



Kenya Power

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Our Ref: KP1/9AA-2/PT/03/ITT/14-15

27th April, 2015

M/S

Dear Sir/Madam,

**ADDENDUM (II): TO TENDER NO. KP1/9AA-2/PT/28/1CT/14-15/JNM FOR DESIGN
SUPPLY, INSTALLATION & COMMISSIONING OF ADSS FIBER OPTIC CABLE FOR
BIDDERS**

Following the route survey by the bidders on proposed links in lots 1-4 amendments are made to the specified provisions of the Tender document for Design, Supply, Installation and Commissioning of ADSS Fibre Optic Cable. Save where amended by the terms of this addendum, the Principal Tender Document shall continue to be in full force and effect. The provisions of this addendum shall be deemed to have been incorporated in and shall read as part of the principal Tender Document.

1. SECTION V -SCHEDULE OF REQUIREMENTS

Bidders are hereby advised that the Bill of quantities for Lots 1-4 have been revised and the new schedule shall be as tabulated below:-

Table: A List of Schedule of requirements-ADSS 48 core Fibre optic cable and Accessories

LOT 1 (Nairobi North, Nairobi South and Mt. Kenya)

Item No.	Brief Description	Unit of Measure	Quantity
1	Fiber Optic Cable		
a)	48 core ADSS Fiber Optic cable to be installed below 66kV, 33kV and 11kV lines	KM	263
b)	48 core ADSS Fiber Optic cable – Spare	KM	30.00

Item No.	Brief Description	Unit of Measure	Quantity
c)	48 core approach cable.	KM	6
d)	HDPE Duct	KM	4
e)	PVC trunking(2x2 inches heavy gauge)	Meters	200
2	Splice Boxes		
a)	3-way-Splice boxes with a minimum capacity of 96 terminations	No.	100
b)	Spare; 3-way-Splice boxes with a minimum capacity of 96 terminations	No	40
3	ODF		
a)	48 port outdoor ODF complete with pig tails and SC terminations	No.	14
b)	96 port outdoor pole mounted ODF complete with pig tails and SC terminations.	No.	5
c)	48 port indoor ODF complete with pig tails and SC terminations.	No	22
d)	96 port indoor ODF complete with pig tails and SC terminations.	No	9
e)	Spare 48 port outdoor pole mount ODF complete with pig tails and SC terminations	No.	4
f)	Spare 96 port outdoor pole mount ODF complete with pig tails and SC terminations	No.	4
g)	Spare 48 port indoor ODF complete with pig tails and SC terminations	No.	4
h)	Spare 96 port indoor ODF complete with pig tails and SC terminations	No.	4
4	Fittings for the installation works including transformer by-pass arms and pole cable storage kit.	Lot	Lot
5.	Spare fittings for maintenance		
a)	Formed Wire Dead-End	No.	1000
b)	Tangent with cable protection rode	No.	1000
c)	Aeolian Vibration Dampers	No.	1000
d)	Transformer by-pass Arms (Extension Arms)	No.	20
e)	Pole FOC Storage Kit	No.	50
6.	Tools		
a)	Swivel and pulling Grips	No.	5
b)	18 inch Diameter String Blocks rollers	No.	4
c)	7 inch Diameter String Blocks rollers	No.	20
7.	Fusion Splicing Machine	No.	1
8.	Fiber Termination Tool Kit	No.	1
9.	Fault locator	No.	1
a)	OTDR	No.	1
b)	Optical Power Meter	No.	1
c)	Optical Power Source	No.	1
10.	Installation & Commissioning Works	Lot	Lot
11.	Factory Acceptance Test at the Manufacturers factory	Activity	

LOT 2 (North Eastern and Coast)

Item No.	Brief Description	Unit of Measure	Quantity
1	Fiber Optic Cable		
a)	48 core ADSS Fiber Optic cable to be installed below 66kV, 33kV and 11kV lines	KM	282
b)	48 core ADSS Fiber Optic cable – Spare	KM	30.00
c)	48 core approach cable.	KM	6
d)	HDPE Duct	KM	4
e)	PVC trunking(2x2 inches heavy gauge)	Meters	150
2	Splice Boxes		
a)	3-way-Splice boxes with a minimum capacity of 96 terminations	No.	100
b)	Spare; 3-way-Splice boxes with a minimum capacity of 96 terminations	No.	40
3	ODF		
a)	48 port outdoor ODF complete with pig tails and SC terminations	No.	10
b)	96 port outdoor pole mounted ODF complete with pig tails and SC terminations	No.	2
c)	48 port indoor ODF complete with pig tails and SC terminations		16
d)	96 port indoor ODF complete with pig tails and SC terminations		4
e)	Spare 48 port outdoor pole mount ODF complete with pig tails and SC terminations	No.	4
f)	Spare 96 port outdoor pole mount ODF complete with pig tails and SC terminations	No.	4
g)	Spare 48 port indoor ODF complete with pig tails and SC terminations	No.	4
h)	Spare 96 port indoor ODF complete with pig tails and SC terminations	No.	4
4	Fittings for the installation works including transformer by-pass arms and pole cable storage kit.	Lot	Lot
5	Spare fittings for maintenance		
a)	Formed Wire Dead-End	No.	1000
b)	Tangent with cable protection rode	No.	1000
c)	Aeolian Vibration Dampers	No.	1000
d)	Transformer by-pass Arms (Extension Arms)	No.	20
e)	Pole FOC Storage Kit	No.	50
6	Tools		
a)	Swivel and pulling Grips		5
b)	18 inch Diameter String Blocks rollers		4
c)	7 inch Diameter String Blocks rollers		20
7.	Fusion Splicing Machine	No.	1
8.	Fiber Termination Tool Kit	No.	1
9.	Fault locator	No.	1
a)	OTDR	No.	1
b)	Optical Power Meter	No.	1
c)	Optical Power Source	No.	1

Item No.	Brief Description	Unit of Measure	Quantity
10.	Installation & Commissioning Works for the whole project	Lot	Lot
11.	Factory Acceptance Test at the Manufacturers factory	Activity	

LOT 3 (North Rift and West Kenya)

Item No.	Brief Description	Unit of Measure	Quantity
1	Fiber Optic Cable		
a)	48 core ADSS Fiber Optic cable to be installed below 66kV, 33kV and 11kV lines	KM	488
b)	48 core ADSS Fiber Optic cable – Spare	KM	30.00
c)	48 core approach cable.	KM	5
d)	HDPE Duct	KM	1.5
e)	PVC trunking (2x2 inches heavy gauge)	Meters	200
2	Splice Boxes		
a)	Minimum of 3-way-Splice boxes with a minimum capacity of 96 terminations	No.	163
b)	Spare; 3-way-Splice boxes with a minimum capacity of 96 terminations		50
3	ODF		
a)	48 port outdoor ODF complete with pig tails and SC terminations	No.	17
b)	96 port outdoor pole mounted ODF complete with pig tails and SC terminations	No.	6
c)	48 port indoor ODF complete with pig tails and SC terminations		20
d)	96 port indoor ODF complete with pig tails and SC terminations		11
e)	Spare 48 port outdoor pole mount ODF complete with pig tails and SC terminations	No.	4
f)	Spare 96 port outdoor pole mount ODF complete with pig tails and SC terminations	No.	4
g)	Spare 48 port indoor ODF complete with pig tails and SC terminations	No.	4
h)	Spare 96 port indoor ODF complete with pig tails and SC terminations	No.	4
4	Fittings for the installation works including transformer by-pass arms and pole cable storage kit.	Lot	Lot
5	Spare fittings for maintenance		
a)	Formed Wire Dead-End	No.	1000
b)	Tangent with cable protection rode	No.	1000
c)	Aeolian Vibration Dampers	No.	1000
d)	Transformer by-pass Arms (Extension Arms)	No.	20
e)	Pole FOC Storage Kit	No.	50
6	Tools		
a)	Swivel and pulling Grips		5
b)	18 inch String Blocks rollers		4
c)	7 inch String Blocks rollers		20
7.	Fusion Splicing Machine	No.	1

Item No.	Brief Description	Unit of Measure	Quantity
8.	Fiber Termination Tool Kit	No.	1
9.	Fault locator	No.	1
a)	OTDR	No.	1
b)	Optical Power Meter	No.	1
c)	Optical Power Source	No.	1
10.	Installation & Commissioning Works	Lot	Lot
11.	Factory Acceptance Test at the Manufacturers factory	Activity	

LOT 4 (Central Rift)

Item No.	Brief Description	Unit of Measure	Quantity
1	Fiber Optic Cable		
a)	48 core ADSS Fiber Optic cable to be installed below 66kV, 33kV and 11kV lines	KM	348
b)	48 core ADSS Fiber Optic cable – Spare	KM	30.00
c)	48 core approach cable.	KM	3
d)	HDPE Duct	KM	1.5
e)	PVC trunking(2x2 inches heavy gauge)	Meters	150
2	Splice Boxes		
a)	3-way-Splice boxes with a minimum capacity of 96 terminations	No.	116
b)	Spare; 3-way-Splice boxes with a minimum capacity of 96 terminations		50
3	ODF		
a)	48 port outdoor ODF complete with pig tails and SC terminations.	No.	9
b)	96 port outdoor pole mounted ODF complete with pig tails and SC terminations	No.	3
c)	48 port indoor ODF complete with pig tails and SC terminations		14
d)	96 port indoor ODF complete with pig tails and SC terminations	No.	12
e)	Spare 48 port outdoor pole mount ODF complete with pig tails and SC terminations	No.	4
f)	Spare 96 port outdoor pole mount ODF complete with pig tails and SC terminations	No.	4
g)	Spare 48 port indoor ODF complete with pig tails and SC terminations	No.	4
h)	Spare 96 port indoor ODF complete with pig tails and SC terminations	No.	4
4	Fittings for the installation works including transformer by-pass arms and pole cable storage kit.	Lot	Lot
5	Spare fittings for maintenance		
a)	Formed Wire Dead-End	No.	1000
b)	Tangent with cable protection rode	No.	1000
c)	Aeolian Vibration Dampers	No.	1000
d)	Transformer by-pass Arms (Extension Arms)	No.	20
e)	Pole FOC Storage Kit	No.	50
6	Tools		
a)	Swivel and pulling Grips	No	5

Item No.	Brief Description	Unit of Measure	Quantity
b)	18 inch Diameter String Blocks rollers	No	4
c)	7 inch Diameter String Blocks rollers	No	20
7.	Fusion Splicing Machine	No.	1
8.	Fiber Termination Tool Kit	No.	1
9.	Fault locator	No.	1
a)	OTDR	No.	1
b)	Optical Power Meter	No.	1
c)	Optical Power Source	No.	1
10.	Installation & Commissioning Works	Lot	Lot
11.	Factory Acceptance Test at the Manufacturers factory	Activity	

PART B – DELIVERY SCHEDULE OF THE GOODS & PROJECT REQUIRED

Bidders are required to note amendments and addition to the delivery schedule:-

- That delivery of the materials ADSS 48 core Fibre optic cable and Accessories shall be made **within 12 weeks** upon signing of the contract and **not 6 weeks** as indicated in the tender document.
- Project implementation shall be completed within 12 weeks.

2. SECTION VI - SCHEDULE OF PRICES

Arising out of the changes in the bill of quantities, the price schedule has consequently been revised as follows:-

PHASE THREE LOT 1 (Nairobi North, Nairobi South and Mt. Kenya)

1	2	3	4	5	6	7
Item	Brief Description	Unit of Measure	Qty	Country of Origin	Unit price (DPP VAT Incl.)	Total price (DPP VAT Incl.)
1	Fiber Optical Cables					
a)	48 core ADSS cable to be installed below the 66kV, 33kV and 11 kV lines	KM	263			
b)	48 core ADSS cable -Spare	KM	30			
c)	48 core approach cable.	KM	6			
d)	HDPE Duct	KM	4			
e)	PVC trunking (2x2 inches heavy gauge).	Meters	200			
2	Splice Boxes					
a)	3-way-Splice boxes with a minimum capacity of 96 terminations	No.	100			
b)	Spare 3-way-Splice boxes with a minimum capacity of 96 terminations	No.	40			

1	2	3	4	5	6	7
Item	Brief Description	Unit of Measure	Qty	Country of Origin	Unit price (DPP VAT Incl.)	Total price (DPP VAT Incl.)
3	ODF's					
a)	48 port outdoor pole mount ODF complete with pig tails and SC terminations	No.	14			
b)	96 port outdoor pole mount ODF complete with pig tails and SC terminations	No.	5			
c)	48 port indoor ODF complete with pig tails and SC terminations	No.	22			
d)	96 port indoor ODF complete with pig tails and SC terminations	No.	9			
	Spare ODF's					
a)	48 port outdoor pole mount ODF complete with pig tails and SC terminations	No.	4			
b)	96 port outdoor pole mount ODF complete with pig tails and SC terminations	No.	4			
c)	48 port indoor ODF complete with pig tails and SC terminations	No.	4			
d)	96 port indoor ODF complete with pig tails and SC terminations	No.	4			
4	Fittings for the installation works including transformer by-pass arms and pole cable storage kit.	Lot				
5	Extra Spare fittings for Maintenance to be delivered to KPLC					
a)	Formed Wire Dead-End.	No.	1000			
b)	Tangent with cable protection rode.	No.	1000			
c)	Aeolian Vibration Dampers.	No.	1000			
d)	Transformer by-pass Arms (Extension Arms)	No.	20			
e)	Pole FOC Storage Kit	No.	50			
6	Tools					
a.	Swivel and pulling Grips	No.	5			
b.	18 inch Diameter ,String Blocks rollers	No.	4			
c.	7inch Diameter String, Blocks rollers	No.	20			

1	2	3	4	5	6	7
Item	Brief Description	Unit of Measure	Qty	Country of Origin	Unit price (DPP VAT Incl.)	Total price (DPP VAT Incl.)
7	Fusion Splicing Machine	No.	1			
8	Fiber Termination Tool Kit	No.	1			
9	Fault locator	No.	1			
a)	OTDR	No.	1			
b)	Optical Power Meter	No.	1			
c)	Optical Power Source	No.	1			
10	Installation & Commissioning Works	Lot				
11	Factory Acceptance Test at the Manufacturers factory	Activity				

PHASE THREE LOT 2(North Eastern and Coast)

1	2	3	4	5	6	7
Item	Brief Description	Unit of Measure	Qty	Country of Origin	Unit price (DPP VAT Incl.)	Total price (DPP VAT Incl.)
1	Fiber Optical Cables					
a)	48 core ADSS cable to be installed below the 66kV, 33kV and 11 kV lines	KM	282			
b)	48 core ADSS cable -Spare	KM	30			
c)	48 core approach cable.	KM	6			
d)	HDPE Duct	KM	4			
e)	PVC trunking (2x2 inches heavy gauge).	Meters	150			
2	Splice Boxes					
a)	3-way-Splice boxes with a minimum capacity of 96 terminations plus spare	No.	100			
b)	Spare: 3-way-Splice boxes with a minimum capacity of 96 terminations	No.	30			
3	ODF's					
a)	48 port outdoor ODF complete with pig tails and SC terminations	No.	10			
b)	96 port outdoor pole mounted ODF complete with pig tails and SC terminations	No.	2			
c)	48 port indoor ODF complete with pig tails and SC terminations	No.	16			
d)	96 port indoor ODF complete with pig tails and SC terminations.	No.	4			

1 Item	2 Brief Description	3 Unit of Measure	4 Qty	5 Country of Origin	6 Unit price (DPP VAT Incl.)	7 Total price (DPP VAT Incl.)
	Spare ODF's					
a)	48 port outdoor pole mount ODF complete with pig tails and SC terminations	No.	4			
b)	96 port outdoor pole mount ODF complete with pig tails and SC terminations	No.	4			
c)	48 port indoor ODF complete with pig tails and SC terminations	No.	4			
d)	96 port indoor ODF complete with pig tails and SC terminations	No.	4			
4	Fittings for the installation works inclusive of Fittings for the installation works including transformer by-pass arms and pole cable storage kit.	Lot	Lot			
5	Extra Spare fittings for Maintenance to be delivered to KPLC					
a)	Formed Wire Dead-End.	No.	1000			
b)	Tangent with cable protection rode.	No.	1000			
c)	Aeolian Vibration Dampers.	No.	1000			
d)	Transformer by-pass Arms (Extension Arms)	No.	20			
e)	Pole FOC Storage Kit	No.	50			
6	Tools					
a.	Swivel and pulling Grips	No.	5			
b.	18 inch Diameter ,String Blocks rollers	No.	4			
c.	7inch Diameter String, Blocks rollers	No.	20			
7	Fusion Splicing Machine	No.	1			
8	Fiber Termination Tool Kit	No.	1			
9	Fault locator	No.	1			
a)	OTDR	No.	1			
b)	Optical Power Meter	No.	1			
c)	Optical Power Source	No.	1			
10	Installation & Commissioning Works	Lot				
11	Factory Acceptance Test at the Manufacturers factory	Activity				

PHASE THREE LOT 3 (North Rift and West Kenya)

1	2	3	4	5	6	7
Item	Brief Description	Unit of Measure	Qty	Country of Origin	Unit price (DPP VAT Incl.)	Total price (DPP VAT Incl.)
1	Fiber Optical Cables					
a)	48 core ADSS cable to be installed below the 66kV, 33kV and 11 kV lines	KM	488			
b)	48 core ADSS cable -Spare	KM	30			
c)	48 core approach cable.	KM	5			
d)	HDPE Duct	KM	1.5			
e)	PVC trunking (2x2 inches heavy gauge).	Meters	200			
2	Splice Boxes					
a)	3-way-Splice boxes with a minimum capacity of 96 terminations	No.	163			
b)	Spare :3-way-Splice boxes with a minimum capacity of 96 terminations	No.	30			
3	ODF's					
a)	48 port outdoor ODF complete with pig tails and SC terminations plus spare	No.	17			
b)	96 port outdoor pole mounted ODF complete with pig tails and SC terminations	No.	6			
c)	48 port indoor ODF complete with pig tails and SC terminations	No.	20			
d)	96 port indoor ODF complete with pig tails and SC terminations	No.	11			
	Spare ODF's					
a)	48 port outdoor pole mount ODF complete with pig tails and SC terminations	No.	4			
b)	96 port outdoor pole mount ODF complete with pig tails and SC terminations	No.	4			
c)	48 port indoor ODF complete with pig tails and SC terminations	No.	4			
d)	96 port indoor ODF complete with pig tails and SC terminations	No.	4			

1	2	3	4	5	6	7
Item	Brief Description	Unit of Measure	Qty	Country of Origin	Unit price (DPP VAT Incl.)	Total price (DPP VAT Incl.)
4	Fittings for the installation works including transformer by-pass arms and pole cable storage kit.	Lot				
5	Extra Spare fittings for Maintenance to be delivered to KPLC					
a)	Formed Wire Dead-End.	No.	1000			
b)	Tangent with cable protection rode.	No.	1000			
c)	Aeolian Vibration Dampers.	No.	1000			
d)	Transformer by-pass Arms (Extension Arms)	No.	20			
e)	Pole FOC Storage Kit	No.	50			
6	Tools					
a.	Swivel and pulling Grips	No.	5			
b.	18 inch Diameter ,String Blocks rollers	No.	4			
c.	7inch Diameter String, Blocks rollers	No.	20			
7	Fusion Splicing Machine	No.	1			
8	Fiber Termination Tool Kit	No.	1			
9	Fault locator	No.	1			
a)	OTDR	No.	1			
b)	Optical Power Meter	No.	1			
c)	Optical Power Source	No.	1			
10	Installation & Commissioning Works	Lot	1			
11	Factory Acceptance Test at the Manufacturers factory	Activity	1			

PHASE THREE LOT 4 (Central Rift)

1	2	3	4	5	6	7
Item	Brief Description	Unit of Measure	Qty	Country of Origin	Unit price (DPP VAT Incl.)	Total price (DPP VAT Incl.)
1	Fiber Optical Cables					
a)	48 core ADSS cable to be installed below the 66kV, 33kV and 11 kV lines.	KM	348			
b)	48 core ADSS cable -Spare	KM	30			
c)	48 core approach cable.	KM	3			
d)	HDPE Duct	KM	1.5			
e)	PVC trunking(2x2 inches heavy gauge)	Meters	150			

1	2	3	4	5	6	7
Item	Brief Description	Unit of Measure	Qty	Country of Origin	Unit price (DPP VAT Incl.)	Total price (DPP VAT Incl.)
2	Splice Boxes					
a)	3-way-Splice boxes with a minimum capacity of 96 terminations	No.	116			
b)	Spare :3-way-Splice boxes with a minimum capacity of 96 terminations	No.	30			
	ODF's					
3	48 port outdoor ODF complete with pig tails and SC terminations plus spare	No.	9			
a)	96 port outdoor pole mounted ODF complete with pig tails and SC terminations	No.	3			
b)	48 port indoor ODF complete with pig tails and SC terminations	No.	14			
c)	96 port indoor ODF complete with pig tails and SC terminations	No.	12			
d)	Fittings for the installation works including transformer by-pass arms and pole cable storage kit.	Lot	Lot			
	Spare ODF's					
a)	48 port outdoor pole mount ODF complete with pig tails and SC terminations	No.	4			
b)	96 port outdoor pole mount ODF complete with pig tails and SC terminations	No.	4			
c)	48 port indoor ODF complete with pig tails and SC terminations	No.	4			
d)	96 port indoor ODF complete with pig tails and SC terminations	No.	4			
4	Extra Spare fittings for Maintenance spares to be delivered to KPLC					
5	Formed Wire Dead-End.	No.	1000			

1	2	3	4	5	6	7
Item	Brief Description	Unit of Measure	Qty	Country of Origin	Unit price (DPP VAT Incl.)	Total price (DPP VAT Incl.)
a)	Tangent with cable protection rode.	No.	1000			
b)	Aeolian Vibration Dampers.	No.	1000			
c)	Transformer by-pass Arms (Extension Arms)	No.	20			
d)	Pole FOC Storage Kit	No.	50			
6	Tools					
a.	Swivel and pulling Grips	No.	5			
b.	18 inch Diameter ,String Blocks rollers	No.	4			
c.	7inch Diameter String, Blocks rollers	No.	20			
7	Fusion Splicing Machine	No.	1			
8	Fiber Termination Tool Kit	No.	1			
9	Fault locator	No.	1			
a)	OTDR	No.	1			
b)	Optical Power Meter	No.	1			
c)	Optical Power Source	No.	1			
10	Installation & Commissioning Works	Lot				
11	Factory Acceptance Test at the Manufacturers factory	Activity	1			

3. SECTION X11 – EVALUATION CRITERIA

Bidders are required to note the addition of clause 7.3.5 on Part III of the financial evaluation criteria which had earlier been omitted.

7.3.5 *Confirming the following: -*

7.3.5.1 that the Supplier's offered Delivery Schedule meets KPLC's requirements.

7.3.5.2 that the Supplier's offered Terms of Payment meets KPLC's requirements.

4 .SECTION X- TECHNICAL SPECIFICATIONS

Bidders should note that following the site surveys, several amendments have been made as follows:

10.3 Project Summary and Design Principles for the ADSS Fiber Optical Cable

The basic information and design principles for the ADSS Fiber Optic extension project is designed to offer general guidelines to the tenderers and is only meant to assist in the preparation of bids. Further details and more precise information are expected to be obtained during the site visits and route surveys which are mandatory.

Proposed Links

It is proposed that the project be undertaken in one phase with four LOT's namely; LOT 1, LOT 2, LOT 3 and LOT 4. Phase Three will have 49 new proposed links as follows; LOT 1 has 263Km, LOT2 two has 282Km; LOT3 has 488 Km and lastly LOT4 with 348Km. The figures include some allowance for loops and the actual tendered quantities shall be as per the Schedule of requirements.

Proposed Phase Three Fiber Optical Cable ADSS Links

10.4 Phase Three Lot 1

Lot I of Phase three has 3 regions with links totaling to 263Km

10.4.1 Nairobi North Region

For Nairobi North, 5 Links are to be created. These will links cover a total distance of **60.2 KM**

- 10.4.1.1 From Ruaraka Substation to Ridgeways Substation an FOC of 9KM is to be installed. 2 ID ODFs will be required. One 48 core ID ODF at Ruaraka Substation and one 96 core ID ODF at Ridgeways Substation; 48 ports will face Ruaraka and 48 ports will face Kitsuru and Kiambu. At Ruaraka Substation, a 100m approach cable will be installed and enclosed in a 80m HDPE pipe. At Ridgeways Substation, a 200m approach cable will be installed and enclosed in a 180m HDPE pipe.
- 10.4.1.2 At Ridgeways a 8.9KM FOC link will be installed towards Kiambu Kenya Power Offices. At Kiambu Office, a 48 core OD ODF, a 48 core ID ODF, a 170m approach cable and 15m trunking will be installed.
- 10.4.1.3 From Ridgeways Substation, a 10.5KM FOC will be installed towards Kitsuru Substation running on 66KV line. At Kitsuru Substation, one 96 core ID ODF, 100m approach cable enclosed in 80m HDPE duct facing Ridgeways, 100m approach cable enclosed in 80m HDPE duct facing Gigiri will be installed.
- 10.4.1.4 At Kitsuru, there will be a 5.9 KM link to Gigiri Substation running on the 66KV line. In addition, a 1.1 KM FOC will be installed from Gigiri Substation to UNEP. A 96 core ID ODF will be installed; 48 ports will face Kitisuru and 48 ports will face UNEP. A pole mounted, 48 port OD ODF will be required outside UNEP.
- 10.4.1.5 From Uhuru Gardens area, a 10KM FOC to Ongata Rongai office will be installed. This will be intercepted from an existing splice box at 252784.64mE, 9854013.37mS on 66KV line. The FOC will then be extended 4KM to Matasia substation. At Rongai Office, one 96 core OD ODF, one 48 core ID ODF, 150m approach cable and 15m PVC trunking will be installed. At Matasia Substation, one 48 core ODF and 200m approach cable enclosed in 180m HDPE duct will be installed.

10.4.2 Nairobi South Region

In the region there are 4 sections to be installed. This links covers approximate distance totaling to **88.2 KM**.

- 10.4.2.1 At Nairobi South Substation a 3 KM FOC will be installed to N.S.S.F Substation. Two ID ODF will be required; one 48 core ID ODF at Nairobi South Substation and a 48 core at N.S.S.F Substations. A 500m approach cable enclosed in a 480m HDPE pipe will be installed at Nairobi South. At NSSF, a 200m approach will be enclosed in a 180m HDPE pipe.
- 10.4.2.2 The node at Emali Offices will be extended to Wote Kenya Power Offices. The FOC cable will cover a distance of 42 KM on the 33KV line. At Emali, One 48 core OD ODF, one 48 core ID ODF, a 150m approach cable and 20m PVC trunking will be installed. At Wote, One 48 core OD ODF, one 48 core ID ODF, a 200m approach cable and 20m PVC trunking will be installed.
- 10.4.2.3 From Tala Substation, a 6KM FOC will be installed to Tala Kenya Power offices. At Tala Offices, one 48 core OD ODF, one 48 core ID ODF, 100m approach cable and 20m PVC trunking will be installed. At Tala Substation, one 48 core ID ODF and 150m approach cable enclosed in a 130m HDPE duct will be installed.
- 10.4.2.4 From Kiboko 132 Substation fiber will be extended to Kibwezi Kenya Power Offices. This stretch covers 38.1KM. The installation will begin from an existing FOC loop opposite National Oil. At Kibwezi Offices, one 48 core ID ODF, one 48 core OD ODF, a 150m approach cable and 20m PVC trunking will be installed.

10.4.3 Mt. Kenya Region

There are 9 proposed installations in the region. These installations cover **114.6 KM**

- 10.4.3.1 From New Kutus Substation, a 7.9KM FOC will be installed towards Old Kutus Substation on the 33/11KV Power Line. At New Kutus Substation, a 48 core ID ODF and 250m approach cable enclosed in a 230m HDPE duct will be installed.
- 10.4.3.2 From Old Kutus to Sagana Substation, a 17.1 Km FOC will be installed on 33KV Power Line. On the same line, at Kerugoya Junction, an 8.6KM FOC will be installed towards Kerugoya SS. A 1.6KM FOC will be extended to the Kerugoya depot and a further 2.3 KM FOC will extend to the office. At Old Kutus, there is no control building. Only one 96 core OD ODF will be installed. At Sagana Substation, there is no control building. Only one 96 core OD ODF will be installed. At Kerugoya substation, one 96 core ID ODF, 100m approach cable enclosed in 80m HDPE duct facing Old Kutus and 100m approach cable enclosed in 80m HDPE duct facing Kerugoya Depot will be installed. At Kerugoya Depot, one 48 core OD ODF will be installed. At Kerugoya Office, one 48 core OD ODF, one 48 core ID ODF, 100m approach cable and 20m of PVC trunking will be installed.
- 10.4.3.3 From Sagana Substation towards Murang'a 33/11Kv Substation, a 11.2Km FOC will be installed running on 33KV Power Line. From Murang'a Substation and FOC will be installed to Morang'a KPLC Offices, approximately 2Km. One 48 cores ID ODF and 200m approach cable enclosed in a 180m HDPE duct will be required at Murang'a 33/11 Substation. At Murang'a KPLC Offices 100m approach cable, 48 core ID ODF, 48 core OD ODF and 20m PVC trunking will be installed.
- 10.4.3.4 At Embu 33/11 Substation, a 25.2 KM FOC will be installed running on 11KV power line towards Kyeni Substation. At Embu 33/11Kv Substation, a 48 core ID ODF, 200m approach cable enclosed in 180m HDPE will be installed. At Kyeni Substation, one 96 core ID ODF, 200m approach cable facing Embu

enclosed in 180m HDPE, 200m approach cable enclosed in 180m HDPE facing Chuka Offices will be installed.

- 10.4.3.5 From Kyeni Substation, towards Chuka KPLC Offices, an 11.7KM FOC will be installed on 11KV Power Line. At Chuka Offices, one 48 core ID ODF, one 48 core OD ODF, 100m approach and 20m PVC trunking will be installed.
- 10.4.3.6 From an existing splice box on Kiganjo-Ruring'u OPGW link, a 14.2KM FOC will be installed to Othaya Substation. The FOC will then be extended 2.1KM to Othaya Office. At Othaya SS, one 96 core ID ODF, 100m approach cable enclosed in 80m HDPE to be installed. At Othaya Offices, one 48 core OD ODF, one 48 core ID ODF, 150m approach cable and 20m PVC trunking to be installed.
- 10.4.3.7 From an existing splice box at Marua road Junction, -0.452132, 37.045186, a 10.1 KM FOC will be installed towards Karatina Substation on the 33KV line. At Karatina substation, one 48 core ID ODF and 100m approach cable enclosed in 80m HDPE will be installed.
- 10.4.3.8 From Nyeri EHSE to Nyeri Golf Course, a 1.6Km FOC, running on 11KV will be installed. A 48 core OD ODF will be installed at Golf course near the BTS.
- 10.4.3.9 At Meru Substation, 1KM fiber FOC will be installed towards Meru Timber site with a BTS. At Meru Substation, one 48 core ID ODF and 100m approach cable enclosed in 80m HDPE duct will be installed. At Meru timber (BTS Site), one 48 core OD ODF will be installed.

10.5 Phase Three Lot 2

Phase three LOT2 has two regions covering a distance of **280.2 Km**.

10.5.1 North Eastern Region

In North Eastern region, 4 FOC routes will be installed. These routes will cover a total distance of **55.7 KM** as follows;

- 10.5.1.1 A 13.7 KM FOC will be installed between Cianda Substation to Githunguri Kenya Power Offices. At Cianda substation, one 48 core ID ODF and 150m approach cable enclosed in a 130m HDPE duct will be installed. At Githunguri office, one 48 core ID ODF, one 48 core OD ODF, 150m approach cable and 20m PVC trunking will be installed.
- 10.5.1.2 From Mwingi 132KV a 3.2KM FOC will be installed towards Mwingi KPLC Offices. At Mwingi Substation, a 48 core ID ODF and 150m approach cable enclosed in 130m HDPE duct will be installed. At Mwingi Office, one 48 core ID ODF, one 48 core OD ODF, 150m approach cable and 20m PVC trunking will be installed.
- 10.5.1.3 From Ruiru 66/33/11KV Substation a 23.5KM FOC will be installed to Mangu 132/66 Substation using the 66KV line. At Ruiru Substation, one 48 core ID ODF and 200m enclosed in 180m HDPE duct will be installed. At Mangu, one 48 core ID ODF and 200m enclosed in 180m HDPE duct will be installed.
- 10.5.1.4 Along 220KV N-KU2-135, (Tower 135), a FOC to ODS will be installed. This section will be 15.3KM. MukaMukuu Substation will form part of this section because it is along the line. At ODS, one 48 core ID ODF, 100m approach cable enclosed in 80m HDPE duct will be installed. At MukaMukuu Substation, one 96 core ID ODF, 100m approach cable (facing ODS) enclosed in 80m HDPE duct and 100m approach cable (facing Tower 135) enclosed in 80m HDPE duct will be installed. At the tower, fiber will be connected to existing splice box.

10.5.2 Coast region

For this region, 5 FOC sections will be installed. These links will cover an approximate distance of 225.2 KM. The links design is as follows;

- 10.5.2.1 From Kanamai 33/11KV Substation towards Kilifi SS, a FOC will be installed covering 41.5KM on 33KV power line. Kikambala Substation will be part of this link because it is along the line. At Kanamai SS, One 48 Core ID ODF and 100m approach cable enclosed in a 80m HDPE pipe will be installed. At Kikambala substation, One 96 Core ID ODF, 200m approach cable enclosed in 180m HDPE duct facing Kanamai and 200m approach cable enclosed in 180m HDPE duct facing Kilifi Substation will be installed. At Kilifi Substation, one 96 core ID ODF and 350m approach cable enclosed in a 320 HDPE duct will be installed. This FOC installation will involve a crossing the Ocean.
- 10.5.2.2 From Kilifi substation, a 44 KM FOC will be installed towards Gede Substation which is approximately 43.84Km and thereafter extended to Malindi 33KV Substation. At Kilifi Substation, a 350m approach cable enclosed in a 320m HDPE duct will be installed facing Gede Substation. At Gede Substation, a 96 core OD ODF will be installed. Gede substation does not have a control building. At Malindi substation, one 48 core OD ODF, one 48 core ID ODF, a 200m approach cable and 20m PVC trunking will be installed.
- 10.5.2.3 From Makande Substation a FOC link will be installed towards KBL Mombasa which is 0.52 Km. At Makande Substation, One 48 core ID ODF and a 300m approach cable enclosed in a 250m HDPE duct will be installed. One 48 core OD ODF will be installed on a pole outside KBL Mombasa
- 10.5.2.4 At Rabai 400/220/132/33KV Substation, a 47.1 KM FOC will be installed to Diani Substation. A 9.9 KM FOC towards Likoni Substation will be installed from the Waa 33KV Junction (4° 9' 38.08"S, 39° 37' 5.66"E). At Likoni Substation, a 1.5 KM FOC will be installed towards Likoni Office. From Diani substation, a 3.73 KM FOC will be installed towards Ukunda KPLC Offices. Also, a 17.73 KM will be installed towards Kwale. From Kwale Office a 3.13 KM will be installed toward Kwale Repeater. The Total distance for these sections will be 83.1 KM. At Diani SS, one 96 core ID ODF will be installed facing Rabai and Ukunda Office. Also, one 48 core ID ODF will be installed facing Kwale. At Ukunda Office, one 48 core OD ODF, one 48 core ID ODF, a 150m approach cable and 15m PVC trunking will be installed. At Kwale, a 30m loop will be provided outside the Proposed Kwale Government Headquarters. At Kwale Repeater, one 48 core ID ODF will be installed.
- 10.5.2.5 From Voi 132/33 Substation, A FOC to Wundanyi will pass through Mwatate 33/11 Substation. The FOC will be installed on 28 KM of 33kv line between Voind Mwatate substation and 12.2 KM on 11KV between Mwatate and Wundanyi Office. This total length will be 40.6KM. At Voi Substation, one 48 cores ID ODF and 350m approach cable enclosed in a 320m HDPE duct will be installed. At Mwatate substation, one 96 core OD ODF will be installed. At Wundanyi Office, one 48 core ID ODF, one 48 core OD ODF, 150m approach cable and 10m PVC trunking will be installed.

10.6 Phase Three Lot 3

Lot 3 of phase three has 2 regions (North Rift and West Kenya), with an approximate distance of 488 Km of FOC.

10.6.1 North Rift Region

For this region there are proposed; 7 new fiber optical Cable FOCs. These FOCs cover an approximate distance, totaling to **253.6 Km**. The following are the FOCs;

- 10.6.1.1 From Rivatex (Eldoret 132/33KV) Substation to Eldoret Depot 33/11 Substation, 6.5Km FOC is to be installed. A 96 core ID ODF will be required at Rivatex and another 96 core ID ODF be installed at Eldoret Depot 33/11 Kv Substation. A 150m approach cable will be required at Eldoret depot with 2m 2x2" PVC trunking.
- 10.6.1.2 From Rivatex (Eldoret 132/33KV) Substation a fiber cable is to be established to Moi Barracks 33/11Kv Substation. This fiber Optical FOC cover a distance of 26Km. A 96 core ID ODF will be installed at Moi Barracks 33/11Kv Substation and Rivatex (Eldoret 132/33KV).
- 10.6.1.3 From Moi Barracks 33/11KV Substation, a fiber optic cable will be installed toward Kitale 33/11Kv Substation: approximately 56Km on the 33Kv line. A spur of 5 Km will be created at Kaplamai junction; (1°57.1'63N, 35°4.1'08E), heading to Kaplamai 33/11Kv Substation terminated in a 48core ID ODF. Two 96core ID ODF will be installed in Kitale 33/11Kv Substation. From Kitale 33/11KV station, a fiber cable will be installed toward Kitale Kenya Power Offices approximately 1.7Km. A 100m approach cable, one 48 core ID ODF, one 48 core OD ODF and 15meters PVC trunking will be required at KPLC office. For the three FOC coming to and from Kitale 33/11KV SS we will have three 80m approach cable totaling to 240m, three 40m HDPE duct totaling to 120m.
- 10.6.1.4 At Kitale 33/11 KV Substation on 33KV line a fiber cable is to be installed heading towards Kapenguria 33/11KV Substation. This FOC covers an approximate distance of 35Km. On this route at Mailisaba market, a spur will be established to Cherangany 33/11Kv Substation, approximately 0.3Km. At Kapenguria town, a spur will be created approximately 0.5Km to Kapenguria KPLC offices. A 48 core OD ODF will be installed at Cherangany' 33/11KV Substation. At Kapenguria KPLC offices, 48 cores ID and OD ODF's will be installed with 70m approach cable.
- 10.6.1.5 From Kapenguria 33/11Kv Substation, an FOC will be created toward Kapenguria RF site running on 33KV power line. This Fiber will cover approximately 10.2Km. A 48 core ID ODF will be installed at Kapenguria RF site. A 30m approach cable and 10m HDPE duct will be installed.
- 10.6.1.6 At Lessos Substation, a proposed FOC will be installed running on 33KV line to Kabarnet 33/11KV Substation, approximately 73.8Km. Along this route, the FOC will be terminated at Nyaru RF site before proceeding to Kabarnet. An extension of this FOC will be installed to Kabarnet Kenya power offices which is about 1.2km from the Kabarnet substation. 96 core ID ODFs will be installed at Lessos, Nyaru RF and at Kabarnet substation. At Kabarnet Kenya Power Offices, a 48 core ID and OD ODF's will be installed. At Nyaru Repeater Site two 150m Approach cable and 100m HDPE duct will be installed. At Lessos, 250m approach cable and 200m HDPE duct will be installed. At Kabarnet Substation, the incoming approach cable will be 50m while the outgoing will be 20m totaling to 70m. There will be a 50m HDPE duct at the substation. Lastly on the same FOC at Kabarnet Kenya Power Offices, 70m Approach cable will be installed with a 6m PVC conduit.
- 10.6.1.7 From Eldoret Depot Substation a proposed FOC is to be installed towards Iten 33/11Kv Substation, about 35Km. An additional FOC is to be installed to Iten KPLC Offices approximately 2.4Km from Iten Substation. A 48 core ID ODF

and a 48 core OD ODF will be installed at Iten KPLC Offices with 50m approach cable and 20m HDPE. At Iten Substation, a 96 core OD ODF will be installed.

10.6.2 West Kenya Region

There are 6 proposed new fiber optical cable routes to be installed. The approximate total distance is 233.75Km

- 10.6.2.1 Mamboleo 33/11Kv Substation fiber will be installed towards Kisumu East 33/11 KV Substation. This line will cover an approximately 8.5Km Running on 33/11KV Power line. From Kisumu East FOC is to be extended approximately 4.2Km to Kisumu Ehse. 96 core ID ODF will be installed at Mamboleo and Kisumu East Substation. A 48 core ID ODF and a 48 core OD ODF will be installed at Kisumu Ehse. Two 60m approach cable will be installed at Mamboleo totaling to 120m with 40m HDPE duct. At Kisumu East Substation, two 60m approach cable will be required totaling to 120m, two 50m HDPE duct totaling to 100m. Mamboleo, Kisumu East and Kisumu Ehse will require about 19m PVC trunking.
- 10.6.2.2 From Mamboleo 33/11KV again, FOC will be installed towards Maragoli Repeater Site. These lines will 33KV to Majengo and 11KV to the repeater site. The FOC is approximately 24Km. On its way to Maragoli, a spur will be but at Kiboswa Market toward Kiboswa Safaricom Center approximately 0.8Km. At Boyani a spur will be established to the new Majengo 33/11kv Substation approximately 0.5km. At Majengo Town where the FOC transits from the 33kv to the 11kv line, a spur will be created to Mbale Town approximately 5km along the 33kv line. At Maragoli Repeater site, 48 cores ID ODF, 30m approach cable, 20m HDPE duct and 2m PVC trunking will be required. On the other hand, at Kiboswa Safaricom Site, only a 48 core OD ODF will be installed. At Majengo 33/11KV Substation, one 48 core ID ODF, 100m approach cable, 80m HDPE duct and 15m PVC trunking will be installed. At Mbale Office, one 48 core ID ODF, one 48 core OD ODF, 50m approach cable and 15m PVC trunking will be installed.
- 10.6.2.3 At Sondu Miriu 132/33 KV Substation to Homabay 33/11KV substation, approximately 58.2Km FOC will be installed. The Fiber line will run on 33KV Power Line. A spur at Kendu Bay (683770.01mE, 9959216.45mS), on 33KV line will be installed towards Kendu Bay KPLC Offices, approximately 0.3Km from the 33KV line. Also in Homabay a spur will be installed from the 33KV line towards Homabay KPLC Offices, approximately 2.5Km. At Sondu Generation station, one 48 core ID ODF, 200m approach cable and 150m HDPE duct will be required, In Homabay 33/11KV Substation we will have 48 core ID ODF, 40m HDPE conduit, 70m approach cable and 3m 4X2 inch trunking. For the spurs; on the FOC, at Kendu bay 48 ID and OD ODF, 50m approach cable and 20m PVC trunking shall be installed. On the other hand, at Homabay KPLC offices, 48 cores ID and OD ODF, 70m approach cable and 2m PVC trunking will be required.
- 10.6.2.4 From Kegati 132/33KV Substation to Nyamira 33/11KV Substation; Fiber optical cable will cover approximately 28.8Km on 33KV power line. Another FOC will be established from Nyamira 33/11 KV Substation to Nyamira RF site which is approximately 6.8Km. A spur from Nyamira town will be installed towards Nyamira KPLC Offices which approximately 0.8 Km. In addition on

this FOC at Omogwa Primary School, a spur will be installed towards Ritongo Hills (343.8191, -0.6302), approximately 7Km. At Kegati Substation 200m HDPE, 96 core ID ODF, and 250m approach cable will be required. At Ritongo Hills a 48 core OD ODF will be installed. At Nyamira Substation, fiber optic loop will be put while at Nyamira RF site; 50m approach cable, 48 cores ID ODF, 20m HDPE and 2m PVC trunking will be installed. At Nyamira KPLC Offices, we will have 48 core ID and OD ODF, 4X2" suitable trunking, 50m approach cable and 4m 32mm PVC conduit

10.6.2.5 From Bungoma Kenya Power Offices an FOC will be installed towards Malakisi Substation through Sirisa on 33KV line, with an approximate distance of 45.05Km. This fiber cable will be extended to Malakisi KPLC Offices about 2 Km from the Substation. On the same FOC a 4.2Km spur will be installed towards Chwele. At Bungoma offices 48 core ID and OD ODF. In Chwele, only 48 core OD ODF will be installed. In Malakisi Substation, we will have 96 cores ID ODF, two 40m HDPE duct totaling to 80m and two 70m approach cable totaling to 140m. Lastly for this FOC, at Malakisi KPLC Offices, we will have 30m approach cable, and 4m PVC trunking.

10.6.2.6 An FOC will be installed from Mumias Substation to Mumias KPLC Offices approximately 4Km. An FOC from Mumias Substation will be installed to Rangala Substation, an approximate distance of 35Km. A 48core ID and OD ODF, 100m approach cable, and 20m PVC trunking will be installed at Mumias KPLC Offices. At Rangala Substation, a 48 core ID ODF, 50m approach cable and 3m PVC trunking will be installed.

10.7 Phase Three Lot 4

This LOT has only one region; Central Rift which FOCs covering an approximated distance of 347.85 Km.

10.7.1 Central Rift Region

This Region Has 9 Proposed New FOC's To Be Installed, With An Approximated Distance Of 347.85 Km.

10.7.1.1 A Fiber Optical Cable Route Is Proposed From Chemosit Substation Through Litein Substation, To Litein Junction (744695.62me, 9934780.03ms), On 33KV Line A Distance Of 12.9Km. At The Junction, Fiber Optical Cable Will Be Installed Towards Mogogosiek Substation; About 12.3Km, And Proceed Further To Terminate At Bomet Substation Which Is Approximately 31.4Km. A Spur Will Be Connected At Bomet Town To Bomet KPLC Offices Approximately 0.15Km.

A Second FOC From Litein Junction Will Be Installed Towards Sotik Substation 23Km, Then Proceed To Matutu Substation Which Is Approximately 5.2Km.

At Sotik Town, A Spur Of 0.9Km Will Be Established To Sotik KPLC Offices. At Chemosit Substation, We Will Have; 48 Core ID ODF, 30m HDPE, 50m Approach Cable And 2mpvc Trunking. At Litein Substation, Only A Loop Will Be Provisioned At The Substation. At Mogogosiek Substation The Following Will Be Installed; Two 70m Approach Cable Totaling To 140, Two 50m HDPE Duct And A 96 Core ID ODF. Bomet KPLC Office Will Have The Following Installed ; 48 Core ID And OD ODF's, 35m Approach Cable And 20m PVC Trunking. Bomet Substation Will Have; 110m Approach Cable, 90m HDPE, 2m

PVC Trunking And 48 Core ID ODF. At Sotik Substation The Following Will Be Installed; 96 Cores ID ODF, Two 40m Approach Cable Totaling To 80m, Two 10m HDPE Totaling To 20m And 5m PVC Trunking. At Matutu Substation The Following Will Be Installed; 100m Approach Cable, 48 Core ID ODF, 70m HDPE Conduit, And 2m Of PVC Conduit. At Sotik KPLC Office We Will Have The Following; ID And OD ODF's, 100m Approach Cable And 15m PVC Trunking.

- 10.7.1.2 At Makutano 132/33Kv Substation Anfoc Will Run Towards Eldama Ravine Kenya Power Offices. A Distance Of 19Km, On 33KV Power Line. At Makutano Substation, We Will Have 96 Cores ID ODF, 150m Approach Cable And 120mhdpe Duct While In Eldama Ravine KPLC Offices, The Following Will Be Installed; 48 Cores ID And OD ODF's, 150m Approach Cable, 100m HDPE Duct And 15m PVC Trunking.
- 10.7.1.3 From Molo Kenya Power Offices, A Fiber Optical Cable Will Be Installed Towards Londiani RF Site, Approximately 24Km On 11 KV Lines. At Molo KPLC Offices The Following Will Be Installed; A 96 Core ID And OD ODF. At Londiani RF Site; 48 Cores ID ODF And 30m Approach Cable Will Be Installed.
- 10.7.1.4 A Second Focfrom Molo KPLC Office Will Be Installed Toward Elburgon Substation Running On 11KV Line With Approximatedistance 14.5Km. From Elburgon Substation Will Extend To Rongai Substation Approximately 13Km. It Will Further Be Installed From Rongai Substation To Soilo Substation Approximately 25Km. At Elburgon Substation The Following Will Be Required; 96 Core ID ODF, 100m And 50m Approach Cable Totaling To 150m And 100m HDPE Conduit. At Rongai Substation; A 96 Core ID ODF, Two 50m Approach Cable Totaling To 100m And 20m HDPE Duct Will Be Required. At Soilo Substation, A 96 Core ID ODF, 150m Approach Cable And 150m HDPE Duct Will Be Required.
- 10.7.1.5 From Naivasha (Suswa) 132/33 Substation, To Kihoto 33/11 Substation 9.6Km FOC Will Run On 11KV Power Line. Suswa Substation Will Require; 96 Core ID ODF And 120m Approach Cable. For Kihoto Substation; Two 50m Approach Cable And 50m HDPE Duct Will Be Installed.
- 10.7.1.6 At Kihoto 33/11Kv Substation Another FOC Will Be Established Towards Naivasha Kenya Power Offices. This FOC Will Cover Approximately 4.3Km On 11 KV.48core OD ODF ,48 Core ID ODF's And 50m Approach Cable Will Be Installed.
- 10.7.1.7 From Nakuru Depot Fiber Optical Cable Is To Be Installed Towards Menengai Hill Safaricom Site. This FOC Runs On 33KV Line And Is Approximately 7.5Km. A 96 Core OD ODF And A 48 Core OD ODF Will Be Installed At Menengai Safaricom Site.
- 10.7.1.8 From Gilgil Kenya Power Office To Olkalau 33/11Kv Substation, A FOC Approximate Distance Of 34Km Will Be Installed. From Olkalau33/11 Kv Substation, The FOC Will Be Extended To Nyahururu Substation Approximately 38Km With A Spur At Ol Kalau Kenya Power Office. The Focstrung To Nyahururu KPLC Office About 3Km From Nyahururu33/11Kv Substation. Gilgil KPLC Office Will Have; 48 Core ID And OD ODF And 50m Approach Cable. In Ol Kalau Substation; 150m Approach Cable And 96 Core ID ODF. For Olkalau KPLC Offices; A 48 Core OD And OD ODF With 100m Approach Cable Will Be Installed. At Nyahururu 33/11 Kv Substation, Two 50m Approach Cable Totaling To 100m And 96 Cores ID ODF Will Be

Installed. At Nyahururu KPLC Offices, 48 Cores ID And OD ODF's, 100m Approach Cable And 15m PVC Trunking Will Be Installed.

10.7.1.9 From Olkaria1 An FOC Will Be Installed To Narok Substation On 33KV Line. This FOC Is Approximately 70 Km. At Narok Substation, A 96 Core OD ODF Will Be Installed. A 48 Core ID ODF, 50m Approach Cable And 15m PVC Trunking Will Be Installed At Narok KPLC Office. At Olkaria1 Fiber Cable Will Be Spliced With The OPGW.

10.10. Phase Three Tabulated Summary, of Approximate FOC Distance

This is a tabulated summary of approximation distance flowing respective power lines for the regions

Distance to be covered in phase Three for LOT 1, LOT 2, LOT 3 and LOT 4.

10.10.1 LOT 1 (Nairobi north, Nairobi South and Mt. Kenya)

REGION	ORIGIN	DESTINATION	APPROXIMATE DISTANCE (KM)					
			132 kV Line	66kV Line	33 kV Line	11 kV Line	LV Line	Total
NAIROBI NORTH								
	Ruaraka S/St	Ridgeways S/st		9				9
	Ridgeways S/st	Kiambu Office				8.5	0.49	8.9
	Ridgeways SS	Kitsuru		10.5				10.5
	Kitsuru	Gigiri		5.9				6
	Gigiri	UNEP				1.1		1.1
	Allsops Tee Off	Baba Dogo SS		7.3				7.3
	Baba Dogo SS	Baba Dogo Office				1.6		1.6
	Uhuru Gardens 252784.64m E, 9854013.37 m S	Ongata Rongai Offices		10				10
	Matasia SS	Ongata Rongai Offices		4				4.1
	Bomas Tee Off	Langata Rd SS				1.7		1.7
NAIROBI SOUTH								
	Nairobi South	NSSF S/st		0.5		2.5		3

	Emali Office	Wote Offices			41.6		0.4	42
	Tala SS	Tala Offices				5.5	0.6	6.1
	Kiboko SS	Kibwezi Offices			37		0.1	37.1
MT. KENYA								
	New Kutus SS	Old Kutus SS			7.9			7.9
	Old Kutus SS	Kerugoya SS			8.6			8.6
	Kerugoya SS	Kerugoya Depot				1.6		1.6
	Kerugoya Depot	Kerugoya Office				2.3		2.3
	Old Kutus SS	Sagana SS			17.1			17.1
	Sagana SS	Murang'a 33/11 SS			11.2			11.2
	Embu 33/11 SS	Kyeni SS				25.3		25.2
	Kyeni SS	Chuka kplc Offices				11.7		11.7
	Nyeri SS/ Ruringu	Othaya SS			14.2			14.2
	Othaya SS	Othaya Offices				1.5	0.6	2.1
	Maura,- 0.45232, 37.045186	Karatina Substation & KPLC Offices			10.1			10.1
	Nyeri Stima HSE	Nyeri Golf Course				1.52		1.6
	Meru Substation	Meru Timber				1		1
LOT TOTAL	1		0	47.2	147.7	65.82	2.19	263

10.10.2 LOT2 (North Eastern, Coast)

REGION	ORIGIN	DESTINATION	APPROXIMATE DISTANCE (KM)					
			132 kV Line	66kV Line	33 kV Line	11 kV Line	LV Line	Total
NORTH EASTERN								
	Cianda SS	Githunguri KPLC Offices				13.2	0.5	13.7
	Mwingi 132 Kv	Mwingi office			3.2			3.2

	Ruiru 66/33/11 S/S	Mangu 132/66 S/S		23.5				23.5
	220KV N-KU2-135 Tower	ODS				15.3		15.3
COAST								
	Kanamai 33/11	Kilifi			41.4			41.4
	Makande Substation	KBL Mombasa				0.52		0.52
	Rabai	Kwale Kplc Offices, Kwale Repeater, Likoni, Ukunda Via Diani.				83.1		83.1
	Voi	Wundanyi Through Mwatate			28.24	12.27		40.6
	Kilifi Substation	Gede Substation			43.84			44
	Gede Substation	Malindi Substation			15.5			15.5
LOT2 TOTAL								280.82

10.10.3 LOT3 (North Rift, West Kenya)

REGION	ORIGIN	DESTINATION	APPROXIMATE DISTANCE (KM)					
			132 kV Line	66kV Line	33 kV Line	11 kV Line	LV line	Total
NORTH RIFT								
	Rivatex(Edoret 132/33) S/S	Eldoret Depot 33/11 S/S			6.5			6.5
	Rivatex(Edoret 132/33) S/S	Moi Barracks 33/11 S/S			26			26
	Moi Barracks 33/11 S/S	Kitale 33/11 S/S			56			56
	Spur at Kaplamai Junction 1o57.163N, 35o4' 108E.	Kaplamai 33/11 S/S			5			5
	Kitale Depot 33/11S/S	Kitale KPLC Offices			2			1.7
	Kitale Depot 33/11S/S	Kapenguria 33/11 S/S			35			35
	Spur at Mailisaba	Cherangany 33/11 S/S			0.3			0.3
	Spur at Kapenguria town	Kapenguria KPLC Offices				0.5		0.5
	Kapenguria 33/11 S/S	Kapenguria RF site				10.2		10.2

	Lessos Substation	Kabarnet Substation			73.8			73.8
	KabarnetSubstaion	Kabarnet KPLC Offices				1.2		1.2
	Eldoret Depot33/11 SS	Iten33/11 SS				35		35
	Iten33/11 SS	Iten KPLC Offices				2.4		2.4
WEST KENYA								
	Mamboleo 33/11 SS	Kisumu East 33/11 SS			8.5			8.5
	Kisumu East 33/11 SS	Kisumu E/Hse				4.2		4.2
	Mamboleo33/11 SS	Maragoli Repeater			17.02	6.98		24
	Spur at Kiboswa	KiboswaSafricom			0.8			0.8
	Spur at Boyani	Majengo 33/11 Substation			0.5			0.5
	Spur at Majengo	Mbale KPLC Office			5			5
	Sondu 132/33 SS	Homabay 33/11 SS			58.2			58.2
	Kendu Bay 683770.01mE, 9959216.45mS	Kendu Bay Offices				0.3		0.3
	Spur	Homabay Offices				2.5		2.5
	Kegati Substation	Nyamira Substation			28.8	2		28.8
	Nyamira Substation	Nyamira Substation				6.8		6.8
	Spur to	Nyamira Offices				0.8		0.8
	Tombe -0.657659, 34.857963	Ritongo Hills			7			7
	Bungoma KPLC offices	Malakisi SS				45.05		45.05
	Spur to	Chwele				4.2		4.2
	Mumias	Rangala			32			35
LOT 3 TOTAL								481.85

10.10.4 LOT4 (Central Rift)

REGION	ORIGIN	DESTINATION	APPROXIMATE DISTANCE (KM)					Total
			132 kV Line	66kV Line	33 kV Line	11 kV Line	LV line	
CENTRAL RIFT								
	Chemosit SS	Liteinspur junction			12.9			12.9

		744695.62mE, 9934780.03mS						
	Litein spur junction 744695.62mE, 9934780.03mS	Sotik SS			23			23
	Sotik 33/11 SS	Matutu 33/11 SS			5.2			5.2
	Sotik Spur	Sotik KPLC Officess				4.4		0.9
	Litein spur Junction 744695.62mE, 9934780.03mS	Mogogosiek 33/11 SS			12.3			12.3
	Mogogosiek 33/11 SS	Bomet SS			31.4			31.4
	Bomet Spur to	Bomet KPLC Offices						0.15
	Makutano 132/33 SS	Ravine Offices				19		19
	Molo KPLC Offices	Londiani RF Site				24		24
	Naivasha(Suswa) 132/33 SS	Kihoto 33/11 SS				9.6		9.6
	Kihoto 33/11 SS	Naivasha Office				3.35	0.5	4.3
	Nakuru Depot	Menengai Hills Safaricom				7.5		7.5
	NAKURU WEST (Soilo) SS	Rongai SS			25			25
	Rongai SS	Elburgon SS			13			13
	Elburgon SS	Molo KPLC Offices			14.5			14.5
	Gilgil office	Olkalau SS				34		34
	Olkalau SS	Nyahururu SS				38		38
	Spur to	Olkalau SS				0.1		0.1
	Nyahururu SS	Nyahururu KPLC Offices				3		3
	Olkaria 1	Narok SS				70		70
LOT 4 TOTAL								347.85

10.12 Route Survey

Prior to the submission of the bids, bidders shall be required to visit the routes accompanied by KPLC staff to ascertain the requirements for the various links. During this survey a pole count and a sketch for the cable installation shall be carried out. This sketch shall indicate the locations of splice boxes and the approximate distances between them. The poles shall also be assessed for their ability to support the cable. The most effective method of installation shall be determined at this stage. Any need for modification shall also be determined at this stage. A report on this shall be an indication on how the bidder intends to carry out the installation works and shall form part of the bidding documents. Suitable drum lengths shall also be determined at this stage subject to a minimum drum length of Three (3) KM to reduce the number of joints preferably at section poles. KPLC shall assess the report and carry out modifications where necessary.

A program for the site visits shall be drawn and communicated to the bidders during the pre-bid meeting.

Bidders should note that some points are inaccessible by vehicle and might be required to walk for long distances.

10.13 Installation of Aerial Fibre Cable

- 10.13.9 Fiber optical cable should not be installed in the transformer recovery side. Transformer extension arm should be used while by passing transformer and Air break switches.
- 10.13.10 Fiber Optical cable should not be exposed while in substation or any premises. There should be proper conducting. HDPE conduit will be used when the cable is passing underground path and PVC trunking to be used inside buildings. Where FOC cable is path is on the floor, suitable trunking shall be used. All trenching should be 1.2M unless otherwise stated
- 10.13.11 The Specified minimum span of FOC cable is 150M, in areas where spans exceed 150M tenderers should show design that they intend to use. Where FOC is crossing valleys and bridges a suitable supportive messenger cable should be used. In all such cases, for instance where metallic curtinary wire is used, proper ground should be done. NOTE: Figure 8 FOC cable should NOT be used.
- 10.13.12 Whenever steel poles are used suitable clamps should be employed to avoid chemical reaction.

10.14 Typical Installation Methods

This is the recommended sample of universal clamp that shall be used on both wooden and concrete poles.



Figure Error! No text of specified style in document.-1 Tangent

10.16 Optic Fibre Approach Cable (OFAC)

The same is amended and glass yarn shall be used to prevent rodent attack.

The fibre optic approach cable shall have a minimum outer jacket thickness of 2.0 millimeters and shall meet the following requirements.

- iv. All other requirements will be same as ADSS Fiber's.

10.17.2 Optical Distribution Frames (ODFs)

10.18 Table of ODF, Approach cable and Duct need for respective regions

10.18.1 Phase Three LOT 1

Table: A List of ODF required for Phase Three; LOT 1.

REGION	LOCATION	OUTDOOR ODF		INDOOR ODF		Cable	Conduit	
		48 cores capacity	96 cores capacity	48 cores capacity	96 cores capacity	Approach Cable (m)	HDPE (m)	PVC (m)
NAIROBI NORTH								
	Ruaraka S/St	0	0	1	0	100	80	0
	Ridgeways S/st			1	1	400	360	0
	Kiambu Office	1	0	1	0	170	0	15
	Kitsuru	0	0	0	1	100	80	0
	Gigiri				1	100	80	0
	UNEP	1	0	0	0	0	0	0
	Matasia Substation	0	0	0	1	200	180	0
	Ongata Rongai Office	1	0	1	0	150	0	15
	Langata S/s			1		300	280	
NAIROBI SOUTH								
	Nairobi South	0	0	1	0	500	480	0
	NSSF S/st	0	0	1	0	200	180	0
	Emali Office	1	0	1	0	150	0	20
	Wote Offices	1	0	1	0	200	0	20
	Tala Offices	1	0	1	0	100	0	20
	Tala s/s		0	1	0	150	130	00
	Kibwezi Office	1	0	1	0	150	0	15
MT. KENYA								
	New Kutus	0	0	1	0	250	230	0
	Old Kutus	0	2	0	0	0	0	0
	Kerugoya s/s	0	0	0	1	200	180	0
	Kerugoya Depot	0	0	1	0	100	0	0
	Kerugoya Office	0	0	1	0	100	0	20
	Sagana S/st	0	2	0	0	0	00	0
	Murang'a s/s	0	0	1	0	200	180	0
	Embu S/S	0	0	1	0	200	180	0
	Kyeni Substation	0	0	0	1	100	80	0
	Chuka KPLC Offices	1	0	1	0	100	0	20
	Othaya Substation	0	0	0	1	100	80	0
	Othaya Offices	1	0	1	0	150	0	20
	Karatina Substation	1	0	1	0	100	80	0
	NyeriStima HSE	0	0	1	0	100	0	20
	Nyeri Golf Course	1	0	0	0	0	0	0
	Meru Substation	0	0	1	0	100	80	0
	Meru Timber	1	0	0	0	0	0	0

10.18.1 Phase Three LOT 2

REGION	LOCATION	OUTDOOR ODF		INDOOR ODF		Cable	Conduit	
		48 cores capacity	96 cores capacity	48 cores capacity	96 cores capacity	Approach Cable (m)	HDPE (m)	PVC (m)
NORTH EASTERN								
	Mwingi 132/33	0	0	1	0	150	130	0
	Mwingi KPLC Office	1	0	1	0	100	0	20
	Cianda SS	1	0	0	0	150	130	0
	Githunguri KPLC Office	1	0	1	0	150	0	20
	Ruiru 66/33/11 S/s	0	0	1	0	200	180	0
	Mangu S/S 132/66	0	0	1	0	200	180	0
	ODS	0	0	1	0	100	100	0
	Muka Mukuu	0	0	0	1	200	160	0
COAST								
	Kanamai 33/11 Substation	0	0	1	0	100	80	0
	Kikambala 33/11 Substation	0	0	0	1	400	360	0
	Kilifi	0	0		0	700	640	0
	Makande Substation	0	0	1	0	300	250	0
	KBL Mombasa	1	0	0	0	0	0	0
	Voi	0	0	1	0	350	320	0
	Mwatate	0	0	0	1	0	0	0
	Wundanyi	1	0	1	0	150	0	10
	Rabai	1	0	0	0	500	450	0
	Waa	0	1	0	0		0	0
	Likoni SS	0	0	1	0	200	160	0
	Likoni Office	1	0	0	0	200	0	20
	Diani SS	0	0	0	1	600	540	
	Ukunda Office	1	0	1	0	150	0	20
	Kwale Repeater	0	0	1	0	150	0	0
	Gede SS	0	1	0	0	0	0	0
	Malindi SS	1	0	1	0	200	0	20

10.18.1 Phase Three LOT 3

Table Error! No text of specified style in document.-AList of ODF required for Phase Three; LOT 3.

REGION	LOCATION	OUTDOOR ODF		INDOOR ODF		Cable	Conduit	
		48 cores capacity	96 cores capacity	48 core capacity	96 cores capacity	Approach Cable (m)	HDP E	PVC
NORTH RIFT								
	Rivatex(Eldoret 132/33) S/S	0	0	0	1	300	200	2.4

REGION	LOCATION	OUTDOOR ODF		INDOOR ODF		Cable	Conduit	
		48 cores capacity	96 cores capacity	48 core capacity	96 cores capacity	Approach Cable (m)	HDP E	PVC
	Eldoret Depot 33/11 S/S	0	0	0	2	300	0	2.4
	Moi Barracks 33/11 Substation	0	1	0	0	0	0	0
	Kaplamai Substation	0	0	1	0	50	30	2.4
	Kitale 33/11 Substation	0	0	0	2	240	120	15
	Kitale KPLC Offices	1	0	1	0	100	0	15
	Cherangany' 33/11 Substation	1	0	0	0	0	0	0
	Kapenguria 33/11 Substation	0	1	0	0	0	0	0
	Kapenguria KPLC Offices	1	0	1	0	70	0	15
	Kapenguria RF Site	0	0	1	0	30	10	2.4
	Kabarnet Substation	0	1	0	0	70	50	0
	Nyaru Repeater	0	0	0	1	150	100	0
	Lessos Substation	0	0	0	1	250	100	0
	Kabarnet KPLC Offices	1	0	1	0	70	0	6
	Iten 33/11 Substation	0	1	0	0	0	0	0
	Iten KPLC Offices	1	0	1	0	50	20	0
WEST KENYA								
	Mamboleo 33/11 SS	0	0	0	1	120	40	0
	Kisumu East 33/11 SS	0	0	0	1	120	100	4
	Kisumu E/Hse	1	0	1	0	15	0	2
	Maragoli Repeater	0	0	1	0	30	20	2
	Kiboswa	1	0	0	0	0	0	0
	Majengo 33/11 Substation	0	0	1	0	1000	80	15
	Mbale KPLC offices	1	0	1	0	50	0	20
	Sondu 132/33 Substation	0	0	1	0	200	150	0
	Homabay 33/11 Substation	1	0	0	0	70	40	0
	Kendu Bay Offices	1	0	1	0	50	0	20
	Homabay Offices	1	0	1	0	70	0	2
	Kegati Substation	0	0	0	1	250	200	0
	Nyamira Substation	0	0	0	0	0	0	0
	Nyamira KPLC Offices	1	0	1	0	50	0	4

REGION	LOCATION	OUTDOOR ODF		INDOOR ODF		Cable	Conduit	
		48 cores capacity	96 cores capacity	48 core capacity	96 cores capacity	Approach Cable (m)	HDP E	PVC
	Nyamira RF Site	0	0	1	0	50	20	2
	Ritongo Hills	1	0	0	0	0	0	0
	Bungoma KPLC Offices	1	0	1	0	15	0	0
	Malakisi Substation	0	0	0	1	140	80	0
	Malakisi KPLC Offices	1	0	1	0	30	0	20
	Chwele	0	0	1	0	0	0	0
	Mumias Substation	0	1	0	0	0	0	0
	Mumias Offices	1	0	1	0	100	0	20
	Rangala Substation	0	0	1	0	50	0	
Total								

10.18.4 Phase Three LOT 4

Table Error! No text of specified style in document.-A List of ODF required for Phase Three; LOT 4.

REGION	LOCATION	OUTDOOR ODF		INDOOR ODF			conduit	
		48 cores capacity	96 cores capacity	48 cores capacity	96 cores capacity	Approach cable(m)	HDPE(m)	PVC
CENTRAL RIFT								
	Chemosit Substation	0	0	1	0	50	30	2
	Litein Substation	0	0	0	0	0	0	0
	Bomet Substation	0	0	1	0	110	90	2
	Sotiks Substation	0	0	0	1	80	20	5
	Sotik KPLC Offices	1	0	1	0	100	0	15
	Matutu Substation	0	0	1	0	100	70	2
	Mogogosiek Substation	0	0	0	1	140	100	0
	Bomet Substation	0	0	1	0	110	90	2
	Bomet KPLC Offices	1	0	1	0	35	0	20
	Makutano Substation	0	0	0	1	150	120	0
	Eldama Ravine KPLC Offices	1	0	1	0	150	0	15
	Molo KPLC Offices	0	1	0	1	30	0	0
	Londiani RF Site	0	0	1	0	30	0	0
	Elburgon Substation	0	0	0	1	150	100	0

REGION	LOCATION	OUTDOOR ODF		INDOOR ODF		Approach cable(m)	conduit	
		48 cores capacity	96 cores capacity	48 cores capacity	96 cores capacity		HDPE(m)	PVC
	Rongai Substation	0	0	0	1	100	40	0
	Soilo Substation	0	0	0	1	150	150	0
	Naivasha (Suswa) 132 Substation	0	0	0	1	120	120	0
	Kihoto Substation	0	0	0	1	100	50	0
	Naivasha KPLC Office	1	0	1	0	100	0	15
	Menengai Hill RF Site	1						
	Gilgil KPLC Offices	1	0	1	0	50	0	0
	Olkalau Substation	0	0	0	1	150	0	0
	Olkalau KPLC Offices	1	0	1	0	50	0	15
	Nyahururu Substation	0	0	0	1	100	60	0
	Nyahururu KPLC Offices	1	0	1	0	100	0	15
	Olkaria 1	0	0	0	0	0	0	0
	Narok Substation	0	1	0	0	0	0	0
	Narok KPLC Offices	0	0	1	0	50	0	15
Total								

10.19.2 Mechanical and Environmental specifications for 48 core SM (9/125) ADSS fiber optic cable

Item (19) wind speed shall as per the recommended ADSS cables installation standards

Item (20) Approach cable jacket should be PE

10.21 TECHNICAL SPECIFICATIONS FOR THE TOOLS CLAUSES, 10.21.3

- a) Bidders are required to note that the specifications for the fault locator have been clarified as follows: Optical Power Meter and Optical Light Source have been added.

10.21.3 Fault Locator

b) OTDR

The fault locator shall be an easy to use device of portable construction. It shall be of high performance in optical fiber troubleshooting functionalities with capability of locating fiber breaks and high loss events over long distances. It should be able to detect the fiber break location and display the results on a high resolution touchscreen LCD screen. Table Error! No text of specified style in document.-B below gives the minimum requirements for the desired Fault Locator

Table Error! No text of specified style in document.-B Minimum requirements for Fault Locator

S/No.	ITEM DESCRIPTION	MINIMUM REQUIREMENT	TENDERS OFFER
1.	Fiber Type	9/125 μ m Single Mode	
2.	Wavelength	1310 \pm 20, 1550 \pm 20nm	
3.	Emitter Type	LD	
4.	Connector Type	SC	
5.	Display	Touchscreen LCD	
6.	Display Units	Kilometers, meters	
7.	Pulse Width (ns)	(auto-switch) 10ns to 20us	
8.	Dynamic Range	40dB	
9.	Distance Measurement Range (km)	0.5/2/5/10/20/40/80/140/260 (variable)	
10.	Distance Accuracy	+/- (0.8m + 0.001% x Distance)	
11.	Data Storage	999 measurements	
12.	Event Dead Zone	1m previous 3m	
13.	Attenuation Dead Zone	3m	
14.	Power Supply	AC/DC 100-240V, 50-60Hz adapter & Rechargeable (NiHM or Lithium ion) Batteries	
15.	Battery Life	15,000 uses	
16.	Operation Time	8hrs	
17.	Operating Temp.	0°C to 55°C	
18.	Storage Temp	0°C to 60°C	
19.	Humidity	<85% (non-condensing)	
20.	I/O Interfaces	USB and RJ-45 Ethernet	
21.	Net Weight	< 4kg with standard modules/options	

c) Optical Power Meter

The Optical Power Meter (OPM) shall be of compact and rugged design to easily, quickly and conveniently measure optical power level and loss in fiber networks in the field. The OPM shall be compatible with the Optical Light Source specified in this document. -C below shows the minimum requirements for the Optical Power Meter

Table Error! No text of specified style in document.-C Minimum requirements for Fault Locator

S/No.	ITEM DESCRIPTION	MINIMUM REQUIREMENT	TENDERS OFFER
1.	Calibrated Wavelengths (nm)	850,1310, 1550	
2.	Power Range (dBm)	+10 to - 55	
3.	Connector Type	Universal Push/Pull (UPP) 2.5mm/1.25mm	
4.	Power Measurement Linearity	\pm 0.1dB	

5.	Power Measurement Uncertainty	±0.3dB	
6.	Display Resolution, dB,	0.01	
7.	Display Range	+10 to – 60dBm	
8.	Display Type	Graphical Display with switchable backlight	
9.	Measurement Units	dB/dB/mW	
10.	Auto Wavelength Mode	Yes	
11.	Tone Detection	270Hz/ 1kHz/ 2kHz	
12.	Record Storage	1000 records	
13.	External Interface	USB	
14.	Power Supply	Rechargeable NiMH Batteries, Integrated Battery Charging Function via USB or separate AC adaptor	
15.	Operating Temperature	0 to 50° C	
16.	Storage Temperature	0 to 60° C	
17.	Weight	< 500g	

d) Optical Light Source

The optical light source (OLS) shall be used primarily on single mode fiber but shall provide option for use on multimode fiber. The OLS shall feature capability for use with different standard connector types the construction shall be rugged and compact for portability and use in extreme environment. The OLS must be compatible with the Optical Power Meter (OPM) specified in this document. **Table D** below shows the minimum requirements for the Optical Light Source.

Table:-D Minimum requirements for Fault Locator

S/No.	ITEM DESCRIPTION	MINIMUM REQUIREMENT	TENDERS OFFER
1.	Source Type	LED/Laser	
2.	Fiber Type	MM 50/125µm, SM 9/125 µm	
3.	Optical Interface	PC Dual Port: One for SM and one for MM	
4.	Connector Type	Interchangeable LC,FC, SC adaptors included	
5.	Wavelengths	850±20/ 1310±20/ ,1550±20	
6.	Spectral Width	<170nm for MM / <5nm for SM	
7.	Output Power	0dBm	
8.	Short Term Stability (15 min)	±0.05dB	
9.	Long Term Stability (8hrs)	±0.2dB	
10.	Tone Generation	270Hz/ 1kHz/ 2kHz	
11.	Auto Wavelength Mode	Yes	
12.	Continuous Wave Mode	Yes	
13.	Display	Graphical Display with switchable	

		backlight	
14.	Power Supply	Rechargeable NiMH Batteries, AC operation via 100-240v/ 50-60Hz adaptor, Intergrated battery charging function via AC Adaptor or USB	
15.	Battery Operating Time	> 30hrs Typical	
16.	Automatic Power Off	5, 10, 20, 30, 60 minutes – User Selectable	
17.	External Interface	USB	
18.	Operating Temprature	0 to 50° C	
19.	Storage Tempreture	0 to 60° C	
20.	Weight	< 500g	

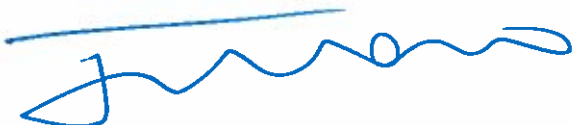
4. ELLIGIBLE TENDERERS

Clause 3.2.1 – The clause has been amended to read “ This Invitation to Tender is open to all Tenderers eligible as described in the **Appendix to Instructions to Tenderers. Successful Tenderers shall supply the goods in accordance with this tender and the ensuing contract.**

Bidders should note that the statement that *“a manufacturer can quote directly OR authorize only ONE Agent or only ONE Supplier to quote products from their factory. Besides the manufacturer’s bid OR authorized agent/suppliers bid, no other bid shall be considered from the same manufacturer”* has been *Deleted*.

5. TENDER CLOSING DATE

The tender closing date has been extended so to close on **21st May, 2015 at 10.00 am**. All the other terms and conditions remain as per the tender document.



ENG. JOHN OMBUI
GENERAL MANAGER, SUPPLY CHAIN



