


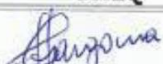

 <b>ZESCO</b> <small>Powering the Nation &amp; the Region</small>	<b>TECHNICAL SPECIFICATION</b>	<b>Doc Number:</b> CO.14900.TCSP.00178 <b>Version: 2</b>
<b>SPMS ARTICLE CODE:</b> 081903-0010	<b>DESCRIPTION OF MATERIAL:</b> INSULATED COPPER ' DUPLEX ' 10MMSQ 2 CORE 600/1000V	Page 1 of 5

## Contents

1.0	SCOPE.....	2
2.0	SYSTEM PARAMETERS .....	2
3.0	ENVIRONMENTAL PARAMETERS .....	2
4.0	DETAILED REQUIREMENTS .....	3
5.0	TECHNICAL SCHEDULES (SCHEDULES A & B).....	4

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## 1.0 SCOPE

This specification covers the design, manufacture, supply, testing, performance requirements and delivery of 10mmsq 2 core 600/1000V insulated copper 'duplex' cable used to supply power to the user's service head where connection to the overhead service entrance cable is made.

It is not the intention to specify completely herein all the details of the design and construction of the insulated copper 'duplex' cable. However, the offered wire shall conform in all respects to highest standards of engineering, design, workmanship of this specification and the latest revisions of relevant standards at the time of offer and ZESCO shall have the power to reject any work or material, which in ZESCO's judgement is not in full compliance therewith.


## 2.0 SYSTEM PARAMETERS

Unless otherwise specified in the Schedule of Requirements, the ZESCO distribution system parameters shall be taken to be as follows:

Item	Description	Unit	Nominal Voltage Level
			<b>0.4kV</b>
1.	Nominal system voltage phase to phase	kV	0.4
2.	Highest system voltage phase - phase	kV	0.44
3.	System Frequency	Hz	50 ± 2.5%
4.	Method of System Earthing		Solid
5.	Impulse withstand voltage (1.2/50 μsec wave)	kV peak	-
6.	Power frequency withstand voltage 1 minute	kV peak	3

## 3.0 ENVIRONMENTAL PARAMETERS

In addition to the environmental parameters requirements indicated in schedule A, the insulated copper 'duplex' cable shall also be capable of operating under the following environmental conditions:

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- a) Exposed to direct tropical sun;
- b) Frequent and severe lightning storms occurring during summer months (isokeraunic level taken to be 86 days/year); and
- c) Exposure to dust which is prevalent for long periods in the year.

## 4.0 DETAILED REQUIREMENTS

### 4.1 Construction

The conductors shall be concentrically hard-drawn stranded copper insulated with ultra-violet stabilized PVC.

### 4.2 Markings

#### a) Phase identification mark

The cable shall have a continuous ridge on the phase conductor insulation for phase identification.

#### b) Cable identification marks


The cable shall be indelibly printed, indented or other suitable means with the following 'ZESCO Ltd, ELECTRIC CABLE, 600/1000V, MANUFACTURER'S NAME, 2 x 10mm<sup>2</sup> PVC' at one meter interval on two lines equally spaced around the circumference of the cable.

### 4.3 Previous Type Tests

The bidder shall provide previous type test certificates/reports for tests done as per IEC 60227.

### 4.4 Packaging


The insulated copper 'duplex' cable shall be suitably protected against damage which could occur in ordinary handling and shipping.

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<b>SPMS ARTICLE CODE:</b> 081903-0010	<b>DESCRIPTION OF MATERIAL:</b> INSULATED COPPER ' DUPLEX ' 10MMSQ 2 CORE 600/1000V	Page 4 of 5

## 5.0 TECHNICAL SCHEDULES (SCHEDULES A & B)

### SCHEDULE A: MINIMUM ZESCO REQUIREMENTS

S/N	DETAIL	UNIT	DATA
1	Description		Insulated copper ' duplex ' 10mm <sup>2</sup> , 2 core 600/1000V cable
2	Material of conductor		Hard drawn stranded copper conductor
3	Insulation material		Ultra-violet stabilized PVC insulated cable
4	Cross section area	mm <sup>2</sup>	10
5	Rated voltage	V	600/1000
6	Designation		Duplex
7	Colour		Black
8	Number of cores		Two (02)
9	Maximum conductor resistance (20 °C)	Ohm/km	1.83
10	Drums		Treated wooden drums
11	Maximum length per drum	m	2500
12	Markings		As per clause 4.2 above
<b>Environmental Parameters</b>			
13	Operating temperature	°C	-1 to 45
14	Maximum humidity	%	85
15	Altitude above sea level	m	1400
<b>Other Requirements</b>			
16	Previous type tests certificates/results to be submitted with the bid		Required
17	Routine tests certificates to be provided on delivery		Required
18	Quality assurance certificated/manuals to be submitted with the bid		Required
19	Drawings/brochures to be submitted with the bid		Required
20	Applicable standard(s)		IEC 60227, IEC 60228

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**SCHEDULE B: TO BE COMPLETED BY BIDDER**

S/N	DETAIL	UNIT	DATA
1	Description		
2	Material of conductor		
3	Insulation material		
4	Cross section area	mm <sup>2</sup>	
5	Rated voltage	V	
6	Designation		
7	Colour		
8	Number of cores		
9	Maximum conductor resistance (20 °C)	Ohm/km	
10	Drums		
11	Maximum length per drum	m	
12	Markings		
	<b>Environmental Parameters</b>		
13	Operating temperature	°C	
14	Maximum humidity	%	
15	Altitude above sea level	m	
	<b>Other Requirements</b>		
16	Have previous type tests certificates/results been submitted with the bid?		
17	Will routine tests certificates be provided on delivery?		
18	Have quality assurance certificated/manuals been submitted with the bid?		
19	Have drawings/brochures been submitted with the bid?		
20	Applicable standard(s)		