicate full details of the offered for the earmuffs)	
Manufacturer's Name and address			specify	
Brand name or designation			specify	
Country of Manufacture			specify	
Bidder's Name and address			specify	
1.	Scope		specify	
1.1-1.3				
2.	Applicable Standards	KS 2093-1 or equivalent	specify	
3.	Terms & Definitions		specify	
4.	REQUIREMENTS		specify	
4.1	Service Conditions	No deleterious changes at -20 ⁰ C to +50 ⁰ C	specify	
4.2	Design & Construction		specify	
4.2.1	Materials properties		Show proof by stating materials used conforming to the attributes	
				Non staining, soft pliable and non-skin irritation
				Resistant to skin oil, hair oil or ear wax
				Moisture proof, heat resistant & cold proof
				Suitable strength and harness
4.2.2	Construction		Show proof by stating materials used conforming to the attributes	
				Readily cleaned and sterilized
4.2.3	Performance – as per KS 2093-1		Attach test reports as per KS 2093-1 or equivalent to confirm conformity performance tests	
	Adjustability	As per table 1		
	Cup rotation	The contact between the cushions and the plates of the fixture as per KS 2093-1		
	Lead and force	Lead band force < 14 N		
	Cushion pressure	< 4,500 Pa		
	Resistance to damage	No damage when dropped		
	Resistance to temperature	No change		
	Change in headband force	< ± 20 %		

Issued by: Head of Section, Standards Development

Authorized by: Head of Department, standards

Signed:

Signed:

Date: 2015-10-09

Date: 2015-10-09



TITLE:
SPECIFICATION FOR HEARING PROTECTORS
Part 1: Earmuffs

Doc. No.	KP1/6C.1/13/TSP/01/013-1
Issue No.	1
Revision No.	0
Date of Issue	2015-10-09
Page 15 of 15	

Clause number	KPLC requirement	Bidder's offer (indicate full details of the offered for the earmuffs)
	Insertion loss	
	< 4.0 dB in four or more adjacent one - third-octave bands, and <7.0 dB in any individual one-third-octave band.	
	Resistance to leakage	
	No leak	
	Ignitability	
	Minimum attenuation	Show proof by stating materials used conforming to the attributes
	As per table 2	
	Workmanship and finish	Show proof by stating materials used conforming to the attributes
	No burrs and sharp corners Metallic strip shall be free from seams, pits, die marks and rust proof	
4.5	Quality Management System	Provide
	Quality Assurance Plan	Provide
	Copy of ISO 9001:2008 Certificate	Provide
	Manufacturer's experience	Provide
	Manufacturing Capacity (units per month)	Provide
	List of previous customers	Provide
	Customer reference letters	Provide
5.1	Test standards and responsibility of carrying out tests	Provide
5.2	Copies of Type Test Reports submitted with tender	Provide
5.3	Acceptance tests to be witnessed by KPLC at factory before shipment	Provide
5.4	Test reports to be submitted by supplier to KPLC for approval before shipment	Provide
5.5	Replacement of rejected earmuffs	Provide
6.1	Markings	Provide
6.2	Packing	Provide
7.1	Documents submitted with tender	Provide
7.2	Documents to be submitted by supplier to KPLC for approval before manufacture	Provide
8.0	Statement of compliance to specification	Provide

.....
Manufacturer's Name, Signature, Stamp and Date

NOTE: *The Guaranteed Technical Particulars (GTP) shall form the basis of technical tender evaluation. Bidders shall ensure that the offered values for the item conform to the values in the test reports and their certificates, catalogue references and/or brochures. Failure to adhere by this requirement shall lead to automatic disqualification at the technical evaluation stage.*

Issued by: Head of Section, Standards Development	Authorized by: Head of Department, standards
Signed:	Signed:
Date: 2015-10-09	Date: 2015-10-09

