

### **APPENDIX 3**

#### **TENDER NO.KP1/9A.2/OT/043/SS/24-25 FOR PROPOSED SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF CCTV IN MAJOR STORES AND KEY OFFICES**

##### **SECTION VI – SPECIFICATIONS & BILLS OF QUANTITIES SECTION VI (A) – SCHEDULE OF REQUIREMENT**

<b>SUMMARY OF LOTS</b>	
<b>LOT</b>	<b>STATION/DESCRIPTION</b>
LOT 1	Installation of CCTV Major Stores & Offices Lot 1: Nairobi Region
LOT 2	Installation of CCTV Major Stores & Offices Lot 2: Western Kenya Region
LOT 3	Installation of CCTV Major Stores & Offices Lot 3: Central And North Rift Region
LOT 4	Installation of CCTV Major Stores & Offices Lot 4: Mt. Kenya And North Eastern Region
LOT 5	Installation of CCTV Major Stores & Offices Lot 5: Coast Region
LOT 6	Installation of IP-CCTV & Biometric Access Control System & Accessories for IESR and Live-line

<b>LOT 1: INSTALLATION OF CCTV MAJOR STORES &amp; OFFICES</b>			
<b>LOT 1: NAIROBI REGION</b>			
<b>NO</b>	<b>Station/Description</b>	<b>Systems</b>	<b>Location</b>
1	Ngong road substation (NRB)	IP-CCTV & Access control	Nairobi
2	Roysambu Depot	IP-CCTV & Access control	Nairobi
3	Limuru Depot	IP-CCTV & Access control	Limuru
4	Kenyatta University Substation	IP-CCTV & Access control	Juja
5	Rironi Substation	IP-CCTV & Access control	Rironi
6	Machakos Office	IP-CCTV & Access control	Machakos

<b>LOT 2: INSTALLATION OF CCTV MAJOR STORES &amp; OFFICES</b>			
<b>LOT 2: WESTERN KENYA REGION</b>			
<b>NO</b>	<b>Station/Description</b>	<b>Systems</b>	<b>Location</b>
1	Migori Stores	IP-CCTV & Access control	Migori
2	Nyamira Substation	IP-CCTV & Access control	Nyamira
3	Kakamega Substation	IP-CCTV & Access control	Kakamega
4	Karume Transport Workshop	IP-CCTV & Access control	Karume
5	Bomet Stores	IP-CCTV & Access control	Bomet

<b>LOT 3: INSTALLATION OF CCTV MAJOR STORES &amp; OFFICES</b>			
<b>LOT 3: CENTRAL AND NORTH RIFT REGION</b>			
<b>NO</b>	<b>Station/Description</b>	<b>Systems</b>	<b>Location</b>
1	Soilo Substation	IP-CCTV & Access control	Soilo
2	Maralal Stores	IP-CCTV & Access control	Maralal
3	Naivasha Office	IP-CCTV & Access control	Naivasha
4	Eldoret Depot	IP-CCTV & Access control	Eldoret

<b>LOT 4: INSTALLATION OF CCTV MAJOR STORES &amp; OFFICES</b>			
<b>LOT 4: MT. KENYA &amp; NORTHEASTERN REGION</b>			
<b>NO</b>	<b>Station/Description</b>	<b>Systems</b>	<b>Location</b>
1	Kinoru Stores/ Substation	IP-CCTV & Access control	Kinoru
2	Makuyu Stores	IP-CCTV & Access control	Makuyu
3	Murang'a Stores	IP-CCTV & Access control	Murang'a
4	Thika Office/ Depot	IP-CCTV & Access control	Thika
5	Marsabit office and stores	IP-CCTV & Access control	Murang'a
6	Moyale office and stores	IP-CCTV & Access control	Moyale
7	White sisters stores (Thika)	IP-CCTV & Access control	Thika

<b>LOT 5: INSTALLATION OF CCTV MAJOR STORES &amp; OFFICES</b>			
<b>LOT 5: COAST REGION</b>			
<b>NO</b>	<b>Station/Description</b>	<b>Systems</b>	<b>Location</b>
1	Kipevu Substation	IP-CCTV & Access control	Mombasa
2	Likoni Substation	IP-CCTV & Access control	Mombasa
3	Voi Stores/ Depot	IP-CCTV & Access control	Voi
4	Malindi Depot	IP-CCTV & Access control	Malindi
5	Wundanyi office and store	IP-CCTV & Access control	Wundanyi
6	Horohoro	IP-CCTV & Access control	Horohoro

<b>LOT 6: INSTALLATION OF IP-CCTV &amp; BIOMETRIC ACCESS CONTROL SYSTEM &amp; ACCESSORIES FOR IESR AND LIVELINE</b>									
<b>No.</b>	<b>Coverage area</b>	<b>180 Degrees Cameras</b>	<b>PTZ</b>	<b>Dome</b>	<b>Bullet</b>	<b>ACS Doors</b>	<b>Poles</b>	<b>Full Height Speed gates</b>	<b>Full height Turnstile</b>
1	External Cameras	4	3	2	7	0	5	0	1
2.	Security Office	0	0	1	2	1	0	0	0
3.	Classes	0	0	0	2	0	0	0	0
4.	Admin Block	0	0	3	0	0	0	0	0
5.	Kitchen	0	0	0	3	1	0	0	0
6.	Dispensary	0	0	0	0	0	0	0	0
7.	Registry	0	0	1	0	1	0	0	0
8.	Library Building	0	0	6	2	1	0	1	0
9.	Assembly Hall	0	0	1	0	0	0	0	0
10.	Mechanical Workshop	0	0	2	2	0	0	0	0
11.	Classes c1, c2, c3, c4	0	0	2	0	0	0	0	0
12.	Transmission offices	0	0	1	2	0	0	0	0
13.	Live line Building	0	0	2	4	0	0	0	0

14.	Fiber lab/Server room	0	0	2	0	2	0	0	0
	<b>Total</b>	<b>4</b>	<b>3</b>	<b>23</b>	<b>24</b>	<b>6</b>	<b>5</b>	<b>1</b>	<b>1</b>

**PRICE SCHEDULE /BILLS OF QUANTITIES**

**(Unit Price in all Categories/Lots shall include 12 Months Warranty service and maintenance during the defect Liability period as described in the SLA as well as the manufacturer's equipment warranty as described in the tender)**

**LOT 1: INSTALLATION OF CCTV MAJOR STORES & OFFICES BILL OF QUANTITIES**

**NAIROBI REGION**

**NGONG ROAD SUBSTATION IP CTV & ACCESS CONTROL**

No	Item Description	Unit	QTY	Country of origin	Unit Price (PPCBL Incl.) & VAT Excl. (Kes)	Total Price (PPCBL Incl.) & VAT Excl. (Kes)	Part Numbers
A.	8 MP Dome Camera	No.	8				
B.	180° Panoramic Network Camera	No.	2				
C.	16-ch IntelligentNVR upto 16TB	No.	1				
D.	Genetec or Hikcentral Video License (per Camera).	No.	10				
E.	IP Access Control System at Entry (Proximity Reader) and Exit (Proximity Reader) complete with Licenses, IP readers with inbuilt controller module, Door Maglock, Door Closure and all necessary accessories to complete their installation and which must be compatible and shall be linked to existing GENETEC OR HIKCENTRAL network (Per Door)	No.	1				
<b>Total Carried to collection Ngong Road Substation Page 1</b>							

**Bill of Quantities Ngong Road Substation Page 2**

No	Item Description	Unit	Qty	Country of origin	Unit Price (PPCBL Incl.) & VAT Excl. (Kes)	Total Price (PPCBL Incl.) & VAT Excl. (Kes)	Part Numbers
A.	Allow for cabling, ducting, brackets, poles and necessary accessories fabrications	LOT	1				
B.	Network Devices accessories & cabinets - 1 switch	LOT	1				
C.	3 KVA true online UPS	NO	1				
D.	Allow for integration of the system to existing GENETEC OR HIKCENTRAL server	LOT	1				
E.	Client Workstation	LOT	1				
F.	Installation, Testing and Commissioning to client satisfaction	LOT	1				
G.	Biometric Access Control cards	No.	100				
<b>Total Carried to collection Ngong Road Substation Page 2</b>							

<b>SUMMARY PAGE NGONG ROAD SUBSTATION IP- CCTV &amp;ACCESS CONTROL BILL OF QUANTITIES</b>			
<b>A.</b>	<b>Total Carried to collection Ngong Road Substation Page 1</b>		
<b>B.</b>	<b>Total Carried to collection Ngong Road Substation Page 2</b>		
	<b>SUB-TOTAL- NGONG ROAD SUBSTATION IP- CCTV &amp;ACCESS CONTROL</b>		

**ROYSAMBU DEPOT IP- CCTV & ACCESS CONTROL**

<b>No</b>	<b>Item Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Country of origin</b>	<b>Unit Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Total Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Part Numbers</b>
A.	8 MP Dome Camera	No.	85				
B.	4MP Network PTZ	No.	3				
C.	180° Panoramic Network Camera	No.	5				
D.	64-ch IntelligentNVR	No.	2				
E.	Genetec or Hikcentral Video License (per Camera).	No.	93				
F.	IP Access Control System at Entry (Proximity Reader) and Exit (Proximity Reader) complete with Licenses, IP readers with inbuilt controller module, Door Maglock, Door Closure and all necessary accessories to complete their installation and which must be compatible and shall be linked to existing GENETEC OR HIKCENTRAL network (Per Door)	No.	4				
G.	40 Inch 1080P LED Monitor C/W mount accessories	No.	1				
H.	Gig Ethernet to Gig rack-mount Fiber optic Media Converter 30km Range industrial type	No.	2				
<b>Total Carried to Collection Roysambu depot page 1</b>							

**Bill of Quantities Page 2**

No	Item Description	Unit	Qty	Country of origin	Unit Price (PPCBL Incl.) & VAT Excl. (Kes)	Total Price (PPCBL Incl.) & VAT Excl. (Kes)	Part Numbers
A.	Allow for cabling, ducting, brackets, poles and necessary accessories fabrications	LOT	1				
B.	Network Devices accessories & cabinets - 3 Edge switches, 1 core switch	LOT	1				
C.	6 KVA true online UPS	NO	2				
D.	3 KVA true online UPS	NO	2				
E.	1.5 KVA true online UPS	NO	1				
F.	Allow for integration of the system to existing GENETEC OR HIKCENTRAL server	LOT	1				
G.	Client Workstation	LOT	1				
H.	Installation, Testing and Commissioning to client satisfaction	LOT	1				
I.	Biometric Access Control cards	No.	100				
<b>Total Carried to Collection Roysambu depot page 2</b>							

	<b>SUMMARY PAGE ROYSAMBU DEPOT IP- CCTV &amp;ACCESS CONTROL BILL OF QUANTITIES</b>		
A.	<b>Total Carried to Collection Roysambu depot page 1</b>		
B.	<b>Total Carried to Collection Roysambu depot page 2</b>		
	<b>SUB-TOTAL- ROYSAMBU DEPOT IP- CCTV &amp;ACCESS CONTROL</b>		



**LIMURU DEPOT IP CTV & ACCESS CONTROL**

<b>No</b>	<b>Item Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Country of origin</b>	<b>Unit Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Total Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Part Numbers</b>
A.	8 MP Dome Camera	No.	33				
B.	4MP Network PTZ	No.	1				
C.	180° Panoramic Network Camera	No.	1				
D.	64-ch IntelligentNVR	No.	1				
E.	Genetec or Hikcentral Video License (per Camera).	No.	35				
F.	IP Access Control System at Entry (Proximity Reader) and Exit (Proximity Reader) complete with Licenses, IP readers with inbuilt controller module, Door Maglock, Door Closure and all necessary accessories to complete their installation and which must be compatible and shall be linked to existing GENETEC OR HIKCENTRAL network (Per Door)	No.	1				
G.	40 Inch 1080P LED Monitor C/W mount accessories	No.	1				
H.	Gig Ethernet to Gig rack-mount Fiber optic Media Converter 30km Range industrial type	No.	2				
<b>Total Carried to collection Limuru depot Page 1</b>							

**Bill of Quantities Limuru depot Page 2**

No	Item Description	Unit	Qty	Country of origin	Unit Price (PPCBL Incl.) & VAT Excl. (Kes)	Total Price (PPCBL Incl.) & VAT Excl. (Kes)	Part Numbers
A	Allow for cabling, ducting, poles/brackets and necessary accessories	Lot	1				
B.	Network Devices accessories & cabinets switches 2	Lot	1				
C.	6 KVA true online UPS	No	1				
D.	3 KVA true online UPS	No	2				
E.	1.5 KVA true online UPS	No	1				
F.	Allow for integration of the system to existing GENETEC OR HIKCENTRAL server	Lot	1				
G	Client Work station	Lot	1				
H	Installation, Testing and Commissioning to client satisfaction	Lot	1				
I.	Biometric Access Control cards	No.	100				
<b>Total Carried to collection Limuru depot Page 2</b>							

<b>SUMMARY PAGE LIMURU DEPOT IP- CCTV &amp;ACCESS CONTROL BILL OF QUANTITIES</b>			
<b>A.</b>	<b>Total Carried to collection Limuru depot Page 1</b>		
<b>B.</b>	<b>Total Carried to collection Limuru depot Page 2</b>		
	<b>SUB-TOTAL- LIMURU DEPOT IP- CCTV &amp;ACCESS CONTROL</b>		

**KENYATTA UNIVERSITY SUBSTATION IP- CCTV & ACCESS CONTROL**

<b>No</b>	<b>Item Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Country of origin</b>	<b>Unit Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Total Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Part Numbers</b>
A.	8 MP Dome Camera	No.	22				
B.	180° Panoramic Network Camera	No.	2				
C.	32-ch IntelligentNVR upto 16 TB	No.	1				
D.	Genetec or Hikcentral Video License (per Camera).	No.	24				
E.	IP Access Control System at Entry (Proximity Reader) and Exit (Proximity Reader) complete with Licenses, IP readers with inbuilt controller module, Door Maglock, Door Closure and all necessary accessories to complete their installation and which must be compatible and shall be linked to existing GENETEC OR HIKCENTRAL network (Per Door)	No.	2				
F.	32 Inch 1080P LED Monitor C/W mount accessories	No.	0				
<b>Total Carried to collection Kenyatta University Substation</b>							
<b>Page 1</b>							

**Bill of Quantities Kenyatta University Substation Page 2**

No	Item Description	Unit	Qty	Country of origin	Unit Price (PPCBL Incl.) & VAT Excl. (Kes)	Total Price (PPCBL Incl.) & VAT Excl. (Kes)	Part Numbers
A.	Allow for cabling, ducting, poles/brackets and necessary accessories	Lot	1				
B.	Network Devices accessories & cabinets - 1 switch	Lot	1				
C.	6 KVA true online UPS	No	1				
D.	Allow for integration of the system to existing GENETEC OR HIKCENTRAL server	Lot	1				
E.	Client Workstation	Lot	0				
F.	Installation, Testing and Commissioning to client satisfaction	Lot	1				
G.	Biometric Access Control Cards	No.	100				
<b>Total Carried to collection Kenyatta University Substation Page 2</b>							

<b>SUMMARY PAGE KENYATTA UNIVERSITY SUBSTATION IP- CCTV &amp;ACCESS CONTROL BILL OF QUANTITIES</b>			
<b>A.</b>	<b>Total Carried to collection Kenyatta University Substation Page 1</b>		
<b>B.</b>	<b>Total Carried to collection Kenyatta University Substation Page 2</b>		
	<b>SUB-TOTAL- KENYATTA UNIVERSITY SUBSTATION IP- CCTV &amp;ACCESS CONTROL</b>		

**RIRONI SUBSTATION IP- CCTV & ACCESS CONTROL**

No	Item Description	Unit	Qty	Country of origin	Unit Price (PPCBL Incl.) & VAT Excl. (Kes)	Total Price (PPCBL Incl.) & VAT Excl. (Kes)	Part Numbers
A.	8 MP Dome Camera	No.	15				
B.	180° Panoramic Network Camera	No.	1				
C.	32-ch Intelligent NVR upto 16 TB	No.	1				
D.	Genetec or Hikcentral Video License (per Camera).	No.	16				
E.	IP Access Control System at Entry (Proximity Reader) and Exit (Proximity Reader) complete with Licenses, IP readers with inbuilt controller module, Door Maglock, Door Closure and all necessary accessories to complete their installation and which must be compatible and shall be linked to existing GENETEC OR HIKCENTRAL network (Per Door)	No.	1				
F.	Gig Ethernet to Gig rack-mount Fiber optic Media Converter 30km Range industrial type	No.	2				
<b>Total Carried to collection Rironi Substation Page 1</b>							

**Bill of Quantities Rironi Substation Page 2**

<b>No</b>	<b>Item Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Countr y of origin</b>	<b>Unit Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Total Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Part Number s</b>
A	Allow for cabling, ducting, poles/brackets and necessary accessories	Lot	1				
B	Network Devices accessories & cabinets - 1 switch	Lot	1				
C	3 KVA true online UPS	No	1				
D	Allow for integration of the system to existing GENETEC OR HIKCENTRAL server	Lot	1				
E	Client Workstation	Lot	1				
F	Installation, Testing and Commissioning to client satisfaction	Lot	1				
G	Biometric Access Control Cards	No.	100				
<b>Total Carried to collection Rironi Substation Page 2</b>							



<b>SUMMARY PAGE RIRONI SUBSTATION IP- CCTV &amp;ACCESS CONTROL BILL OF QUANTITIES</b>			
<b>A.</b>	<b>Total Carried to collection Rironi Substation Page 1</b>		
<b>B.</b>	<b>Total Carried to collection Rironi Substation Page 2</b>		
	<b>SUB-TOTAL-RIRONI SUBSTATION IP- CCTV &amp;ACCESS CONTROL</b>		

**MACHAKOS OFFICE IP- CCTV &ACCESS CONTROL**

No	Item Description	Unit	Qty	Country of origin	Unit Price (PPCBL Incl.) & VAT Excl. (Kes)	Total Price (PPCBL Incl.) & VAT Excl. (Kes)	Part Numbers
A.	8 MP Dome Camera	No.	14				
B.	4MP Network PTZ	No.	0				
C.	180° Panoramic Network Camera	No.	1				
D.	32-ch IntelligentNVR upto 16 TB	No.	1				
E.	Genetec or Hikcentral Video License (per Camera).	No.	15				
F.	IP Access Control System at Entry (Proximity Reader) and Exit (Proximity Reader) complete with Licenses, IP readers with inbuilt controller module, Door Maglock, Door Closure and all necessary accessories to complete their installation and which must be compatible and shall be linked to existing GENETEC OR HIKCENTRAL network (Per Door)	No.	2				
G.	32 Inch 1080P LED Monitor C/W mount accessories	No.	1				
<b>Total Carried to collection Machakos Office Page 1</b>							

**Bill of Quantities Machakos Office Page 2**

No	Item Description	Unit	Qty	Country of origin	Unit Price (PPCBL Incl.) & VAT Excl. (Kes)	Total Price (PPCBL Incl.) & VAT Excl. (Kes)	Part Numbers
A.	Allow for cabling, ducting, brackets, poles and necessary accessories fabrications	Lot	1				
B.	Network Devices accessories & cabinets -1 switch	Lot	1				
C.	3 KVA true online UPS	No	1				
D.	Allow for integration of the system to existing GENETEC OR HIKCENTRAL server	Lot	1				
E.	Installation, Testing and Commissioning to client satisfaction	Lot	1				
F.	Biometric Access Control cards	No.	100				
<b>Total Carried to collection Machakos Office Page 2</b>							

<b>SUMMARY PAGE MACHAKOS OFFICE IP- CCTV &amp;ACCESS CONTROL BILL OF QUANTITIES</b>			
<b>A.</b>	<b>Total Carried to Collection Machakos Office page 1</b>		
<b>B.</b>	<b>Total Carried to Collection Machakos Office page 2</b>		
	<b>SUB-TOTAL- MACHAKOS OFFICE IP- CCTV &amp;ACCESS CONTROL</b>		

**TECHNICAL TRAINING & PROJECT MANAGEMENT**

<b>Bill of Quantities Technical Training &amp; Project Management</b>					
<b>No</b>	<b>Item Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Unit Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Total Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>
<b>A</b>	<b>Manufacturers Training: Factor costs as follows:</b>				
i)	Factory Assessment and pre-installation Training for 4no persons	Pc	1	<b>2,300,000.00</b>	<b>2,300,000.00</b>
ii)	Manufacturers Training at the manufacturers for 3no technical persons (Factor only the cost of training i.e venue ,trainers, transport to and from the training venue and certification)	Lot	1		
ii)	Travelling and accommodation for 3no technical persons	Lot	1	<b>3,500,000.00</b>	<b>3,500,000.00</b>
<b>B</b>	Provisional Sum for Project Management	Pc	1	<b>2,000,000.00</b>	<b>2,000,000.00</b>
<b>C</b>	Provisional Sum for Contingencies	Pc	1	<b>1,500,000.00</b>	<b>1,500,000.00</b>
	<b>TOTAL PPCBL Incl. &amp; VAT Excl</b>				
	<b>ADD 16% VAT</b>				
	<b>GRAND-TOTAL PPCBL Incl. &amp; VAT Incl.</b>				
	<b>Total Carried to collection Bill of Quantities - Technical Training &amp; Project Management</b>				

**SUMMARY PAGE BILL OF QUANTITIES LOT 1**

<b>Summary Page Bill of Quantities Lot 1: Installation of CCTV Major Stores &amp; Offices Bill of Quantities: Nairobi Region</b>	
a)	Total carried to collection sub-total- Ngong road substation (NRB) IP- CCTV &Access Control
b)	Total carried to collection sub-total- Roysambu Depot IP- CCTV &Access Control
c)	Total carried to collection sub-total- Limuru Depot IP- CCTV &Access Control
d)	Total carried to collection sub-total- Kenyatta University Substation IP- CCTV &Access Control
e)	Total carried to collection sub-total- Rironi Substation IP- CCTV &Access Control
f)	Total carried to collection sub-total- Machakos Office IP- CCTV &Access Control
g)	Total carried to collection sub-total- FAT, Technical Training & Project Management Page
	<b>Total PPCBL Incl. &amp; VAT Excl.</b>
	<b>ADD 16% VAT</b>
	<b>Grand-Total PPCBL Incl. &amp; VAT Incl. (To Form of Tender)</b>

**SCHEDULE OF MAINTENANCE LOT 1: INSTALLATION OF CCTV MAJOR STORES & OFFICES**

No.	Description	Unit	Qty	Unit Price (PPCBL Incl.) & VAT Excl. (Kes)	Total Price (PPCBL Incl.) & VAT Excl. (Kes)
1	Allow maintenance for a period of 1 (one) year done quarterly as per KPLC SLA.	No	4		
<b>Total PPCBL Incl. &amp; VAT Excl</b>					
<b>ADD 16% VAT</b>					
<b>Grand-Total PPCBL Incl. &amp; VAT Incl. Lot 1:</b>					

## LOT 1-RECOMMENDED SCHEDULE OF SPARE PARTS

**NB: The cost of spare parts shall be budgeted for and consumed in subsequent repair & Maintenance budget after the warranty period on as-and- when needed-basis.**

<b>RECOMMENDED SCHEDULE OF SPARE PARTS</b>						
NO.	Item	UOM	Qty	Unit Price (PPCBL Incl.) & VAT Excl. (Kes)	Total Price (PPCBL Incl.) & VAT Excl. (Kes)	Total Price (PPCBL Incl.) & VAT Incl. (Kes)
<b>CCTV REQUIREMENT</b>						
1.	NVR 16 Channel	No	1			
2.	NVR 32 Channel	No	1			
3.	NVR 64 Channel	No	1			
4.	16 MP One Omni Directional	No	1			
5.	4 MP Bullet indoor/outdoor IP camera	No	1			
6.	8 MP Bullet indoor/outdoor IP camera	No	1			
7.	8 MP Dome indoor/outdoor IP camera	No	1			
8.	2 MP PTZ indoor/outdoor IP camera	No	1			
9.	4 MP 180° indoor/outdoor Panoramic IP	No	1			
10.	8 MP 360° indoor/outdoor IP camera	No	1			
11.	16 MP One Omni Directional Indoor/Outdoor Dome IP Cameras (B type)	No	1			
12.	Video monitor 32''	No	1			
13.	Video monitor 42''	No	1			
14.	1TB Hard Disk	No	1			
15.	2TB Hard Disk	No	1			
16.	3TB Hard Disk	No	1			
17.	4TB Hard Disk	No	1			
18.	8TB Hard Disk	No	1			
19.	10 TB Hard Disk	No	1			
20.	12 TB Hard Disk	No	1			
21.	GENETEC OR HIKCENTRAL CCTV Archiver	No	1			
22.	Client workstation	No	1			
	<b>LICENSES , SMA AND TRAINING</b>	No	1			

23.	SMA for 2 years for KPLC Genetec or Hikcentral System	No	1			
24.	SMA for 3 years for KPLC Genetec or Hikcentral System	No	1			
25.	SMA for 5 years for KPLC Genetec or Hikcentral System	No	1			
26.	SMA For 2 Years Advancis Security Management Software	No	1			
27.	SMA For 3 Years Advancis Security Management Software	No	1			
28.	SMA For 2 years AEOS NEPAD Access Control System	No	1			
29.	SMA For 3 years AEOS NEPAD Access Control System	No	1			
30.	SMA for UVEYE UVSS system	No	1			
31.	Genetec or Hikcentral CCTV Camera license per camera	No	1			
32.	Genetec or Hikcentral Access Control License per door	No	1			
33.	Genetec or Hikcentral SDK License for Access control System	No	1			
34.	NEPAD Access control License per door	No	1			
35.	Advancis 500 data points license	No	1			
36.	Advancis 1000 data points license	No	1			
37.	Advancis User license per user	No	1			
38.	Integration of a site to Advancis including any required CAD Drawing	No	1			
39.	Establishment of interface between Genetec or Hikcentral and Advancis for a site of 50 Cameras	No	1			
40.	Establishment of	No	1			



	interface between Genetec or Hikcentral Access control and SAP Database					
41.	Technical training for Genetec or Hikcentral Access Control for one persons	No	1			
42.	Technical training for Genetec or Hikcentral Video Management systems for one persons	No	1			
43.	Technical training for Advancis SMS for one persons	No	1			
<b>NETWORKING REQUIREMENT</b>						
44.	Core Network Switch-24port	No	1			
45.	Main Network switch 24 Port	No	1			
46.	Local switch 24 Port	No	1			
47.	Switch PoE 8 Port	No	1			
48.	24 Port Patch Panel with I-O Ports	No	1			
49.	Patch Cord Cable 1-Meter Cat-6	No	1			
50.	Patch Cord Cable 3-Meter Cat-6	No	1			
51.	Single Mode Fiber Patch Cord LC- LC/ SC-SC/ SC-LC, 1 or 3M, Duplex	No	1			
52.	Multi-Mode Fiber Patch Cord LC- LC/ SC-SC/ SC-LC, 1 or 3M, Duplex	No	1			
53.	Multiprotocol Network Tester (Set)	No	1			
54.	Coaxial Cable (1000ft)	Met er	1			
55.	UTP Cat 6 Cable (1000ft)	Met er	1			
56.	Shielded UTP Cat6 Outdoor Direct Burial 23AWG Pure Copper (1000ft)	Met er	1			
57.	RJ45 Connectors (100 Pack)	Pkt	1			
58.	RJ45 Coupler, 2 Port, UTP	No	1			

59.	PoE Extender	No	1			
60.	PoE Injector for IP cameras	No.	1			
61.	Armored outdoor direct burial 4-6 core fiber optic cable (1000ft)	Roll	1			
62.	Network Media Converter and associated network accessories	No.	1			
63.	SFP Transceiver Module (SMF, 1550nm, 20/50/100km, LC, DOM) Cisco, Max Data Rate: >1000Mbps and associated fiber network accessories	No.	1			
64.	White Conduits 25mm	No	1			
65.	White Conduits 32mm	No	1			
66.	White Bends 25/32mm	No	1			
67.	White Connectors 25/32mm	No	1			
68.	Saddle clips (100 pack)	Pkt	1			
69.	Screws (100-count box of 1¾-inch- long screws)	Pkt	1			
70.	Galvanized Metallic Trunking 100mm X 50mm (3m)	No	1			
71.	PVC Cable Trunk 16 X 25 mm White duct (3m)	No	1			
72.	Camera Stainless Steel Pole	No.	1			
	<b>ACCESS CONTROL</b>					
73.	Door Access Controller Compatible with Genetec Or Hikcentral	No	1			
74.	Access Controller Door Interface	No.	1			
75.	Access Controller Door	No.	1			
76.	Access Control Cards	No.	1			
77.	Biometric/Card Reader Finger Print	No.	1			
78.	Biometric/Card Reader Facial	No.	1			
79.	Smart Card Reader-Proximity	No.	1			
80.	Access Control Management/Application Software	No.	1			

81.	Access control staff card Printer	No	1			
82.	Control Room System Printer	No	1			
83.	Genetec or Hikcentral Synergies Master Controller (SMC)	No.	1			
84.	Single Door Maglock	No.	1			
85.	Double Door Maglock	No.	1			
86.	Emergency Release Button	No.	1			
87.	Key Switch	No.	1			
<b>LICENSING REQUIREMENT</b>						
88.	Genetec or Hikcentral Federation License (general)	No	1			
89.	Advancis License per workstation	No.	1			
90.	Genetec or Hikcentral license per operator/user workstation	No.	1			
91.	Video analytic per channel	No.	1			
92.	Genetec or Hikcentral mission control license	No.	1			
93.	Genetec or Hikcentral Industrial IOT License	No.	1			
94.	Genetec or Hikcentral Logbook License	No.	1			
95.	1no Door License (general price, including integration)	No.	1			
96.	1no IP Camera License (general price, including integration)	No	1			
97.	1no Control ID SDK License (general price, including integration)	No	1			
98.	1no Control ID Interface License (general price, including integration)	No	1			
<b>WORKSHOP DIAGNOSIS &amp; REPAIR</b>						
99.	Repair network switch	No.	1			
100.	Optical drive (HDD)	No.	1			
101.	Power supply unit	No.	1			
102.	Processor and heat sink	No.	1			
103.	System board (Mother	No.	1			

	Board)					
104.	Fan	No.	1			
105.	Drive backplane	No.	1			
106.	Memory module (RAM)	No.	1			
107.	NIC Card	No.	1			
108.	Access control staff card Printer Ribbon	No	1			
109.	Control Room System Printer Cartridge/Tonner	No	1			
110.	Control Room System Printer ink 200ml	No	1			
111.	Renovation/repair of raised floor per 600mm X 600mm with associated accessories	Sq mm (600 X60 0)	1			
112.	Falls Seiling renovation/replacement per 600mm X 600mm with associated accessories	Sq mm (600 X60 0)	1			
113.	Aluminum frame gypsum partition pers square meter	Sq mete r	1			
114.	Door Hingers	No.	1			
115.	Aluminum Door with accessories	No.	1			
116.	Aluminum Double Door with accessories	No.	1			
<b>CONTROL ROOM FUNITURE</b>						
117.	Control Room Chair	No.	1			
118.	Control Room table	No.	1			
<b>AIR CONDITIONER (AC)</b>						
119.	Complete set of Air Conditioner AC	No.	1			
120.	AC Condenser Unit	No.	1			
121.	AC Condenser Split Unit	No.	1			
122.	AC Drainage Pump	No.	1			
123.	AC Remote Control	No.	1			
124.	Refilling of AC gas per refill per AC	No.	1			
<b>EMERGENCY RESPONSE</b>						
125.	Emergency repair for a call/ticket per technician per day (installation and configurations of key	No.	1			

	components)					
126.	Support service for a call/ticket per casual laborer per day (installation of key components)	No.	1			
127.	Emergency repair/meeting for a call/ticket per supervisor	No.	1			
128.	Integration of one third party system as need arises into existing server applications for a call/ticket per one technician per day	No.	1			
129.	Unscheduled service per site as per the description in schedule of requirement under preventive maintenance.	No.	1			
<b>TOOLS AND POWER ACCESSORIES</b>						
130.	Software Maintenance laptop	No.	1			
131.	Full HD business projector 5,000 lumens	No.	1			
132.	Maintenance tool kit	No.	1			
133.	Cordless Rotary Hammer Drill (Includes 20-Volt Li-ion Rechargeable Battery, Fast Charger, SDS Plus Hammer Drill, Set of drill bits, Heavy Duty Brushless Demolition Hammer)	No	1			
134.	Blower	No.	1			
135.	Leather Hand gloves	No.	1			
136.	Aluminum Multi-Purpose Ladder (16ft)	No.	1			
137.	Aluminum Telescopic Ladder (3.8m)	No.	1			
138.	Windows antivirus complete with license (for 1No. PC)	No.	1			
139.	Multiprotocol Network tester (Pair)	No.	1			
140.	Surge and Voltage protector	No	1			
141.	4 core Alarm cable	Roll	1			

	(100m/Roll)					
142.	Speaker 1.5mm sq. (70/0.15) cable	M	1			
143.	2.5mm sq Stranded Twin with Earth cable (100m/Roll)	Roll	1			
144.	2.5mm sq PVC CU Cable 3 Core	M	1			
145.	2.5mm sq PVC CU Cable S/C (100m/Roll)	Roll	1			
146.	4.0mm sq PVC CU Cable S/C (100m/Roll)	Roll	1			
147.	6.0mm sq PVC CU Cable S/C (100m/Roll)	Roll	1			
148.	4.0mm sq PVC CU Armoured Cable 2 Core (100m/Roll)	Roll	1			
149.	13A Socket 2-gang DP Switched Plug Socket Metal-Clad	No	1			
150.	PVC Insulating Tape	No	1			
151.	Amalgamating Tape (Rubber splicing tape)	No	1			
152.	Conta glue	No	1			
153.	UPS 1.5KVA	No	1			
154.	UPS 3KVA	No	1			
155.	UPS 6KVA	No	1			
156.	UPS 10KVA	No	1			
157.	7AH 12V battery	No	1			
158.	8A ,12V Power supplies	No	1			
159.	12-15 A ,12V Power supplies	No	1			
160.	Power supply transformer 12v	No	1			
161.	Supply and installation of 8m Camera/light Stainless Steel Pole	No.	1			
162.	LED Flood lights 50W (with brackets)	No.	1			
163.	LED Flood lights 100W (with brackets)	No.	1			
164.	12U × Depth 1000mm Wall Mount Cabinet (mounting brackets)	No.	1			

165.	Outdoor Box (Measurement 500x500x250 mm minimum, 1.2mm Galvanized Steel, Powder Coating, Corrosion Resistance, sealed and dustproof; IP54 , Built in Converter Fixed Slots, Air Switch Rail and Fixed Socket Position, clear acrylic inspection window )	NO	1			
	<b>SECURITY LIGHTS</b>	No.	1			
166.	1000 watts Security lights with solar	No.	1			
167.	1000 watts Security lights	No.	1			
168.	300 watts Security lights with solar	No.	1			
169.	300 watts Security lights	No.	1			
170.	200 watts Security lights with solar	No.	1			
171.	200 watts Security lights	No.	1			
172.	Photocell Switch	No.	1			
173.	Security light 6 Meter Pole	No.	1			
174.	600X600 ceiling lights	No.	1			
175.	Lights Dimmer Switch	No.	1			
	<b>ELECTRIC FENCE</b>					
176.	3 Joule Fence Energizer	NO	1			
177.	5 Joule Fence Energizer	NO	1			
178.	8 Joule Fence Energizer	NO	1			
179.	12 Joule Fence Energizer	NO	1			
180.	Energizer Key Switch	NO	1			
181.	Energizer ON/OFF Key	NO	1			
182.	D.C. siren	NO	1			
183.	D.C. strobe light	NO	1			
184.	GSM/IP Module	NO	1			
185.	Timed fence light	NO	1			
186.	12V, 7AH Batteries.	NO	1			
187.	AVS 30 Voltage protector	NO	1			
188.	1.6/2.0mm Solid galvanized HT wire (1000m)	Roll	1			
189.	1.6/2.0mm Solid stainless steel HT wire (1000m)	Roll	1			

190.	Strain posts - Standard (refer to specification)	NO	1			
<b>INSULATORS &amp; EARTHING</b>						
191.	Flat/round bar insulator	NO	1			
192.	Shield insulator	NO	1			
193.	Pop through hole insulator	NO	1			
194.	Self-tapper hook	NO	1			
195.	Earth Rod	NO	1			
<b>INTRUDER ALARMS</b>						
196.	Control Panel	NO	1			
197.	Zone Expander	NO	1			
198.	PIR Detector	NO	1			
199.	Ceiling Mount PIR Detector	NO	1			
200.	Siren	NO	1			
201.	GSM Module	NO	1			
<b>UVSS SPARE PART</b>						
202.	Under Vehicle Scanning system (UVSS) system	No	1			
203.	Under Vehicle Scanning system (UVSS) with similar features to Uveye system	No	1			
204.	Synchronizers (Master and slave)	No	1			
205.	Scanning glass	No	1			
206.	O-ring rubber	No	1			
207.	Bolt and nut (number 17)	No	1			
208.	Loop sensor cable	No	1			
209.	Workstation computer	No	1			
210.	PC quad port NIC card	No	1			
211.	24V 10A power supply	No	1			
212.	Loop detector	No	1			
213.	Flir thermal Camera	No	1			
214.	3KVA online double conversion UPS	No	1			
215.	Cat6A keystone connectors	No	1			
216.	Patch cord 1 meter	No	1			
217.	Graphics card 16GB	No	1			
218.	High beam LED light bar	No	1			
219.	Relays	No	1			
220.	Cat 7 cable	No	1			
221.	UVSS Multicore communication cable	No	1			
<b>PIDS SPARE PART</b>						
222.	PIDS Detector Line 3M Long	No	1			



223.	Lantronix	No	1			
224.	PIDS Motherboard Qc 2019	No	1			
225.	Power Supply 12V 15A	No	1			
226.	PIDS Connectors	No	1			
<b>AUTOMATIC BOLLARDS</b>						
227.	Down limit switch	No	1			
228.	Up limit switches	No	1			
229.	New K4 LED strips	No	1			
230.	Old K4 LED strips	No	1			
231.	Spiral LED Cables	No	1			
232.	Side screws M8	No	1			
233.	Top screws m10	No	1			
234.	DIN 7991-M8X20	No	1			
235.	O-rings	No	1			
236.	Solenoids valves	No	1			
237.	One way valves	No	1			
238.	Pressure valves	No	1			
239.	Bollard relays 24vdc	No	1			
240.	Loop detectors	No	1			
241.	24 VDC 10A power supply	No	1			
242.	12VDC 6.3A power supply	No	1			
243.	12VDC 4A power supply	No	1			
244.	Bollard magnetic solenoid	No	1			
245.	Bollard led lens	No	1			
246.	Bollard cup	No	1			
247.	Bollard backup batteries	No	1			
248.	Rubber rings	No	1			
249.	Solenoid power cable(Orange)	No	1			
250.	Piston	No	1			
251.	Traffic light bulbs	No	1			
252.	Arm barrier limit switches	No	1			
253.	Arm barrier arm(SQUARE)	No	1			
254.	Bollard shrink tubes	No	1			
255.	Bollard control panel	No	1			
256.	Bollard push button	No	1			
257.	Remote	No	1			
258.	Receiver	No	1			
259.	centurion d10 motor	No	1			
260.	centurion d20 motor	No	1			
261.	gate rolling wheels	No	1			
262.	centurion vantage arms	No	1			
263.	Batteries 12v 7.2ah	No	1			
264.	IR beam detectors	No	1			

<b>X-RAY BAGGAGE SCANNER</b>						
265.	X-Ray Baggage Scanner system HI Scan 7551i	No	1			
266.	X-Ray Baggage system with same functionality as Scanner HI Scan 7551i or equivalent	No	1			
267.	X-ray Generator HI Scan 7551i	No	1			
268.	Monitor for HI Scan 7551i	No	1			
269.	Control Panel for Hi-Scan 7551i	No	1			
270.	Power Supplies for HI Scan 7551i	No	1			
271.	Management PC complete with Hi scan software	No	1			
272.	Conveyor Belt system for HI Scan 7551i	No	1			
273.	proximity sensors	No	1			
274.	High-voltage cables	No	1			
275.	X-ray tube	No	1			
276.	circuit breakers	No	1			

Name of Tenderer \_\_\_\_\_ Signature & Official Stamp

**LOT 2: INSTALLATION OF CCTV MAJOR STORES & OFFICES BILL OF QUANTITIES -  
WESTERN KENYA REGION**

**WESTERN KENYA REGION MIGORI STORES IP- CCTV & ACCESS CONTROL**

<b>No</b>	<b>Item Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Country of origin</b>	<b>Unit Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Total Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Part Numbers</b>
A.	8 MP Dome Camera	No.	14				
B.	4MP Network PTZ	No.	1				
C.	180° Panoramic Network Camera	No.	1				
D.	32-ch Intelligent NVR upto 16 TB	No.	1				
E.	Genetec or Hikcentral Video License (per Camera).	No.	16				
F.	IP Access Control System at Entry (Proximity Reader) and Exit (Proximity Reader) complete with Licenses, IP readers with inbuilt controller module, Door Maglock, Door Closure and all necessary accessories to complete their installation and which must be compatible and shall be linked to existing GENETEC OR HIKCENTRAL network (Per Door)	No.	1				
G.	Gig Ethernet to Gig rack-mount Fiber optic Media Converter 30km Range industrial type	No.	2				
<b>Total Carried to collection Migori Stores Page 1</b>							

**Bill of Quantities Migori Stores Page 2**

No	Item Description	Unit	Qty	Country of origin	Unit Price (PPCBL Incl.) & VAT Excl. (Kes)	Total Price (PPCBL Incl.) & VAT Excl. (Kes)	Part Numbers
A.	Allow for cabling, ducting, poles/brackets and necessary accessories	Lot	1				
B.	Network Devices accessories & cabinets - 1 switch	Lot	1				
C.	3 KVA true online UPS	No	1				
D.	Allow for integration of the system to existing GENETEC OR HIKCENTRAL server	Lot	1				
E.	Client Workstation	Lot	1				
F.	Installation, Testing and Commissioning to client satisfaction	Lot	1				
G.	Biometric Access Control Cards	No.	100				
<b>Total Carried to collection Migori Stores Page 2</b>							

<b>SUMMARY PAGE KINORU STORES/ SUBSTATION IP- CCTV &amp;ACCESS CONTROL BILL OF QUANTITIES</b>			
<b>A.</b>	<b>Total Carried to collection Migori Stores Page 1</b>		
<b>B.</b>	<b>Total Carried to collection Migori Stores Page 2</b>		
	<b>SUB-TOTAL- MIGORI STORES IP- CCTV &amp;ACCESS CONTROL</b>		

**NYAMIRA SUBTSTATION IP- CCTV & ACCESS CONTROL**

<b>No</b>	<b>Item Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Country of origin</b>	<b>Unit Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Total Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Part Numbers</b>
A.	8 MP Dome Camera	No.	14				
B.	4MP Network PTZ	No.	1				
C.	180° Panoramic Network Camera	No.	1				
D.	32-ch IntelligentNVR upto 16 TB	No.	1				
E.	Genetec or Hikcentral Video License (per Camera).	No.	16				
F.	IP Access Control System at Entry (Proximity Reader) and Exit (Proximity Reader) complete with Licenses, IP readers with inbuilt controller module, Door Maglock, Door Closure and all necessary accessories to complete their installation and which must be compatible and shall be linked to existing GENETEC OR HIKCENTRAL network (Per Door)	No.	1				
G.	Gig Ethernet to Gig rack-mount Fiber optic Media Converter 30km Range industrial type	No.	2				
<b>Total Carried to collection Nyamira substation Page 1</b>							

**Bill of Quantities Nyamira substation Page 2**

<b>No</b>	<b>Item Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Country of origin</b>	<b>Unit Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Total Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Part Numbers</b>
A.	Allow for cabling, ducting, poles/brackets and necessary accessories	Lot	1				
B.	Network Devices accessories & cabinets - 1 switch	Lot	1				
C.	3 KVA true online UPS	No	1				
D.	Allow for integration of the system to existing GENETEC OR HIKCENTRAL server	Lot	1				
E.	Client Workstation	Lot	1				
F.	Installation, Testing and Commissioning to client satisfaction	Lot	1				
G.	Biometric Access Control Cards	No.	100				
<b>Total Carried to collection Nyamira substation</b>							
<b>Page 2</b>							

<b>SUMMARY PAGE NYAMIRA SUBSTATION IP- CCTV &amp;ACCESS CONTROL BILL OF QUANTITIES</b>			
<b>A.</b>	<b>Total Carried to collection Nyamira substation Page 1</b>		
<b>B.</b>	<b>Total Carried to collection Nyamira substation Page 2</b>		
	<b>SUB-TOTAL- NYAMIRA SUBSTATION IP- CCTV &amp;ACCESS CONTROL</b>		



**KAKAMEGA SUBSTATION IP- CCTV & ACCESS CONTROL**

No	Item Description	Unit	Qty	Country of origin	Unit Price (PPCBL Incl.) & VAT Excl. (Kes)	Total Price (PPCBL Incl.) & VAT Excl. (Kes)	Part Numbers
A.	8 MP Dome Camera	No.	14				
B.	4MP Network PTZ	No.	1				
C.	32-ch IntelligentNVR upto 16 TB	No.	1				
D.	Genetec or Hikcentral Video License (per Camera).	No.	15				
E.	IP Access Control System at Entry (Proximity Reader) and Exit (Proximity Reader) complete with Licenses, IP readers with inbuilt controller module, Door Maglock, Door Closure and all necessary accessories to complete their installation and which must be compatible and shall be linked to existing GENETEC OR HIKCENTRAL network (Per Door)	No.	1				
F.	32 Inch 1080P LED Monitor C/W mount accessories	No.	1				
G.	Gig Ethernet to Gig rack-mount Fiber optic Media Converter 30km Range industrial type	No.	2				
<b>Total Carried to collection Kakamega Substation Page 1</b>							

**Bill of Quantities Kakamega substation Page 2**

No	Item Description	Unit	Qty	Country of origin	Unit Price (PPCBL Incl.) & VAT Excl. (Kes)	Total Price (PPCBL Incl.) & VAT Excl. (Kes)	Part Numbers
A.	Allow for cabling, ducting, poles/brackets and necessary accessories	Lot	1				
B.	Network Devices accessories & cabinets - 1 switch	Lot	1				
C.	3 KVA true online UPS	No	1				
D.	Allow for integration of the system to existing GENETEC OR HIKCENTRAL server	Lot	1				
E.	Client Workstation	Lot	1				
F.	Installation, Testing and Commissioning to client satisfaction	Lot	1				
G.	Biometric Access Control Cards	No.	100				
<b>Total Carried to collection Kakamega substation Page 2</b>							

<b>SUMMARY PAGE KAKAMEGA SUBSTATION IP- CCTV &amp;ACCESS CONTROL BILL OF QUANTITIES</b>			
<b>A.</b>	<b>Total Carried to collection Kakamega Substation Page 1</b>		
<b>B.</b>	<b>Total Carried to collection Kakamega Substation Page 2</b>		
	<b>SUB-TOTAL- KAKAMEGA SUBSTATION IP- CCTV &amp;ACCESS CONTROL</b>		

**KAKARUME TRANSPORT WORKSHOP CCTV & ACCESS CONTROL**

No	Item Description	Unit	Qty	Country of origin	Unit Price (PPCBL Incl.) & VAT Excl. (Kes)	Total Price (PPCBL Incl.) & VAT Excl. (Kes)	Part Numbers
A.	8 MP Dome Camera	No.	14				
B.	4MP Network PTZ	No.	1				
C.	32-ch Intelligent NVR upto 16 TB	No.	1				
D.	Genetec or Hikcentral Video License (per Camera).	No.	15				
E.	IP Access Control System at Entry (Proximity Reader) and Exit (Proximity Reader) complete with Licenses, IP readers with inbuilt controller module, Door Maglock, Door Closure and all necessary accessories to complete their installation and which must be compatible and shall be linked to existing GENETEC OR HIKCENTRAL network (Per Door)	No.	1				
F.	32 Inch 1080P LED Monitor C/W mount accessories	No.	1				
G.	Gig Ethernet to Gig rack-mount Fiber optic Media Converter 30km Range industrial type	No.	2				
<b>Total Carried to collection Karume Transport Workshop</b>							
<b>Page 1</b>							

**Bill of Quantities Karume Transport Workshop Page 2**

No	Item Description	Unit	Qty	Country of origin	Unit Price (PPCBL Incl.) & VAT Excl. (Kes)	Total Price (PPCBL Incl.) & VAT Excl. (Kes)	Part Numbers
A.	Allow for cabling, ducting, poles/brackets and necessary accessories	Lot	1				
B.	Network Devices accessories & cabinets - 1 switch	Lot	1				
C.	3 KVA true online UPS	No	1				
D.	Allow for integration of the system to existing GENETEC OR HIKCENTRAL server	Lot	1				
E.	Client Workstation	Lot	1				
F.	Installation, Testing and Commissioning to client satisfaction	Lot	1				
G.	Biometric Access Control Cards	No.	100				
<b>Total Carried to collection Karume Transport Workshop Page 2</b>							

	<b>SUMMARY PAGE KARUME TRANSPORT WORKSHOP IP- CCTV &amp;ACCESS CONTROL BILL OF QUANTITIES</b>		
A.	<b>Total Carried to collection Karume Transport Workshop Page 1</b>		
B.	<b>Total Carried to collection Karume Transport Workshop Page 2</b>		
	<b>SUB-TOTAL- KARUME TRANSPORT WORKSHOP IP- CCTV &amp;ACCESS CONTROL</b>		

**BOMET STORES- CCTV**

<b>No</b>	<b>Item Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Countr y of origin</b>	<b>Unit Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Total Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Part Numb ers</b>
A.	8 MP Dome Camera	No.	9				
B.	4MP Network PTZ	No.	0				
C.	180° Panoramic Network Camera	No.	0				
D.	16-ch IntelligentNVR upto 16TB	No.	1				
E.	Genetec or Hikcentral Video License (per Camera).	No.	9				
F.	40 Inch 1080P LED Monitor C/W mount accessories	No.	1				
G.	32 Inch 1080P LED Monitor C/W mount accessories	No.	0				
H.	Gig Ethernet to Gig rack-mount Fiber optic Media Converter 30km Range industrial type	No.	1				
<b>Total Carried to Collection Bomet Stores page 1</b>							

No	Item Description	Unit	Qty	Country of origin	Unit Price (PPCBL Incl.) & VAT Excl. (Kes)	Total Price (PPCBL Incl.) & VAT Excl. (Kes)	Part Numbers
A.	Allow for cabling, ducting, poles/brackets and necessary accessories	Lot	1				
B.	Network Devices accessories & cabinets-1 Edge switch	Lot	1				
C.	6 KVA true online UPS	No					
D.	3 KVA true online UPS	No	2				
E.	1.5 KVA true online UPS	No	1				
F.	Allow for integration of the system to existing GENETEC OR HIKCENTRAL server	Lot	1				
G.	Client Workstation	Lot	1				
H.	Installation, Testing and Commissioning to client satisfaction	Lot	1				
I.	Biometric Access Control cards	No.	100				
<b>Total Carried to Collection Bomet Stores page 2</b>							



	<b>SUMMARY PAGE BOMET STORES IP- CCTV BILL OF QUANTITIES</b>		
A.	<b>Total Carried to collection Bomet Stores Page 1</b>		
B.	<b>Total Carried to collection Bomet Stores Page 2</b>		
	<b>SUB-TOTAL- BOMET STORES IP- CCTV</b>		

<b>Bill of Quantities Technical Training &amp; Project Management</b>						
<b>No</b>	<b>Item Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Country of origin</b>	<b>Unit Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Total Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>
A	<b>Manufacturers Training: Factor costs as follows:</b>					
i)	Factory Assessment and pre-installation Training for 4no persons	Pc	1		<b>2,300,000.00</b>	<b>2,300,000.00</b>
ii)	Manufacturers Training at the manufacturers for 3no technical persons (Factor only the cost of training i.e venue ,trainers, transport to and from the training venue and certification)	Lot	1			
ii)	Travelling and accommodation for 3no technical persons	Lot	1		<b>3,500,000.00</b>	<b>3,500,000.00</b>
B	Provisional Sum for Project Management	Pc	1		<b>2,000,000.00</b>	<b>2,000,000.00</b>
	Provisional Sum for Contingencies	Pc	1		<b>1,500,000.00</b>	<b>1,500,000.00</b>
	<b>Total PPCBL Incl. &amp; VAT Excl.</b>					
	<b>ADD 16% VAT</b>					
	<b>Grand-Total PPCBL Incl. &amp; VAT Incl.</b>					
	<b>Total Carried to collection Bill of Quantities - Technical Training &amp; Project Management Lot 2</b>					

**SUMMARY PAGE BILL OF QUANTITIES LOT 2**

<b>SUMMARY PAGE BILL OF QUANTITIES LOT 2: INSTALLATION OF CCTV MAJOR STORES &amp; OFFICES BILL OF QUANTITIES: WESTERN KENYA REGION</b>			
a)	Total carried to collection sub-total- Migori Stores IP- CCTV &Access Control		
b)	Total carried to collection sub-total- Nyamira Substation IP- CCTV &Access Control		
c)	Total carried to collection sub-total- Kakamega Substation IP- CCTV &Access Control		
d)	Total carried to collection sub-total- Karume Depot IP- CCTV &Access Control		
e)	Total carried to collection sub-total- Bomet Stores IP- CCTV &Access Control		
f)	Total carried to collection sub-total- Technical Training & Project Management Page		
	<b>Total PPCBL Incl. &amp; VAT Excl.</b>		
	<b>ADD 16% VAT</b>		
	<b>Grand-Total PPCBL Incl. &amp; VAT Incl. (To Form of Tender)</b>		

**SCHEDULE OF MAINTENANCE LOT 2: INSTALLATION OF CCTV MAJOR STORES & OFFICES**

<b>Item</b>	<b>Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Unit Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Total Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>
1	Allow maintenance for a period of 1 (one) year done quarterly as per KPLC SLA.	No	4		
	<b>Total PPCBL Incl. &amp; VAT Excl</b>				
	<b>ADD 16% VAT</b>				
	<b>Grand-Total PPCBL Incl. &amp; VAT Incl. Lot 2:</b>				

**LOT 2-RECOMMENDED SCHEDULE OF SPARE PARTS**

**NB: The cost of spare parts shall be budgeted for and consumed in subsequent repair & Maintenance budget after the warranty period on as-and- when needed-basis.**

<b>RECOMMENDED SCHEDULE OF SPARE PARTS</b>						
<b>NO.</b>	<b>ITEM</b>	<b>UOM</b>	<b>Qty</b>	<b>Unit Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Total Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Total Price (PPCBL Incl.) &amp; VAT Incl. (Kes)</b>
	<b>CCTV REQUIREMENT</b>					
1.	NVR 16 Channel	No	1			
2.	NVR 32 Channel	No	1			
3.	NVR 64 Channel	No	1			
4.	16 MPOne Omni Directional	No	1			
5.	4 MP Bullet indoor/outdoor IP camera	No	1			
6.	8 MP Bullet indoor/outdoor IP camera	No	1			
7.	8 MP Dome indoor/outdoor IP camera	No	1			
8.	2 MP PTZ indoor/outdoor IP camera	No	1			
9.	4 MP 180° indoor/outdoor Panoramic IP	No	1			
10.	8 MP 360° indoor/outdoor IP camera	No	1			
11.	16 MPOne Omni Directional Indoor/Outdoor Dome IP Cameras (B type)	No	1			
12.	Video monitor 32''	No	1			
13.	Video monitor 42''	No	1			
14.	1TB Hard Disk	No	1			
15.	2TB Hard Disk	No	1			
16.	3TB Hard Disk	No	1			
17.	4TB Hard Disk	No	1			
18.	8TB Hard Disk	No	1			
19.	10 TB Hard Disk	No	1			
20.	12 TB Hard Disk	No	1			
21.	GENETEC OR HIKCENTRAL CCTV Archiver	No	1			
22.	Client workstation	No	1			
	<b>LICENSES , SMA AND TRAINING</b>	No	1			

23.	SMA for 2 years for KPLC Genetec or Hikcentral System	No	1			
24.	SMA for 3 years for KPLC Genetec or Hikcentral System	No	1			
25.	SMA for 5 years for KPLC Genetec or Hikcentral System	No	1			
26.	SMA For 2 Years Advancis Security Management Software	No	1			
27.	SMA For 3 Years Advancis Security Management Software	No	1			
28.	SMA For 2 years AEOS NEPAD Access Control System	No	1			
29.	SMA For 3 years AEOS NEPAD Access Control System	No	1			
30.	SMA for UVEYE UVSS system	No	1			
31.	Genetec or Hikcentral CCTV Camera license per camera	No	1			
32.	Genetec or Hikcentral Access Control License per door	No	1			
33.	Genetec or Hikcentral SDK License for Access control System	No	1			
34.	NEPAD Access control License per door	No	1			
35.	Advancis 500 data points license	No	1			
36.	Advancis 1000 data points license	No	1			
37.	Advancis User license per user	No	1			
38.	Integration of a site to Advancis including any required CAD Drawing	No	1			
39.	Establishment of interface between Genetec or Hikcentral and Advancis for a site of 50 Cameras	No	1			
40.	Establishment of interface between Genetec or	No	1			

	Hikcentral Access control and SAP Database					
41.	Technical training for Genetec or Hikcentral Access Control for one persons	No	1			
42.	Technical training for Genetec or Hikcentral Video Management systems for one persons	No	1			
43.	Technical training for Advancis SMS for one persons	No	1			
<b>NETWORKING REQUIREMENT</b>						
44.	Core Network Switch-24port	No	1			
45.	Main Network switch 24 Port	No	1			
46.	Local switch 24 Port	No	1			
47.	Switch PoE 8 Port	No	1			
48.	24 Port Patch Panel with I-O Ports	No	1			
49.	Patch Cord Cable 1- Meter Cat-6	No	1			
50.	Patch Cord Cable 3- Meter Cat-6	No	1			
51.	Single Mode Fiber Patch Cord LC- LC/ SC-SC/ SC-LC, 1 or 3M, Duplex	No	1			
52.	Multi-Mode Fiber Patch Cord LC- LC/ SC-SC/ SC-LC, 1 or 3M, Duplex	No	1			
53.	Multiprotocol Network Tester (Set)	No	1			
54.	Coaxial Cable (1000ft)	M	1			
55.	UTP Cat 6 Cable (1000ft)	M	1			
56.	Shielded UTP Cat6 Outdoor Direct Burial 23AWG Pure Copper (1000ft)	M	1			
57.	RJ45 Connectors (100 Pack)	Pkt	1			
58.	RJ45 Coupler, 2 Port, UTP	No	1			
59.	PoE Extender	No	1			
60.	PoE Injector for IP cameras	No.	1			
61.	Armored outdoor direct burial 4-6 core fiber optic cable (1000ft)	Roll	1			
62.	Network Media Converter and associated network	No.	1			

	accessories					
63.	SFP Transceiver Module (SMF, 1550nm, 20/50/100km, LC, DOM) Cisco, Max Data Rate: >1000Mbps and associated fiber network accessories	No.	1			
64.	White Conduits 25mm	No	1			
65.	White Conduits 32mm	No	1			
66.	White Bends 25/32mm	No	1			
67.	White Connectors 25/32mm	No	1			
68.	Saddle clips (100 pack)	Pkt	1			
69.	Screws (100-count box of 1¾-inch- long screws)	Pkt	1			
70.	Galvanized Metallic Trunking 100mm X 50mm (3m)	No	1			
71.	PVC Cable Trunk 16 X 25 mm White duct (3m)	No	1			
72.	Camera Stainless Steel Pole	No.	1			
	<b>ACCESS CONTROL</b>					
73.	Door Access Controller Compatible with GENETEC Or Hikcentral	No	1			
74.	Access Controller Door Interface	No.	1			
75.	Access Controller Door	No.	1			
76.	Access Control Cards	No.	1			
77.	Biometric/Card Reader Finger Print	No.	1			
78.	Biometric/Card Reader Facial	No.	1			
79.	Smart Card Reader-Proximity	No.	1			
80.	Access Control Management/Application Software	No.	1			
81.	Access control staff card Printer	No	1			
82.	Control Room System Printer	No	1			
83.	Genetec or Hikcentral Synergies Master Controller (SMC)	No.	1			
84.	Single Door Maglock	No.	1			
85.	Double Door Maglock	No.	1			
86.	Emergency Release Button	No.	1			

87.	Key Switch	No.	1			
<b>LICENSING REQUIREMENT</b>						
88.	Genetec or Hikcentral Federation License (general)	No	1			
89.	Advancis License per workstation	No.	1			
90.	Genetec or Hikcentral license per operator/user workstation	No.	1			
91.	Video analytic per channel	No.	1			
92.	Genetec or Hikcentral mission control license	No.	1			
93.	Genetec or Hikcentral Industrial IOT License	No.	1			
94.	Genetec or Hikcentral Logbook License	No.	1			
95.	1no Door License (general price, including integration)	No.	1			
96.	1no IP Camera License (general price, including integration)	No	1			
97.	1no Control ID SDK License (general price, including integration)	No	1			
98.	1no Control ID Interface License (general price, including integration)	No	1			
<b>WORKSHOP DIAGNOSIS &amp; REPAIR</b>						
99.	Repair network switch	No.	1			
100.	Optical drive (HDD)	No.	1			
101.	Power supply unit	No.	1			
102.	Processor and heat sink	No.	1			
103.	System board (Mother Board)	No.	1			
104.	Fan	No.	1			
105.	Drive backplane	No.	1			
106.	Memory module (RAM)	No.	1			
107.	NIC Card	No.	1			
108.	Access control staff card Printer Ribbon	No	1			
109.	Control Room System Printer Cartridge/Tonner	No	1			
110.	Control Room System Printer ink 200ml	No	1			
111.	Renovation/repair of raised floor per 600mm X 600mm with associated accessories	Sq mm (600	1			



		X600)				
112.	Falls Seiling renovation/replacement per 600mm X 600mm with associated accessories	Sq mm (600 X600)	1			
113.	Aluminum frame gypsum partition pers square meter	Sq meter	1			
114.	Door Hingers	No.	1			
115.	Aluminum Door with accessories	No.	1			
116.	Aluminum Double Door with accessories	No.	1			
<b>CONTROL ROOM FUNITURE</b>						
117.	Control Room Chair	No.	1			
118.	Control Room table	No.	1			
<b>AIR CONDITIONER (AC)</b>						
119.	Complete set of Air Conditioner AC	No.	1			
120.	AC Condenser Unit	No.	1			
121.	AC Condenser Split Unit	No.	1			
122.	AC Drainage Pump	No.	1			
123.	AC Remote Control	No.	1			
124.	Refilling of AC gas per refill per AC	No.	1			
<b>EMERGENCY RESPONSE</b>						
125.	Emergency repair for a call/ticket per technician per day (installation and configurations of key components)	No.	1			
126.	Support service for a call/ticket per casual laborer per day (installation of key components)	No.	1			
127.	Emergency repair/meeting for a call/ticket per supervisor	No.	1			
128.	Integration of one third party system as need arises into existing server applications for a call/ticket per one	No.	1			

	technician per day					
129.	Unscheduled service per site as per the description in schedule of requirement under preventive maintenance.	No.	1			
<b>TOOLS AND POWER ACCESSORIES</b>						
130.	Software Maintenance laptop	No.	1			
131.	Full HD business projector 5,000 lumens	No.	1			
132.	Maintenance tool kit	No.	1			
133.	Cordless Rotary Hammer Drill (Includes 20-Volt Li-ion Rechargeable Battery, Fast Charger, SDS Plus Hammer Drill, Set of drill bits, Heavy Duty Brushless Demolition Hammer)	No	1			
134.	Blower	No.	1			
135.	Leather Hand gloves	No.	1			
136.	Aluminum Multi-Purpose Ladder (16ft)	No.	1			
137.	Aluminum Telescopic Ladder (3.8m)	No.	1			
138.	Windows antivirus complete with license (for 1No. PC)	No.	1			
139.	Multiprotocol Network tester (Pair)	No.	1			
140.	Surge and Voltage protector	No	1			
141.	4 core Alarm cable (100m/Roll)	Roll	1			
142.	Speaker 1.5mm sq. (70/0.15) cable	M	1			
143.	2.5mm sq Stranded Twin with Earth cable (100m/Roll)	Roll	1			
144.	2.5mm sq PVC CU Cable 3 Core	M	1			
145.	2.5mm sq PVC CU Cable S/C (100m/Roll)	Roll	1			
146.	4.0mm sq PVC CU Cable S/C (100m/Roll)	Roll	1			
147.	6.0mm sq PVC CU Cable S/C (100m/Roll)	Roll	1			
148.	4.0mm sq PVC CU Armoured Cable 2 Core (100m/Roll)	Roll	1			

149.	13A Socket 2-gang DP Switched Plug Socket Metal-Clad	No	1			
150.	PVC Insulating Tape	No	1			
151.	Amalgamating Tape (Rubber splicing tape)	No	1			
152.	Conta glue	No	1			
153.	UPS 1.5KVA	No	1			
154.	UPS 3KVA	No	1			
155.	UPS 6KVA	No	1			
156.	UPS 10KVA	No	1			
157.	7AH 12V battery	No	1			
158.	8A ,12V Power supplies	No	1			
159.	12-15 A ,12V Power supplies	No	1			
160.	Power supply transformer 12v	No	1			
161.	Supply and installation of 8m Camera/light Stainless Steel Pole	No.	1			
162.	LED Flood lights 50W (with brackets)	No.	1			
163.	LED Flood lights 100W (with brackets)	No.	1			
164.	12U × Depth 1000mm Wall Mount Cabinet (mounting brackets)	No.	1			
165.	Outdoor Box (Measurement 500x500x250 mm minimum, 1.2mm Galvanized Steel, Powder Coating, Corrosion Resistance, sealed and dustproof; IP54 , Built in Converter Fixed Slots, Air Switch Rail and Fixed Socket Position, clear acrylic inspection window )	NO	1			
	<b>SECURITY LIGHTS</b>	No.	1			
166.	1000 watts Security lights with solar	No.	1			
167.	1000 watts Security lights	No.	1			
168.	300 watts Security lights	No.	1			

	with solar					
169.	300 watts Security lights	No.	1			
170.	200 watts Security lights with solar	No.	1			
171.	200 watts Security lights	No.	1			
172.	Photocell Switch	No.	1			
173.	Security light 6 Meter Pole	No.	1			
174.	600X600 ceiling lights	No.	1			
175.	Lights Dimmer Switch	No.	1			
	<b>ELECTRIC FENCE</b>					
176.	3 Joule Fence Energizer	NO	1			
177.	5 Joule Fence Energizer	NO	1			
178.	8 Joule Fence Energizer	NO	1			
179.	12 Joule Fence Energizer	NO	1			
180.	Energizer Key Switch	NO	1			
181.	Energizer ON/OFF Key	NO	1			
182.	D.C. siren	NO	1			
183.	D.C. strobe light	NO	1			
184.	GSM/IP Module	NO	1			
185.	Timed fence light	NO	1			
186.	12V, 7AH Batteries.	NO	1			
187.	AVS 30 Voltage protector	NO	1			
188.	1.6/2.0mm Solid galvanized HT wire (1000m)	Roll	1			
189.	1.6/2.0mm Solid stainless steel HT wire (1000m)	Roll	1			
190.	Strain posts - Standard (refer to specification)	NO	1			
	<b>INSULATORS &amp; EARTHING</b>					
191.	Flat/round bar insulator	NO	1			
192.	Shield insulator	NO	1			
193.	Pop through hole insulator	NO	1			
194.	Self-tapper hook	NO	1			
195.	Earth Rod	NO	1			
	<b>INTRUDER ALARMS</b>					
196.	Control Panel	NO	1			
197.	Zone Expander	NO	1			
198.	PIR Detector	NO	1			
199.	Ceiling Mount PIR Detector	NO	1			
200.	Siren	NO	1			
201.	GSM Module	NO	1			
	<b>UVSS SPARE PART</b>					
202.	Under Vehicle Scanning system (UVSS) system	No	1			
203.	Under Vehicle Scanning system (UVSS) with similar	No	1			

	features to Uveye system					
204.	Synchronizers (Master and slave)	No	1			
205.	Scanning glass	No	1			
206.	O-ring rubber	No	1			
207.	Bolt and nut (number 17)	No	1			
208.	Loop sensor cable	No	1			
209.	Workstation computer	No	1			
210.	PC quad port NIC card	No	1			
211.	24V 10A power supply	No	1			
212.	Loop detector	No	1			
213.	Flir thermal Camera	No	1			
214.	3KVA online double conversion UPS	No	1			
215.	Cat6A keystone connectors	No	1			
216.	Patch cord 1 meter	No	1			
217.	Graphics card 16GB	No	1			
218.	High beam LED light bar	No	1			
219.	Relays	No	1			
220.	Cat 7 cable	No	1			
221.	UVSS Multicore communication cable	No	1			
	<b>PIDS SPARE PART</b>					
222.	PIDS Detector Line 3M Long	No	1			
223.	Lantronix	No	1			
224.	PIDS Motherboard Qc 2019	No	1			
225.	Power Supply 12V 15A	No	1			
226.	PIDS Connectors	No	1			
	<b>AUTOMATIC BOLLARDS</b>					
227.	Down limit switch	No	1			
228.	Up limit switches	No	1			
229.	New K4 LED strips	No	1			
230.	Old K4 LED strips	No	1			
231.	Spiral LED Cables	No	1			
232.	Side screws M8	No	1			
233.	Top screws m10	No	1			
234.	DIN 7991-M8X20	No	1			
235.	O-rings	No	1			
236.	Solenoids valves	No	1			
237.	One way valves	No	1			
238.	Pressure valves	No	1			
239.	Bollard relays 24vdc	No	1			
240.	Loop detectors	No	1			
241.	24 VDC 10A power supply	No	1			
242.	12VDC 6.3A power supply	No	1			

243.	12VDC 4A power supply	No	1			
244.	Bollard magnetic solenoid	No	1			
245.	Bollard led lens	No	1			
246.	Bollard cup	No	1			
247.	Bollard backup batteries	No	1			
248.	Rubber rings	No	1			
249.	Solenoid power cable(Orange)	No	1			
250.	Piston	No	1			
251.	Traffic light bulbs	No	1			
252.	Arm barrier limit switches	No	1			
253.	Arm barrier arm(SQUARE)	No	1			
254.	Bollard shrink tubes	No	1			
255.	Bollard control panel	No	1			
256.	Bollard push button	No	1			
257.	Remote	No	1			
258.	Receiver	No	1			
259.	centurion d10 motor	No	1			
260.	centurion d20 motor	No	1			
261.	gate rolling wheels	No	1			
262.	centurion vantage arms	No	1			
263.	Batteries 12v 7.2ah	No	1			
264.	IR beam detectors	No	1			
<b>X-RAY BAGGAGE SCANNER</b>						
265.	X-Ray Baggage Scanner system HI Scan 7551i	No	1			
266.	X-Ray Baggage system with same functionality as Scanner HI Scan 7551i or equivalent	No	1			
267.	X-ray Generator HI Scan 7551i	No	1			
268.	Monitor for HI Scan 7551i	No	1			
269.	Control Panel for Hi-Scan 7551i	No	1			
270.	Power Supplies for HI Scan 7551i	No	1			
271.	Management PC complete with Hi scan software	No	1			
272.	Conveyor Belt system for HI Scan 7551i	No	1			
273.	proximity sensors	No	1			
274.	High-voltage cables	No	1			
275.	X-ray tube	No	1			
276.	circuit breakers	No	1			

Name of Tenderer \_\_\_\_\_ Signature & Official Stamp

**LOT 3: INSTALLATION OF CCTV MAJOR STORES & OFFICES BILL OF QUANTITIES: CENTRAL AND NORTH RIFT REGION**

**SOILO SUBSTATION- CCTV**

<b>No</b>	<b>Item Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Country of origin</b>	<b>Unit Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Total Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Part Numbers</b>
A.	8 MP Dome Camera	No.	17				
B.	4MP Network PTZ	No.	1				
C.	180° Panoramic Network Camera	No.	2				
D.	32-ch IntelligentNVR upto 16 TB	No.	1				
E.	Genetec or Hikcentral Video License (per Camera).	No.	20				
F.	40 Inch 1080P LED Monitor C/W mount accessories	No.	0				
G.	32 Inch 1080P LED Monitor C/W mount accessories	No.	0				
H.	Gig Ethernet to Gig rack-mount Fiber optic Media Converter 30km Range industrial type	No.	1				
<b>Total Carried to Collection Soilo substation page 1</b>							

**Bill of Quantities Page 2**

<b>No</b>	<b>Item Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Country of origin</b>	<b>Unit Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Total Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Part Numbers</b>
	Allow for cabling, ducting, poles/brackets and necessary accessories	LOT	1				
<b>B.</b>	Network Devices accessories & cabinets-1 Edge switch	LOT	1				
<b>C</b>	6 KVA true online UPS	NO	1				
<b>D</b>	3 KVA true online UPS	NO	2				
<b>E.</b>	1.5 KVA true online UPS	NO	0				
<b>F.</b>	Allow for integration of the system to existing GENETEC OR HIKCENTRAL server	LOT	1				
<b>G</b>	Client Work station	LOT	1				
<b>H</b>	Installation, Testing and Commissioning to client satisfaction	LOT	1				
<b>I.</b>	Biometric Access Control cards	No.	100				
<b>Total Carried to Collection Soilo Substation page 2</b>							



	<b>SUMMARY PAGE SOILO SUBSTATION IP- CCTV BILL OF QUANTITIES</b>		
A.	<b>Total Carried to collection Soilo Substation Page 1</b>		
B.	<b>Total Carried to collection Soilo Substation Page 2</b>		
	<b>SUB-TOTAL- SOILO SUBSTATION IP- CCTV</b>		

**MARALAL STORES - CCTV**

<b>No</b>	<b>Item Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Country of origin</b>	<b>Unit Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Total Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Part Numbers</b>
A.	8 MP Dome Camera	No.	6				
B.	4MP Network PTZ	No.	2				
C.	180° Panoramic Network Camera	No.	2				
D.	16-ch IntelligentNVR upto 16TB	No.	1				
E.	Genetec or Hikcentral Video License (per Camera).	No.	10				
F.	40 Inch 1080P LED Monitor C/W mount accessories	No.	1				
G.	32 Inch 1080P LED Monitor C/W mount accessories	No.					
H.	Gig Ethernet to Gig rack-mount Fiber optic Media Converter 30km Range industrial type	No.	1				
<b>Total Carried to Collection Maralal Stores page 1</b>							

**Bill of Quantities Page 2**

No	Item Description	Unit	Qty	Country of origin	Unit Price (PPCBL Incl.) & VAT Excl. (Kes)	Total Price (PPCBL Incl.) & VAT Excl. (Kes)	Part Numbers
A.	Allow for cabling, ducting, poles/brackets and necessary accessories	Lot	1				
B.	Network Devices accessories & cabinets- 1 Edge switch	Lot	1				
C.	6 KVA true online UPS	No	0				
D.	3 KVA true online UPS	No	1				
E.	1.5 KVA true online UPS	No	1				
F.	Allow for integration of the system to existing GENETEC OR HIKCENTRAL server	Lot	1				
G.	Client Work station	Lot	1				
H.	Installation, Testing and Commissioning to client satisfaction	Lot	1				
I.	Biometric Access Control cards	No.	100				
<b>Total Carried to Collection Maralal Stores page 2</b>							

<b>SUMMARY PAGE MARALAL STORES IP- CCTV BILL OF QUANTITIES</b>			
A.	<b>Total Carried to collection Maralal Stores Page 1</b>		
B.	<b>Total Carried to collection Maralal Stores Page 2</b>		
	<b>SUB-TOTAL- MARALAL STORES - CCTV</b>		

**NAIVASHA OFFICE- CCTV**

<b>No</b>	<b>Item Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Country of origin</b>	<b>Unit Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Total Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Part Numbers</b>
A.	8 MP Dome Camera	No.	18				
B.	4MP Network PTZ	No.	0				
C.	180° Panoramic Network Camera	No.	0				
D.	32-ch IntelligentNVR upto 16 TB	No.	1				
E.	Genetec or Hikcentral Video License (per Camera).	No.	18				
F.	40 Inch 1080P LED Monitor C/W mount accessories	No.	1				
G.	32 Inch 1080P LED Monitor C/W mount accessories	No.	0				
H.	Gig Ethernet to Gig rack-mount Fiber optic Media Converter 30km Range industrial type	No.	1				
<b>Total Carried to Collection Naivasha Office page 1</b>							

**Bill of Quantities Page 2**

No	Item Description	Unit	Qty	Country of origin	Unit Price (PPCBL Incl.) & VAT Excl. (Kes)	Total Price (PPCBL Incl.) & VAT Excl. (Kes)	Part Numbers
A	Allow for cabling, ducting, poles/brackets and necessary accessories	Lot	1				
B	Network Devices accessories & cabinets- 1 Edge switch	Lot	1				
C	6 KVA true online UPS	No	1				
D	3 KVA true online UPS	No	1				
E	1.5 KVA true online UPS	No	0				
F	Allow for integration of the system to existing GENETEC OR HIKCENTRAL server	Lot	1				
G	Client Workstation	Lot	1				
H	Installation, Testing and Commissioning to client satisfaction	Lot	1				
I	Biometric Access Control cards	No.	100				
<b>Total Carried to Collection Naivasha Office page 2</b>							

	<b>SUMMARY PAGE NAIVASHA OFFICE IP- CCTV BILL OF QUANTITIES</b>		
A.	<b>Total Carried to collection Naivasha Office Page 1</b>		
B.	<b>Total Carried to collection Naivasha Office Page 2</b>		
	<b>SUB-TOTAL- NAIVASHA OFFICE IP- CCTV</b>		

**ELDOR ET DEPOT - CCTV**

<b>No</b>	<b>Item Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Countr y of origin</b>	<b>Unit Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Total Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Part Numbers</b>
A.	8 MP Dome Camera	No.	81				
B.	4MP Network PTZ	No.	2				
C.	180° Panoramic Network Camera	No.	2				
D.	64-ch IntelligentNVR	No.	2				
E.	Genetec or Hikcentral Video License (per Camera).	No.	85				
F.	40 Inch 1080P LED Monitor C/W mount accessories	No.	1				
G.	32 Inch 1080P LED Monitor C/W mount accessories	No.	0				
H.	Gig Ethernet to Gig rack-mount Fiber optic Media Converter 30km Range industrial type	No.	2				
<b>Total Carried to Collection Eldoret Depot page 1</b>							



**Bill of Quantities Page 2**

No	Item Description	Unit	Qty	Country of origin	Unit Price (PPCBL Incl.) & VAT Excl. (Kes)	Total Price (PPCBL Incl.) & VAT Excl. (Kes)	Part Numbers
A.	Allow for cabling, ducting, poles/brackets and necessary accessories	Lot	1				
B.	Network Devices accessories & cabinets- 4 Edge switches & 1core Switch	Lot	1				
C.	6 KVA true online UPS	No	2				
D.	3 KVA true online UPS	No	2				
E.	1.5 KVA true online UPS	No	1				
F.	Allow for integration of the system to existing GENETEC OR HIKCENTRAL server	Lot	1				
G.	Client Workstation	Lot	1				
H.	Installation, Testing and Commissioning to client satisfaction	Lot	1				
I.	Biometric Access Control cards	No.	100				
<b>Total Carried to Collection Eldoret Depot page 2</b>							

	<b>SUMMARY PAGE ELDORET DEPOT IP- CCTV BILL OF QUANTITIES</b>		
A.	<b>Total Carried to collection Eldoret Depot Page 1</b>		
B.	<b>Total Carried to collection Eldoret Depot Page 2</b>		
	<b>SUB-TOTAL- ELDORET DEPOT IP- CCTV</b>		

**TECHNICAL TRAINING & PROJECT MANAGEMENT LOT-3**

<b>Bill of Quantities Technical Training &amp; Project Management</b>					
<b>No</b>	<b>Item Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Unit Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Total Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>
	<b>Manufacturers Training: Factor costs as follows:</b>				
i)	Factory Assessment and pre-installation Training for 4no persons	Pc	1	<b>2,300,000.00</b>	<b>2,300,000.00</b>
ii)	Manufacturers Training at the manufacturers for 3no technical persons (Factor only the cost of training i.e venue ,trainers, transport to and from the training venue and certification)	Lot	1		
ii)	Travelling and accommodation for 3no technical persons	Lot	1	<b>3,500,000.00</b>	<b>3,500,000.00</b>
B	Provisional Sum for Project Management	Pc	1	<b>2,000,000.00</b>	<b>2,000,000.00</b>
	Provisional Sum for Contingencies	Pc	1	<b>1,500,000.00</b>	<b>1,500,000.00</b>
	<b>Total PPCBL Incl. &amp; VAT Excl</b>				
	<b>ADD 16% VAT</b>				
	<b>Grand-Total PPCBL Incl. &amp; VAT Incl. Lot 2:</b>				
	<b>Total Carried to collection Bill of Quantities - Technical Training &amp; Project Management</b>				

**SUMMARY PAGE BILL OF QUANTITIES LOT 3**

<b>SUMMARY PAGE BILL OF QUANTITIES LOT 3: INSTALLATION OF CCTV MAJOR STORES &amp; OFFICES BILL OF QUANTITIES: CENTRAL AND NORTH RIFT REGION</b>			
a)	Total carried to collection sub-total- Soilo Substation IP-CCTV & Access Control		
b)	Total carried to collection sub-total- Maralal Stores IP-CCTV & Access Control		
c)	Total carried to collection sub-total- Naivasha Office IP-CCTV & Access Control		
d)	Total carried to collection sub-total- Eldoret Depot IP-CCTV & Access Control		
e)	Total carried to collection sub-total- Technical Training & Project Management Page		
	<b>Total PPCBL Incl. &amp; VAT Excl</b>		
	<b>ADD 16% VAT</b>		
	<b>Grand-Total PPCBL Incl. &amp; VAT Incl. Lot 3</b>		

**SCHEDULE OF MAINTENANCE LOT 3: INSTALLATION OF CCTV MAJOR STORES & OFFICES**

No	Description	Unit	Qty	Unit Price (PPCBL Incl.) & VAT Excl. (Kes)	Total Price (PPCBL Incl.) & VAT Excl. (Kes)
1	Allow maintenance for a period of 1 (one) year done quarterly as per KPLC SLA.	No	4		
	<b>Total PPCBL Incl. &amp; VAT Excl</b>				
	<b>ADD 16% VAT</b>				
	<b>Grand-Total PPCBL Incl. &amp; VAT Incl. Lot 3:</b>				

NB:

To be done after one year warranty of servicing during period

### LOT 3-RECOMMENDED SCHEDULE OF SPARE PARTS

**NB: The cost of spare parts shall be budgeted for and consumed in subsequent repair & Maintenance budget after the warranty period on as-and- when needed-basis.**

<b>RECOMMENDED SCHEDULE OF SPARE PARTS</b>						
<b>NO.</b>	<b>ITEM</b>	<b>UoM</b>	<b>Qty</b>	<b>Unit Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Total Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Total Price (PPCBL Incl.) &amp; VAT Incl. (Kes)</b>
	<b>CCTV REQUIREMENT</b>					
1.	NVR 16 Channel	No	1			
2.	NVR 32 Channel	No	1			
3.	NVR 64 Channel	No	1			
4.	16 MP One Omni Directional	No	1			
5.	4 MP Bullet indoor/outdoor IP camera	No	1			
6.	8 MP Bullet indoor/outdoor IP camera	No	1			
7.	8 MP Dome indoor/outdoor IP camera	No	1			
8.	2 MP PTZ indoor/outdoor IP camera	No	1			
9.	4 MP 180° indoor/outdoor Panoramic IP	No	1			
10.	8 MP 360° indoor/outdoor IP camera	No	1			
11.	16 MP One Omni Directional Indoor/Outdoor Dome IP Cameras (B type)	No	1			
12.	Video monitor 32''	No	1			
13.	Video monitor 42''	No	1			
14.	1TB Hard Disk	No	1			
15.	2TB Hard Disk	No	1			
16.	3TB Hard Disk	No	1			
17.	4TB Hard Disk	No	1			
18.	8TB Hard Disk	No	1			
19.	10 TB Hard Disk	No	1			
20.	12 TB Hard Disk	No	1			
21.	GENETEC OR HIKCENTRAL CCTV Archiver	No	1			
22.	Client workstation	No	1			
	<b>LICENSES , SMA AND</b>	No	1			

	<b>TRAINING</b>					
23.	SMA for 2 years for KPLC Genetec or Hikcentral System	No	1			
24.	SMA for 3 years for KPLC Genetec or Hikcentral System	No	1			
25.	SMA for 5 years for KPLC Genetec or Hikcentral System	No	1			
26.	SMA For 2 Years Advancis Security Management Software	No	1			
27.	SMA For 3 Years Advancis Security Management Software	No	1			
28.	SMA For 2 years AEOS NEPAD Access Control System	No	1			
29.	SMA For 3 years AEOS NEPAD Access Control System	No	1			
30.	SMA for UVEYE UVSS system	No	1			
31.	Genetec or Hikcentral CCTV Camera license per camera	No	1			
32.	Genetec or Hikcentral Access Control License per door	No	1			
33.	Genetec or Hikcentral SDK License for Access control System	No	1			
34.	NEPAD Access control License per door	No	1			
35.	Advancis 500 data points license	No	1			
36.	Advancis 1000 data points license	No	1			
37.	Advancis User license per user	No	1			
38.	Integration of a site to Advancis including any required CAD Drawing	No	1			
39.	Establishment of interface between Genetec or Hikcentral and Advancis for a site of 50 Cameras	No	1			
40.	Establishment of interface	No	1			

	between Genetec or Hikcentral Access control and SAP Database					
41.	Technical training for Genetec or Hikcentral Access Control for one persons	No	1			
42.	Technical training for Genetec or Hikcentral Video Management systems for one persons	No	1			
43.	Technical training for Advancis SMS for one persons	No	1			
<b>NETWORKING REQUIREMENT</b>						
44.	Core Network Switch-24port	No	1			
45.	Main Network switch 24 Port	No	1			
46.	Local switch 24 Port	No	1			
47.	Switch PoE 8 Port	No	1			
48.	24 Port Patch Panel with I-O Ports	No	1			
49.	Patch Cord Cable 1- Meter Cat-6	No	1			
50.	Patch Cord Cable 3- Meter Cat-6	No	1			
51.	Single Mode Fiber Patch Cord LC- LC/ SC-SC/ SC-LC, 1 or 3M, Duplex	No	1			
52.	Multi-Mode Fiber Patch Cord LC- LC/ SC-SC/ SC-LC, 1 or 3M, Duplex	No	1			
53.	Multiprotocol Network Tester (Set)	No	1			
54.	Coaxial Cable (1000ft)	M	1			
55.	UTP Cat 6 Cable (1000ft)	M	1			
56.	Shielded UTP Cat6 Outdoor Direct Burial 23AWG Pure Copper (1000ft)	M	1			
57.	RJ45 Connectors (100 Pack)	Pkt	1			
58.	RJ45 Coupler, 2 Port, UTP	No	1			
59.	PoE Extender	No	1			
60.	PoE Injector for IP cameras	No.	1			
61.	Armored outdoor direct burial 4-6 core fiber optic cable (1000ft)	Roll	1			

62.	Network Media Converter and associated network accessories	No.	1			
63.	SFP Transceiver Module (SMF, 1550nm, 20/50/100km, LC, DOM) Cisco, Max Data Rate: >1000Mbps and associated fiber network accessories	No.	1			
64.	White Conduits 25mm	No	1			
65.	White Conduits 32mm	No	1			
66.	White Bends 25/32mm	No	1			
67.	White Connectors 25/32mm	No	1			
68.	Saddle clips (100 pack)	Pkt	1			
69.	Screws (100-count box of 1¾-inch- long screws)	Pkt	1			
70.	Galvanized Metallic Trunking 100mm X 50mm (3m)	No	1			
71.	PVC Cable Trunk 16 X 25 mm White duct (3m)	No	1			
72.	Camera Stainless Steel Pole	No.	1			
	<b>ACCESS CONTROL</b>					
73.	Door Access Controller Compatible with GENETEC Or Hikcentral	No	1			
74.	Access Controller Door Interface	No.	1			
75.	Access Controller Door	No.	1			
76.	Access Control Cards	No.	1			
77.	Biometric/Card Reader Finger Print	No.	1			
78.	Biometric/Card Reader Facial	No.	1			
79.	Smart Card Reader-Proximity	No.	1			
80.	Access Control Management/Application Software	No.	1			
81.	Access control staff card Printer	No	1			
82.	Control Room System Printer	No	1			
83.	Genetec or Hikcentral Synergies Master Controller (SMC)	No.	1			
84.	Single Door Maglock	No.	1			



85.	Double Door Maglock	No.	1			
86.	Emergency Release Button	No.	1			
87.	Key Switch	No.	1			
<b>LICENSING REQUIREMENT</b>						
88.	Genetec or Hikcentral Federation License (general)	No	1			
89.	Advancis License per workstation	No.	1			
90.	Genetec or Hikcentral license per operator/user workstation	No.	1			
91.	Video analytic per channel	No.	1			
92.	Genetec or Hikcentral mission control license	No.	1			
93.	Genetec or Hikcentral Industrial IOT License	No.	1			
94.	Genetec or Hikcentral Logbook License	No.	1			
95.	1no Door License (general price, including integration)	No.	1			
96.	1no IP Camera License (general price, including integration)	No	1			
97.	1no Control ID SDK License (general price, including integration)	No	1			
98.	1no Control ID Interface License (general price, including integration)	No	1			
<b>WORKSHOP DIAGNOSIS &amp; REPAIR</b>						
99.	Repair network switch	No.	1			
100.	Optical drive (HDD)	No.	1			
101.	Power supply unit	No.	1			
102.	Processor and heat sink	No.	1			
103.	System board (Mother Board)	No.	1			
104.	Fan	No.	1			
105.	Drive backplane	No.	1			
106.	Memory module (RAM)	No.	1			
107.	NIC Card	No.	1			
108.	Access control staff card Printer Ribbon	No	1			
109.	Control Room System Printer Cartridge/Tonner	No	1			
110.	Control Room System Printer ink 200ml	No	1			

111.	Renovation/repair of raised floor per 600mm X 600mm with associated accessories	Sq mm (600 X600)	1			
112.	Falls Seiling renovation/replacement per 600mm X 600mm with associated accessories	Sq mm (600 X600)	1			
113.	Aluminum frame gypsum partition pers square meter	Sq m	1			
114.	Door Hingers	No.	1			
115.	Aluminum Door with accessories	No.	1			
116.	Aluminum Double Door with accessories	No.	1			
<b>CONTROL ROOM FUNITURE</b>						
117.	Control Room Chair	No.	1			
118.	Control Room table	No.	1			
<b>AIR CONDITIONER (AC)</b>						
119.	Complete set of Air Conditioner AC	No.	1			
120.	AC Condenser Unit	No.	1			
121.	AC Condenser Split Unit	No.	1			
122.	AC Drainage Pump	No.	1			
123.	AC Remote Control	No.	1			
124.	Refilling of AC gas per refill per AC	No.	1			
<b>EMERGENCY RESPONSE</b>						
125.	Emergency repair for a call/ticket per technician per day (installation and configurations of key components)	No.	1			
126.	Support service for a call/ticket per casual laborer per day (installation of key components)	No.	1			
127.	Emergency repair/meeting for a call/ticket per supervisor	No.	1			
128.	Integration of one third party system as need arises into existing server applications for a call/ticket	No.	1			

	per one technician per day					
129.	Unscheduled service per site as per the description in schedule of requirement under preventive maintenance.	No.	1			
<b>TOOLS AND POWER ACCESSORIES</b>						
130.	Software Maintenance laptop	No.	1			
131.	Full HD business projector 5,000 lumens	No.	1			
132.	Maintenance tool kit	No.	1			
133.	Cordless Rotary Hammer Drill (Includes 20-Volt Li-ion Rechargeable Battery, Fast Charger, SDS Plus Hammer Drill, Set of drill bits, Heavy Duty Brushless Demolition Hammer)	No	1			
134.	Blower	No.	1			
135.	Leather Hand gloves	No.	1			
136.	Aluminum Multi-Purpose Ladder (16ft)	No.	1			
137.	Aluminum Telescopic Ladder (3.8m)	No.	1			
138.	Windows antivirus complete with license (for 1No. PC)	No.	1			
139.	Multiprotocol Network tester (Pair)	No.	1			
140.	Surge and Voltage protector	No	1			
141.	4 core Alarm cable (100m/Roll)	Roll	1			
142.	Speaker 1.5mm sq. (70/0.15) cable	M	1			
143.	2.5mm sq Stranded Twin with Earth cable (100m/Roll)	Roll	1			
144.	2.5mm sq PVC CU Cable 3 Core	M	1			
145.	2.5mm sq PVC CU Cable S/C (100m/Roll)	Roll	1			
146.	4.0mm sq PVC CU Cable S/C (100m/Roll)	Roll	1			
147.	6.0mm sq PVC CU Cable S/C (100m/Roll)	Roll	1			
148.	4.0mm sq PVC CU Armoured Cable 2 Core	Roll	1			

	(100m/Roll)					
149.	13A Socket 2-gang DP Switched Plug Socket Metal-Clad	No	1			
150.	PVC Insulating Tape	No	1			
151.	Amalgamating Tape (Rubber splicing tape)	No	1			
152.	Conta glue	No	1			
153.	UPS 1.5KVA	No	1			
154.	UPS 3KVA	No	1			
155.	UPS 6KVA	No	1			
156.	UPS 10KVA	No	1			
157.	7AH 12V battery	No	1			
158.	8A ,12V Power supplies	No	1			
159.	12-15 A ,12V Power supplies	No	1			
160.	Power supply transformer 12v	No	1			
161.	Supply and installation of 8m Camera/light Stainless Steel Pole	No.	1			
162.	LED Flood lights 50W (with brackets)	No.	1			
163.	LED Flood lights 100W (with brackets)	No.	1			
164.	12U × Depth 1000mm Wall Mount Cabinet (mounting brackets)	No.	1			
165.	Outdoor Box (Measurement 500x500x250 mm minimum, 1.2mm Galvanized Steel, Powder Coating, Corrosion Resistance, sealed and dustproof; IP54 , Built in Converter Fixed Slots, Air Switch Rail and Fixed Socket Position, clear acrylic inspection window )	NO	1			
	<b>SECURITY LIGHTS</b>	No.	1			
166.	1000 watts Security lights with solar	No.	1			
167.	1000 watts Security lights	No.	1			

168.	300 watts Security lights with solar	No.	1			
169.	300 watts Security lights	No.	1			
170.	200 watts Security lights with solar	No.	1			
171.	200 watts Security lights	No.	1			
172.	Photocell Switch	No.	1			
173.	Security light 6 Meter Pole	No.	1			
174.	600X600 ceiling lights	No.	1			
175.	Lights Dimmer Switch	No.	1			
	<b>ELECTRIC FENCE</b>					
176.	3 Joule Fence Energizer	NO	1			
177.	5 Joule Fence Energizer	NO	1			
178.	8 Joule Fence Energizer	NO	1			
179.	12 Joule Fence Energizer	NO	1			
180.	Energizer Key Switch	NO	1			
181.	Energizer ON/OFF Key	NO	1			
182.	D.C. siren	NO	1			
183.	D.C. strobe light	NO	1			
184.	GSM/IP Module	NO	1			
185.	Timed fence light	NO	1			
186.	12V, 7AH Batteries.	NO	1			
187.	AVS 30 Voltage protector	NO	1			
188.	1.6/2.0mm Solid galvanized HT wire (1000m)	Roll	1			
189.	1.6/2.0mm Solid stainless steel HT wire (1000m)	Roll	1			
190.	Strain posts - Standard (refer to specification)	NO	1			
	<b>INSULATORS &amp; EARTHING</b>					
191.	Flat/round bar insulator	NO	1			
192.	Shield insulator	NO	1			
193.	Pop through hole insulator	NO	1			
194.	Self-tapper hook	NO	1			
195.	Earth Rod	NO	1			
	<b>INTRUDER ALARMS</b>					
196.	Control Panel	NO	1			
197.	Zone Expander	NO	1			
198.	PIR Detector	NO	1			
199.	Ceiling Mount PIR Detector	NO	1			
200.	Siren	NO	1			
201.	GSM Module	NO	1			
	<b>UVSS SPARE PART</b>					
202.	Under Vehicle Scanning system (UVSS) system	No	1			
203.	Under Vehicle Scanning	No	1			

	system (UVSS) with similar features to Uveye system					
204.	Synchronizers (Master and slave)	No	1			
205.	Scanning glass	No	1			
206.	O-ring rubber	No	1			
207.	Bolt and nut (number 17)	No	1			
208.	Loop sensor cable	No	1			
209.	Workstation computer	No	1			
210.	PC quad port NIC card	No	1			
211.	24V 10A power supply	No	1			
212.	Loop detector	No	1			
213.	Flir thermal Camera	No	1			
214.	3KVA online double conversion UPS	No	1			
215.	Cat6A keystone connectors	No	1			
216.	Patch cord 1 meter	No	1			
217.	Graphics card 16GB	No	1			
218.	High beam LED light bar	No	1			
219.	Relays	No	1			
220.	Cat 7 cable	No	1			
221.	UVSS Multicore communication cable	No	1			
	<b>PIDS SPARE PART</b>					
222.	PIDS Detector Line 3M Long	No	1			
223.	Lantronix	No	1			
224.	PIDS Motherboard Qc 2019	No	1			
225.	Power Supply 12V 15A	No	1			
226.	PIDS Connectors	No	1			
	<b>AUTOMATIC BOLLARDS</b>					
227.	Down limit switch	No	1			
228.	Up limit switches	No	1			
229.	New K4 LED strips	No	1			
230.	Old K4 LED strips	No	1			
231.	Spiral LED Cables	No	1			
232.	Side screws M8	No	1			
233.	Top screws m10	No	1			
234.	DIN 7991-M8X20	No	1			
235.	O-rings	No	1			
236.	Solenoids valves	No	1			
237.	One way valves	No	1			
238.	Pressure valves	No	1			
239.	Bollard relays 24vdc	No	1			
240.	Loop detectors	No	1			
241.	24 VDC 10A power supply	No	1			

242.	12VDC 6.3A power supply	No	1			
243.	12VDC 4A power supply	No	1			
244.	Bollard magnetic solenoid	No	1			
245.	Bollard led lens	No	1			
246.	Bollard cup	No	1			
247.	Bollard backup batteries	No	1			
248.	Rubber rings	No	1			
249.	Solenoid power cable(Orange)	No	1			
250.	Piston	No	1			
251.	Traffic light bulbs	No	1			
252.	Arm barrier limit switches	No	1			
253.	Arm barrier arm(SQUARE)	No	1			
254.	Bollard shrink tubes	No	1			
255.	Bollard control panel	No	1			
256.	Bollard push button	No	1			
257.	Remote	No	1			
258.	Receiver	No	1			
259.	centurion d10 motor	No	1			
260.	centurion d20 motor	No	1			
261.	gate rolling wheels	No	1			
262.	centurion vantage arms	No	1			
263.	Batteries 12v 7.2ah	No	1			
264.	IR beam detectors	No	1			
	<b>X-RAY BAGGAGE SCANNER</b>					
265.	X-Ray Baggage Scanner system HI Scan 7551i	No	1			
266.	X-Ray Baggage system with same functionality as Scanner HI Scan 7551i or equivalent	No	1			
267.	X-ray Generator HI Scan 7551i	No	1			
268.	Monitor for HI Scan 7551i	No	1			
269.	Control Panel for Hi-Scan 7551i	No	1			
270.	Power Supplies for HI Scan 7551i	No	1			
271.	Management PC complete with Hi scan software	No	1			
272.	Conveyor Belt system for HI Scan 7551i	No	1			
273.	proximity sensors	No	1			
274.	High-voltage cables	No	1			
275.	X-ray tube	No	1			
276.	circuit breakers	No	1			

Name of Tenderer \_\_\_\_\_ Signature & Official Stamp

**LOT 4: INSTALLATION OF CCTV MAJOR STORES & OFFICES BILL OF QUANTITIES- MT. KENYA AND NORTH EASTERN REGION**

**MT. KENYA AND NORTH EASTERN REGION**

**KINORU STORES/ SUBSTATION IP- CCTV &ACCESS CONTROL**

<b>No</b>	<b>Item Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Country of origin</b>	<b>Unit Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Total Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Part Numbers</b>
A.	8 MP Dome Camera	No.	14				
B.	4MP Network PTZ	No.	1				
C.	180° Panoramic Network Camera	No.	1				
D.	32-ch IntelligentNVR upto 16 TB	No.	1				
E.	Genetec or Hikcentral Video License (per Camera).	No.	16				
F.	IP Access Control System at Entry (Proximity Reader) and Exit (Proximity Reader) complete with Licenses, IP readers with inbuilt controller module, Door Maglock, Door Closure and all necessary accessories to complete their installation and which must be compatible and shall be linked to existing GENETEC OR HIKCENTRAL network (Per Door)	No.	1				
G.	Gig Ethernet to Gig rack-mount Fiber optic Media Converter 30km Range industrial type	No.	2				
<b>Total Carried to collection Kinoru Stores/Substation Page 1</b>							



**Bill of Quantities Kinoru Stores/Substation Page 2**

No	Item Description	Unit	Qty	Country of origin	Unit Price (PPCBL Incl.) & VAT Excl. (Kes)	Total Price (PPCBL Incl.) & VAT Excl. (Kes)	Part Numbers
A.	Allow for cabling, ducting, poles/brackets and necessary accessories	Lot	1				
B.	Network Devices accessories & cabinets - 1 switch	Lot	1				
C.	3 KVA true online UPS	No	1				
D.	Allow for integration of the system to existing GENETEC OR HIKCENTRAL server	Lot	1				
E.	Client Workstation	Lot	1				
F.	Installation, Testing and Commissioning to client satisfaction	Lot	1				
G.	Biometric Access Control Cards	No	100				
<b>Total Carried to collection Kinoru Stores/Substation</b>							
<b>Page 2</b>							

<b>SUMMARY PAGE KINORU STORES/ SUBSTATION IP- CCTV &amp;ACCESS CONTROL BILL OF QUANTITIES</b>			
<b>A.</b>	<b>Total Carried to collection Kinoru Stores/Substation Page 1</b>		
<b>B.</b>	<b>Total Carried to collection Kinoru Stores/Substation Page 2</b>		
	<b>SUB-TOTAL- KINORU STORES/ SUBSTATION IP- CCTV &amp;ACCESS CONTROL</b>		

**MAKUYU STORES IP- CCTV & ACCESS CONTROL**

<b>No</b>	<b>Item Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Countr y of origin</b>	<b>Unit Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Total Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Part Numbers</b>
A.	8 MP Dome Camera	No.	14				
B.	4MP Network PTZ	No.	0				
C.	180° Panoramic Network Camera	No.	2				
D.	32-ch IntelligentNVR upto 16 TB	No.	1				
E.	Genetec or Hikcentral Video License (per Camera).	No.	16				
F.	IP Access Control System at Entry (Proximity Reader) and Exit (Proximity Reader) complete with Licenses, IP readers with inbuilt controller module, Door Maglock, Door Closure and all necessary accessories to complete their installation and which must be compatible and shall be linked to existing GENETEC OR HIKCENTRAL network (Per Door)	No.	1				
G.	32 Inch 1080P LED Monitor C/W mount accessories	No.	1				
H.	Gig Ethernet to Gig rack-mount Fiber optic Media Converter 30km Range industrial type	No.	2				
<b>Total Carried to Collection Makuyu Stores page 1</b>							

**Bill of Quantities Page 2**

No	Item Description	Unit	Qty	Country of origin	Unit Price (PPCBL Incl.) & VAT Excl. (Kes)	Total Price (PPCBL Incl.) & VAT Excl. (Kes)	Part Numbers
A.	Allow for cabling, ducting, poles/brackets and necessary accessories	Lot	1				
B.	Network Devices accessories & cabinets – 1 switch	Lot	1				
C.	3 KVA true online UPS	No	1				
D.	Allow for integration of the system to existing GENETEC OR HIKCENTRAL server	Lot	1				
E.	Client Workstation	Lot	1				
F.	Installation, Testing and Commissioning to client satisfaction	Lot	1				
G.	Biometric Access Control cards	No.	100				
<b>Total Carried to Collection Makuyu Stores page 2</b>							

	<b>SUMMARY PAGE MAKUYU STORES IP- CCTV &amp;ACCESS CONTROL BILL OF QUANTITIES</b>		
A.	<b>Total Carried to Collection Makuyu Stores page 1</b>		
B.	<b>Total Carried to Collection Makuyu Stores page 2</b>		
	<b>SUB-TOTAL- MAKUYU STORES IP- CCTV &amp;ACCESS CONTROL</b>		

**MURANG'A STORES IP- CCTV & ACCESS CONTROL**

No	Item Description	Unit	Qty	Country of origin	Unit Price (PPCBL Incl.) & VAT Excl. (Kes)	Total Price (PPCBL Incl.) & VAT Excl. (Kes)	Part Numbers
A.	8 MP Dome Camera	No.	14				
B.	180° Panoramic Network Camera	No.	1				
C.	32-ch Intelligent NVR upto 16 TB	No.	1				
D.	Genetec or Hikcentral Video License (per Camera).	No.	15				
E.	IP Access Control System at Entry (Proximity Reader) and Exit (Proximity Reader) complete with Licenses, IP readers with inbuilt controller module, Door Maglock, Door Closure and all necessary accessories to complete their installation and which must be compatible and shall be linked to existing GENETEC OR HIKCENTRAL network (Per Door)	No.	1				
F.	32 Inch 1080P LED Monitor C/W mount accessories	No.	1				
G.	Gig Ethernet to Gig rack-mount Fiber optic Media Converter 30km Range industrial type	No.	2				
<b>Total Carried to collection Murang'a Stores Page 1</b>							

**Bill of Quantities Murang'a Stores Page 2**

<b>No</b>	<b>Item Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Countr y of origin</b>	<b>Unit Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Total Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Part Numbers</b>
A.	Allow for cabling, ducting, poles/brackets and necessary accessories	Lot	1				
B.	Network Devices accessories & cabinets - 1 switch	Lot	1				
C.	3 KVA true online UPS	No	1				
D.	Allow for integration of the system to existing GENETEC OR HIKCENTRAL server	Lot	1				
E.	Client Workstation	Lot	1				
F.	Installation, Testing and Commissioning to client satisfaction	Lot	1				
G.	Biometric Access Control Cards	No.	100				
<b>Total Carried to collection Murang'a Stores Page 2</b>							

<b>SUMMARY PAGE MURANG'A STORES IP- CCTV &amp;ACCESS CONTROL BILL OF QUANTITIES</b>			
<b>A.</b>	<b>Total Carried to collection Murang'a Stores Page 1</b>		
<b>B.</b>	<b>Total Carried to collection Murang'a Stores Page 2</b>		
	<b>SUB-TOTAL- MURANG'A STORES IP- CCTV &amp;ACCESS CONTROL</b>		



**THIKA OFFICE/ DEPOT IP- CCTV &ACCESS CONTROL**

No	Item Description	Unit	Qty	Country of origin	Unit Price (PPCBL Incl.) & VAT Excl. (Kes)	Total Price (PPCBL Incl.) & VAT Excl. (Kes)	Part Numbers
A.	8 MP Dome Camera	No.	35				
B.	4MP Network PTZ	No.	1				
C.	180° Panoramic Network Camera	No.	2				
D.	64-ch IntelligentNVR	No.	1				
E.	Genetec or Hikcentral Video License (per Camera).	No.	38				
F.	IP Access Control System at Entry (Proximity Reader) and Exit (Proximity Reader) complete with Licenses, IP readers with inbuilt controller module, Door Maglock, Door Closure and all necessary accessories to complete their installation and which must be compatible and shall be linked to existing GENETEC OR HIKCENTRAL network (Per Door)	No.	2				
G.	40 Inch 1080P LED Monitor C/W mount accessories	No.	1				
H.	32 Inch 1080P LED Monitor C/W mount accessories	No.	1				
I.	Gig Ethernet to Gig rack-mount Fiber optic Media Converter 30km Range industrial type	No.	2				
<b>Total Carried to Collection Thika office/depot page 1</b>							

**Bill of Quantities Page 2**

No	Item Description	Unit	Qty	Country of origin	Unit Price (PPCBL Incl.) & VAT Excl. (Kes)	Total Price (PPCBL Incl.) & VAT Excl. (Kes)	Part Numbers
A.	Allow for cabling, ducting, poles/brackets and necessary accessories	Lot	1				
B.	Network Devices accessories & cabinets - 2 Edge switches, 1 core switch	Lot	1				
C.	6 KVA true online UPS	No	1				
D.	3 KVA true online UPS	No	2				
E.	1.5 KVA true online UPS	No	1				
F.	Allow for integration of the system to existing GENETEC OR HIKCENTRAL server	Lot	1				
G.	Client Work station	Lot	1				
H.	Installation, Testing and Commissioning to client satisfaction	Lot	1				
J.	Biometric Access Control cards	No.	100				
<b>Total Carried to Collection Thika office/depot page 2</b>							

<b>SUMMARY PAGE THIKA OFFICE/DEPOT IP- CCTV &amp;ACCESS CONTROL BILL OF QUANTITIES</b>			
<b>A</b>	<b>Total Carried to Collection Thika office/depot page 1</b>		
<b>B</b>	<b>Total Carried to Collection Thika office/depot page 2</b>		
	<b>SUB-TOTAL- THIKA OFFICE/DEPOT IP- CCTV &amp;ACCESS CONTROL</b>		

**MARSABIT OFFICE AND STORES IP- CCTV & ACCESS CONTROL**

<b>No</b>	<b>Item Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Countr y of origin</b>	<b>Unit Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Total Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Part Numbers</b>
A.	8 MP Dome Camera	No.	12				
B.	4MP Network PTZ	No.	1				
C.	180° Panoramic Network Camera	No.	1				
D.	64-ch IntelligentNVR	No.	1				
E.	Genetec or Hikcentral Video License (per Camera).	No.	15				
F.	IP Access Control System at Entry (Proximity Reader) and Exit (Proximity Reader) complete with Licenses, IP readers with inbuilt controller module, Door Maglock, Door Closure and all necessary accessories to complete their installation and which must be compatible and shall be linked to existing GENETEC OR HIKCENTRAL network (Per Door)	No.	3				
G.	40 Inch 1080P LED Monitor C/W mount accessories	No.	1				
H.	32 Inch 1080P LED Monitor C/W mount accessories	No.	1				
I.	Gig Ethernet to Gig rack-mount Fiber optic Media Converter 30km Range industrial type	No.	2				
<b>Total Carried to Collection Marsabit Office and Stores Page 1</b>							

**Bill of Quantities Page 2**

No	Item Description	Unit	Qty	Country of origin	Unit Price (PPCBL Incl.) & VAT Excl. (Kes)	Total Price (PPCBL Incl.) & VAT Excl. (Kes)	Part Numbers
A.	Allow for cabling, ducting, poles/brackets and necessary accessories	Lot	1				
B.	Network Devices accessories & cabinets - 2 Edge switches, 1 core switch	Lot	1				
C.	6 KVA true online UPS	No	1				
D.	3 KVA true online UPS	No	2				
E.	1.5 KVA true online UPS	No	1				
F.	Allow for integration of the system to existing GENETEC OR HIKCENTRAL server	Lot	1				
G.	Client Workstation	Lot	1				
H.	Installation, Testing and Commissioning to client satisfaction	Lot	1				
Q.	Biometric Access Control cards	No.	200				
<b>Total Carried to Collection Marsabit Office and Stores page 2</b>							

	<b>SUMMARY PAGE MARSABIT OFFICE IP- CCTV &amp;ACCESS CONTROL BILL OF QUANTITIES</b>		
A.	<b>Total Carried to Collection Marsabit Office and Stores page 1</b>		
B.	<b>Total Carried to Collection Marsabit Office and Stores page 2</b>		
	<b>SUB-TOTAL- MARSABIT OFFICE AND STORES IP- CCTV &amp;ACCESS CONTROL</b>		

**MOYALE OFFICE AND STORES IP- CCTV & ACCESS CONTROL**

<b>No</b>	<b>Item Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Country of origin</b>	<b>Unit Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Total Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Part Numbers</b>
A.	8 MP Dome Camera	No.	14				
B.	4MP Network PTZ	No.	1				
C.	180° Panoramic Network Camera	No.	1				
D.	64-ch IntelligentNVR	No.	1				
E.	Genetec or Hikcentral Video License (per Camera).	No.	16				
F.	IP Access Control System at Entry (Proximity Reader) and Exit (Proximity Reader) complete with Licenses, IP readers with inbuilt controller module, Door Maglock, Door Closure and all necessary accessories to complete their installation and which must be compatible and shall be linked to existing GENETEC OR HIKCENTRAL network (Per Door)	No.	3				
G.	40 Inch 1080P LED Monitor C/W mount accessories	No.	1				
H.	32 Inch 1080P LED Monitor C/W mount accessories	No.	1				
I.	Gig Ethernet to Gig rack-mount Fiber optic Media Converter 30km Range industrial type	No.	2				
<b>Total Carried to Collection Moyale Office and Stores Page 1</b>							

**Bill of Quantities Page 2**

No	Item Description	Unit	Qty	Country of origin	Unit Price (PPCBL Incl.) & VAT Excl. (Kes)	Total Price (PPCBL Incl.) & VAT Excl. (Kes)	Part Numbers
A.	Allow for cabling, ducting, poles/brackets and necessary accessories	Lot	1				
B.	Network Devices accessories & cabinets - 2 Edge switches, 1 core switch	Lot	1				
C.	6 KVA true online UPS	No	1				
D.	3 KVA true online UPS	No	2				
E.	1.5 KVA true online UPS	No	1				
F.	Allow for integration of the system to existing GENETEC OR HIKCENTRAL server	Lot	1				
G.	Client Workstation	Lot	1				
H.	Installation, Testing and Commissioning to client satisfaction	Lot	1				
J.	Biometric Access Control cards	No.	200				
<b>Total Carried to Collection Moyale Office and Stores page 2</b>							



	<b>SUMMARY PAGE MOYALE OFFICE AND STORES IP- CCTV &amp;ACCESS CONTROL BILL OF QUANTITIES</b>		
A	<b>Total Carried to Collection Moyale Office and Stores page 1</b>		
B	<b>Total Carried to Collection Moyale Office and Stores page 2</b>		
	<b>SUB-TOTAL- MOYALE OFFICE AND STORES IP- CCTV &amp;ACCESS CONTROL</b>		

**WHITE SISTERS STORES (THIKA) IP- CCTV & ACCESS CONTROL**

No	Item Description	Unit	Qty	Country of origin	Unit Price (PPCBL Incl.) & VAT Excl. (Kes)	Total Price (PPCBL Incl.) & VAT Excl. (Kes)	Part Numbers
A.	8 MP Dome Camera	No.	14				
B.	4MP Network PTZ	No.	1				
C.	180° Panoramic Network Camera	No.	1				
D.	64-ch IntelligentNVR	No.	1				
E.	Genetec or Hikcentral Video License (per Camera).	No.	16				
F.	IP Access Control System at Entry (Proximity Reader) and Exit (Proximity Reader) complete with Licenses, IP readers with inbuilt controller module, Door Maglock, Door Closure and all necessary accessories to complete their installation and which must be compatible and shall be linked to existing GENETEC OR HIKCENTRAL network (Per Door)	No.	3				
G.	40 Inch 1080P LED Monitor C/W mount accessories	No.	1				
H.	32 Inch 1080P LED Monitor C/W mount accessories	No.	1				
I.	Gig Ethernet to Gig rack-mount Fiber optic Media Converter 30km Range industrial type	No.	2				
<b>Total Carried to Collection White Sisters Stores (Thika) Page 1</b>							

**Bill of Quantities Page 2**

No	Item Description	Unit	Qty	Country of origin	Unit Price (PPCBL Incl.) & VAT Excl. (Kes)	Total Price (PPCBL Incl.) & VAT Excl. (Kes)	Part Numbers
A.	Allow for cabling, ducting, poles/brackets and necessary accessories	Lot	1				
B.	Network Devices accessories & cabinets - 2 Edge switches, 1 core switch	Lot	1				
C.	6 KVA true online UPS	No	1				
D.	3 KVA true online UPS	No	2				
E.	1.5 KVA true online UPS	No	1				
F.	Allow for integration of the system to existing GENETEC OR HIKCENTRAL server	Lot	1				
G.	Client Workstation	Lot	1				
H.	Installation, Testing and Commissioning to client satisfaction	Lot	1				
Q.	Biometric Access Control cards	No.	200				
<b>Total Carried to Collection White Sisters Stores page 2</b>							

<b>SUMMARY PAGE WHITE SISTERS STORES IP- CCTV &amp;ACCESS CONTROL BILL OF QUANTITIES</b>			
<b>A.</b>	<b>Total Carried to Collection White Sisters Stores page 1</b>		
<b>B.</b>	<b>Total Carried to Collection White Sisters Stores page 2</b>		
	<b>SUB-TOTAL- WHITE SISTERS STORES IP- CCTV &amp;ACCESS CONTROL</b>		

**TECHNICAL TRAINING & PROJECT MANAGEMENT LOT-4**

<b>Bill of Quantities Technical Training &amp; Project Management</b>					
<b>No</b>	<b>Item Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Unit Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Total Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>
A	<b>Manufacturers Training: Factor costs as follows</b>				
i)	Factory Assessment and pre-installation Training for 4no persons	Pc	1	<b>2,300,000.00</b>	<b>2,300,000.00</b>
ii)	Manufacturers Training at the manufacturers for 3no technical persons (Factor only the cost of training i.e venue ,trainers, transport to and from the training venue and certification)	Lot	1		
ii)	Travelling and accommodation for 3no technical persons	Lot	1	<b>3,500,000.00</b>	<b>3,500,000.00</b>
B	Provisional Sum for Project Management	Pc	1	<b>2,000,000.00</b>	<b>2,000,000.00</b>
	Provisional Sum for Contingencies	Pc	1	<b>1,500,000.00</b>	<b>1,500,000.00</b>
	<b>Total PPCBL Incl. &amp; VAT Excl</b>				
	<b>ADD 16% VAT</b>				
	<b>Grand-Total PPCBL Incl. &amp; VAT Incl. Lot :4</b>				
	<b>Total Carried to collection Bill of Quantities - Technical Training &amp; Project Management</b>				

**SUMMARY PAGE BILL OF QUANTITIES LOT 4**

<b>SUMMARY PAGE BILL OF QUANTITIES LOT 4: INSTALLATION OF CCTV MAJOR STORES &amp; OFFICES BILL OF QUANTITIES: MT. KENYA AND NORTHEASTERN REGION</b>			
a)	Total carried to collection sub-total- Kinoru Store/Substation IP- CCTV &Access Control		
b)	Total carried to collection sub-total- Makuyu Stores IP- CCTV &Access Control		
c)	Total carried to collection sub-total- Murang'a Stores IP- CCTV &Access Control		
d)	Total carried to collection sub-total- Thika Office/Depot IP- CCTV &Access Control		
e)	Total carried to collection sub-total- Marsabit office and stores IP- CCTV &Access Control		
f)	Total carried to collection sub-total- Moyale office and stores IP- CCTV &Access Control		
g)	Total carried to collection sub-total- White sisters stores (Thika) IP- CCTV &Access Control		
h)	Total carried to collection sub-total- Technical Training & Project Management Page		
	<b>Total PPCBL Incl. &amp; VAT Excl</b>		
	<b>ADD 16% VAT</b>		
	<b>Grand-Total PPCBL Incl. &amp; VAT Incl. Lot 4:</b>		

**SCHEDULE OF MAINTENANCE LOT 4: INSTALLATION OF CCTV MAJOR STORES & OFFICES**

<b>No</b>	<b>Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Unit Price VAT Exclusive ( Ksh)</b>	<b>Total Price VAT Exclusive ( Ksh)</b>
1	Allow maintenance for a period of 1 (one) year done quarterly as per KPLC SLA.	No	4		
	<b>Total PPCBL Incl. &amp; VAT Excl.</b>				
	<b>ADD 16% VAT</b>				
	<b>Grand-Total PPCBL Incl. &amp; VAT Incl. Lot 4:</b>				

NB:

To be done after one year warranty of servicing during period

**LOT 4-RECOMMENDED SCHEDULE OF SPARE PARTS**

**NB: The cost of spare parts shall be budgeted for and consumed in subsequent repair & Maintenance budget after the warranty period on as-and- when needed-basis.**

<b>RECOMMENDED SCHEDULE OF SPARE PARTS</b>						
<b>NO.</b>	<b>ITEM</b>	<b>UOM</b>	<b>Qty</b>	<b>Unit Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Total Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Total Price (PPCBL Incl.) &amp; VAT Incl. (Kes)</b>
	<b>CCTV REQUIREMENT</b>					
1.	NVR 16 Channel	No	1			
2.	NVR 32 Channel	No	1			
3.	NVR 64 Channel	No	1			
4.	16 MPOne Omni Directional	No	1			
5.	4 MP Bullet indoor/outdoor IP camera	No	1			
6.	8 MP Bullet indoor/outdoor IP camera	No	1			
7.	8 MP Dome indoor/outdoor IP camera	No	1			
8.	2 MP PTZ indoor/outdoor IP camera	No	1			
9.	4 MP 180° indoor/outdoor Panoramic IP	No	1			
10.	8 MP 360° indoor/outdoor IP camera	No	1			
11.	16 MPOne Omni Directional Indoor/Outdoor Dome IP Cameras (B type)	No	1			
12.	Video monitor 32''	No	1			
13.	Video monitor 42''	No	1			
14.	1TB Hard Disk	No	1			
15.	2TB Hard Disk	No	1			
16.	3TB Hard Disk	No	1			
17.	4TB Hard Disk	No	1			
18.	8TB Hard Disk	No	1			
19.	10 TB Hard Disk	No	1			
20.	12 TB Hard Disk	No	1			
21.	GENETEC OR HIKCENTRAL CCTV Archiver	No	1			
22.	Client workstation	No	1			
	<b>LICENSES , SMA AND TRAINING</b>	No	1			
23.	SMA for 2 years for KPLC Genetec or Hikcentral	No	1			



	System					
24.	SMA for 3 years for KPLC Genetec or Hikcentral System	No	1			
25.	SMA for 5 years for KPLC Genetec or Hikcentral System	No	1			
26.	SMA For 2 Years Advancis Security Management Software	No	1			
27.	SMA For 3 Years Advancis Security Management Software	No	1			
28.	SMA For 2 years AEOS NEPAD Access Control System	No	1			
29.	SMA For 3 years AEOS NEPAD Access Control System	No	1			
30.	SMA for UVEYE UVSS system	No	1			
31.	Genetec or Hikcentral CCTV Camera license per camera	No	1			
32.	Genetec or Hikcentral Access Control License per door	No	1			
33.	Genetec or Hikcentral SDK License for Access control System	No	1			
34.	NEPAD Access control License per door	No	1			
35.	Advancis 500 data points license	No	1			
36.	Advancis 1000 data points license	No	1			
37.	Advancis User license per user	No	1			
38.	Integration of a site to Advancis including any required CAD Drawing	No	1			
39.	Establishment of interface between Genetec or Hikcentral and Advancis for a site of 50 Cameras	No	1			
40.	Establishment of interface between Genetec or Hikcentral Access control and SAP Database	No	1			

41.	Technical training for Genetec or Hikcentral Access Control for one persons	No	1			
42.	Technical training for Genetec or Hikcentral Video Management systems for one persons	No	1			
43.	Technical training for Advancis SMS for one persons	No	1			
	<b>NETWORKING REQUIREMENT</b>					
44.	Core Network Switch-24port	No	1			
45.	Main Network switch 24 Port	No	1			
46.	Local switch 24 Port	No	1			
47.	Switch PoE 8 Port	No	1			
48.	24 Port Patch Panel with I-O Ports	No	1			
49.	Patch Cord Cable 1- Meter Cat-6	No	1			
50.	Patch Cord Cable 3- Meter Cat-6	No	1			
51.	Single Mode Fiber Patch Cord LC- LC/ SC-SC/ SC-LC, 1 or 3M, Duplex	No	1			
52.	Multi-Mode Fiber Patch Cord LC- LC/ SC-SC/ SC-LC, 1 or 3M, Duplex	No	1			
53.	Multiprotocol Network Tester (Set)	No	1			
54.	Coaxial Cable (1000ft)	Met er	1			
55.	UTP Cat 6 Cable (1000ft)	Met er	1			
56.	Shielded UTP Cat6 Outdoor Direct Burial 23AWG Pure Copper (1000ft)	Met er	1			
57.	RJ45 Connectors (100 Pack)	Pkt	1			
58.	RJ45 Coupler, 2 Port, UTP	No	1			
59.	PoE Extender	No	1			
60.	PoE Injector for IP cameras	No.	1			
61.	Armored outdoor direct	Roll	1			

	burial 4-6 core fiber optic cable (1000ft)					
62.	Network Media Converter and associated network accessories	No.	1			
63.	SFP Transceiver Module (SMF, 1550nm, 20/50/100km, LC, DOM) Cisco, Max Data Rate: >1000Mbps and associated fiber network accessories	No.	1			
64.	White Conduits 25mm	No	1			
65.	White Conduits 32mm	No	1			
66.	White Bends 25/32mm	No	1			
67.	White Connectors 25/32mm	No	1			
68.	Saddle clips (100 pack)	Pkt	1			
69.	Screws (100-count box of 1¾-inch- long screws)	Pkt	1			
70.	Galvanized Metallic Trunking 100mm X 50mm (3m)	No	1			
71.	PVC Cable Trunk 16 X 25 mm White duct (3m)	No	1			
72.	Camera Stainless Steel Pole	No.	1			
	<b>ACCESS CONTROL</b>					
73.	Door Access Controller Compatible with Genetec Or Hikcentral	No	1			
74.	Access Controller Door Interface	No.	1			
75.	Access Controller Door	No.	1			
76.	Access Control Cards	No.	1			
77.	Biometric/Card Reader Finger Print	No.	1			
78.	Biometric/Card Reader Facial	No.	1			
79.	Smart Card Reader-Proximity	No.	1			
80.	Access Control Management/Application Software	No.	1			
81.	Access control staff card Printer	No	1			
82.	Control Room System Printer	No	1			
83.	Genetec or Hikcentral	No.	1			

	Synergies Master Controller (SMC)					
84.	Single Door Maglock	No.	1			
85.	Double Door Maglock	No.	1			
86.	Emergency Release Button	No.	1			
87.	Key Switch	No.	1			
	<b>LICENSING REQUIREMENT</b>					
88.	Genetec or Hikcentral Federation License (general)	No	1			
89.	Advancis License per workstation	No.	1			
90.	Genetec or Hikcentral license per operator/user workstation	No.	1			
91.	Video analytic per channel	No.	1			
92.	Genetec or Hikcentral mission control license	No.	1			
93.	Genetec or Hikcentral Industrial IOT License	No.	1			
94.	Genetec or Hikcentral Logbook License	No.	1			
95.	1no Door License (general price, including integration)	No.	1			
96.	1no IP Camera License (general price, including integration)	No	1			
97.	1no Control ID SDK License (general price, including integration)	No	1			
98.	1no Control ID Interface License (general price, including integration)	No	1			
	<b>WORKSHOP DIAGNOSIS &amp; REPAIR</b>					
99.	Repair network switch	No.	1			
100.	Optical drive (HDD)	No.	1			
101.	Power supply unit	No.	1			
102.	Processor and heat sink	No.	1			
103.	System board (Mother Board)	No.	1			
104.	Fan	No.	1			
105.	Drive backplane	No.	1			
106.	Memory module (RAM)	No.	1			
107.	NIC Card	No.	1			

108.	Access control staff card Printer Ribbon	No	1			
109.	Control Room System Printer Cartridge/Tonner	No	1			
110.	Control Room System Printer ink 200ml	No	1			
111.	Renovation/repair of raised floor per 600mm X 600mm with associated accessories	Sq mm (600 X60 0)	1			
112.	Falls Seiling renovation/replacement per 600mm X 600mm with associated accessories	Sq mm (600 X60 0)	1			
113.	Aluminum frame gypsum partition pers square meter	Sq mete r	1			
114.	Door Hingers	No.	1			
115.	Aluminum Door with accessories	No.	1			
116.	Aluminum Double Door with accessories	No.	1			
	<b>CONTROL ROOM FUNITURE</b>					
117.	Control Room Chair	No.	1			
118.	Control Room table	No.	1			
	<b>AIR CONDITIONER (AC)</b>					
119.	Complete set of Air Conditioner AC	No.	1			
120.	AC Condenser Unit	No.	1			
121.	AC Condenser Split Unit	No.	1			
122.	AC Drainage Pump	No.	1			
123.	AC Remote Control	No.	1			
124.	Refilling of AC gas per refill per AC	No.	1			
	<b>EMERGENCY RESPONSE</b>					
125.	Emergency repair for a call/ticket per technician per day (installation and configurations of key components)	No.	1			
126.	Support service for a call/ticket per	No.	1			

	casual laborer per day (installation of key components)					
127.	Emergency repair/meeting for a call/ticket per supervisor	No.	1			
128.	Integration of one third party system as need arises into existing server applications for a call/ticket per one technician per day	No.	1			
129.	Unscheduled service per site as per the description in schedule of requirement under preventive maintenance.	No.	1			
<b>TOOLS AND POWER ACCESSORIES</b>						
130.	Software Maintenance laptop	No.	1			
131.	Full HD business projector 5,000 lumens	No.	1			
132.	Maintenance tool kit	No.	1			
133.	Cordless Rotary Hammer Drill (Includes 20-Volt Li-ion Rechargeable Battery, Fast Charger, SDS Plus Hammer Drill, Set of drill bits, Heavy Duty Brushless Demolition Hammer)	No	1			
134.	Blower	No.	1			
135.	Leather Hand gloves	No.	1			
136.	Aluminum Multi-Purpose Ladder (16ft)	No.	1			
137.	Aluminum Telescopic Ladder (3.8m)	No.	1			
138.	Windows antivirus complete with license (for 1No. PC)	No.	1			
139.	Multiprotocol Network tester (Pair)	No.	1			
140.	Surge and Voltage protector	No	1			
141.	4 core Alarm cable (100m/Roll)	Roll	1			
142.	Speaker 1.5mm sq. (70/0.15) cable	M	1			

143.	2.5mm sq Stranded Twin with Earth cable (100m/Roll)	Roll	1			
144.	2.5mm sq PVC CU Cable 3 Core	M	1			
145.	2.5mm sq PVC CU Cable S/C (100m/Roll)	Roll	1			
146.	4.0mm sq PVC CU Cable S/C (100m/Roll)	Roll	1			
147.	6.0mm sq PVC CU Cable S/C (100m/Roll)	Roll	1			
148.	4.0mm sq PVC CU Armoured Cable 2 Core (100m/Roll)	Roll	1			
149.	13A Socket 2-gang DP Switched Plug Socket Metal-Clad	No	1			
150.	PVC Insulating Tape	No	1			
151.	Amalgamating Tape (Rubber splicing tape)	No	1			
152.	Conta glue	No	1			
153.	UPS 1.5KVA	No	1			
154.	UPS 3KVA	No	1			
155.	UPS 6KVA	No	1			
156.	UPS 10KVA	No	1			
157.	7AH 12V battery	No	1			
158.	8A ,12V Power supplies	No	1			
159.	12-15 A ,12V Power supplies	No	1			
160.	Power supply transformer 12v	No	1			
161.	Supply and installation of 8m Camera/light Stainless Steel Pole	No.	1			
162.	LED Flood lights 50W (with brackets)	No.	1			
163.	LED Flood lights 100W (with brackets)	No.	1			
164.	12U × Depth 1000mm Wall Mount Cabinet (mounting brackets)	No.	1			
165.	Outdoor Box (Measurement 500x500x250 mm minimum, 1.2mm	NO	1			

	Galvanized Steel, Powder Coating, Corrosion Resistance, sealed and dustproof; IP54 , Built in Converter Fixed Slots, Air Switch Rail and Fixed Socket Position, clear acrylic inspection window )					
	<b>SECURITY LIGHTS</b>	No.	1			
166.	1000 watts Security lights with solar	No.	1			
167.	1000 watts Security lights	No.	1			
168.	300 watts Security lights with solar	No.	1			
169.	300 watts Security lights	No.	1			
170.	200 watts Security lights with solar	No.	1			
171.	200 watts Security lights	No.	1			
172.	Photocell Switch	No.	1			
173.	Security light 6 Meter Pole	No.	1			
174.	600X600 ceiling lights	No.	1			
175.	Lights Dimmer Switch	No.	1			
	<b>ELECTRIC FENCE</b>					
176.	3 Joule Fence Energizer	NO	1			
177.	5 Joule Fence Energizer	NO	1			
178.	8 Joule Fence Energizer	NO	1			
179.	12 Joule Fence Energizer	NO	1			
180.	Energizer Key Switch	NO	1			
181.	Energizer ON/OFF Key	NO	1			
182.	D.C. siren	NO	1			
183.	D.C. strobe light	NO	1			
184.	GSM/IP Module	NO	1			
185.	Timed fence light	NO	1			
186.	12V, 7AH Batteries.	NO	1			
187.	AVS 30 Voltage protector	NO	1			
188.	1.6/2.0mm Solid galvanized HT wire (1000m)	Roll	1			
189.	1.6/2.0mm Solid stainless steel HT wire (1000m)	Roll	1			
190.	Strain posts - Standard (refer to specification)	NO	1			
	<b>INSULATORS &amp; EARTHING</b>					
191.	Flat/round bar insulator	NO	1			
192.	Shield insulator	NO	1			
193.	Pop through hole insulator	NO	1			



194.	Self-tapper hook	NO	1			
195.	Earth Rod	NO	1			
	<b>INTRUDER ALARMS</b>					
196.	Control Panel	NO	1			
197.	Zone Expander	NO	1			
198.	PIR Detector	NO	1			
199.	Ceiling Mount PIR Detector	NO	1			
200.	Siren	NO	1			
201.	GSM Module	NO	1			
	<b>UVSS SPARE PART</b>					
202.	Under Vehicle Scanning system (UVSS) system	No	1			
203.	Under Vehicle Scanning system (UVSS) with similar features to Uveye system	No	1			
204.	Synchronizers (Master and slave)	No	1			
205.	Scanning glass	No	1			
206.	O-ring rubber	No	1			
207.	Bolt and nut (number 17)	No	1			
208.	Loop sensor cable	No	1			
209.	Workstation computer	No	1			
210.	PC quad port NIC card	No	1			
211.	24V 10A power supply	No	1			
212.	Loop detector	No	1			
213.	Flir thermal Camera	No	1			
214.	3KVA online double conversion UPS	No	1			
215.	Cat6A keystone connectors	No	1			
216.	Patch cord 1 meter	No	1			
217.	Graphics card 16GB	No	1			
218.	High beam LED light bar	No	1			
219.	Relays	No	1			
220.	Cat 7 cable	No	1			
221.	UVSS Multicore communication cable	No	1			
	<b>PIDS SPARE PART</b>					
222.	PIDS Detector Line 3M Long	No	1			
223.	Lantronix	No	1			
224.	PIDS Motherboard Qc 2019	No	1			
225.	Power Supply 12V 15A	No	1			
226.	PIDS Connectors	No	1			
	<b>AUTOMATIC BOLLARDS</b>					
227.	Down limit switch	No	1			
228.	Up limit switches	No	1			

229.	New K4 LED strips	No	1			
230.	Old K4 LED strips	No	1			
231.	Spiral LED Cables	No	1			
232.	Side screws M8	No	1			
233.	Top screws m10	No	1			
234.	DIN 7991-M8X20	No	1			
235.	O-rings	No	1			
236.	Solenoids valves	No	1			
237.	One way valves	No	1			
238.	Pressure valves	No	1			
239.	Bollard relays 24vdc	No	1			
240.	Loop detectors	No	1			
241.	24 VDC 10A power supply	No	1			
242.	12VDC 6.3A power supply	No	1			
243.	12VDC 4A power supply	No	1			
244.	Bollard magnetic solenoid	No	1			
245.	Bollard led lens	No	1			
246.	Bollard cup	No	1			
247.	Bollard backup batteries	No	1			
248.	Rubber rings	No	1			
249.	Solenoid power cable(Orange)	No	1			
250.	Piston	No	1			
251.	Traffic light bulbs	No	1			
252.	Arm barrier limit switches	No	1			
253.	Arm barrier arm(SQUARE)	No	1			
254.	Bollard shrink tubes	No	1			
255.	Bollard control panel	No	1			
256.	Bollard push button	No	1			
257.	Remote	No	1			
258.	Receiver	No	1			
259.	centurion d10 motor	No	1			
260.	centurion d20 motor	No	1			
261.	gate rolling wheels	No	1			
262.	centurion vantage arms	No	1			
263.	Batteries 12v 7.2ah	No	1			
264.	IR beam detectors	No	1			
	<b>X-RAY BAGGAGE SCANNER</b>					
265.	X-Ray Baggage Scanner system HI Scan 7551i	No	1			
266.	X-Ray Baggage system with same functionality as Scanner HI Scan 7551i or equivalent	No	1			
267.	X-ray Generator HIScan	No	1			

	7551i					
268.	Monitor for HI Scan 7551i	No	1			
269.	Control Panel for Hi-Scan 7551i	No	1			
270.	Power Supplies for HI Scan 7551i	No	1			
271.	Management PC complete with Hi scan software	No	1			
272.	Conveyor Belt system for HI Scan 7551i	No	1			
273.	proximity sensors	No	1			
274.	High-voltage cables	No	1			
275.	X-ray tube	No	1			
276.	circuit breakers	No	1			

Name of Tenderer \_\_\_\_\_ Signature & Official Stamp

**LOT 5: INSTALLATION OF CCTV MAJOR STORES & OFFICES BILL OF QUANTITIES-  
COAST REGION**

**KIPEVU SUBSTATION IP- CCTV & ACCESS CONTROL**

No	Item Description	Unit	Qty	Country of origin	Unit Price (PPCBL Incl.) & VAT Excl. (Kes)	Total Price (PPCBL Incl.) & VAT Excl. (Kes)	Part Numbers
A.	8 MP Dome Camera	No.	24				
B.	4MP Network PTZ	No.	1				
C.	180° Panoramic Network Camera	No.	1				
D.	32-ch Intelligent NVR upto 16 TB	No.	1				
E.	Genetec or Hikcentral Video License (per Camera).	No.	26				
F.	IP Access Control System at Entry (Proximity Reader) and Exit (Proximity Reader) complete with Licences, IP readers with inbuilt controller module, Door Maglock, Door Closure and all necessary accessories to complete their installation and which must be compatible and shall be linked to existing GENETEC OR HIKCENTRAL network (Per Door)	No.	4				
G.	40 Inch 1080P LED Monitor C/W mount accessories	No.	0				
H.	Gig Ethernet To Gig rack-mount Fiber optic Media Converter 30km Range industrial type	No.	2				
<b>Total Carried to collection Kipevu Substation Page 1</b>							

**Bill of Quantities Kipevu Substation Page 2**

<b>No</b>	<b>Item Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Country of origin</b>	<b>Unit Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Total Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Part Numbers</b>
A.	Allow for cabling, ducting, brackets, poles and necessary accessories fabrications	Lot	1				
B.	Network Devices accessories&cabinets- 3 Edge switches	Lot	1				
C.	3 KVA true online UPS	No	2				
D.	Allow for integration of the system to existing GENETEC OR HIKCENTRAL server	Lot	1				
E.	Client Workstation	Lot	1				
F.	Installation, Testing and Commissioning to client satisfaction	Lot	1				
I.	Biometric Access Control cards	No.	100				
<b>Total Carried to collection Kipevu Substation Page 2</b>							

<b>SUMMARY PAGE KIPEVU SUBSTATION IP- CCTV &amp;ACCESS CONTROL BILL OF QUANTITIES</b>			
<b>A.</b>	<b>Total Carried to collection Kipevu Substation Page 1</b>		
<b>B.</b>	<b>Total Carried to collection Kipevu Substation Page 2</b>		
	<b>SUB-TOTAL- KIPEVU SUBSTATION IP- CCTV &amp;ACCESS CONTROL</b>		

**LIKONI SUBSTATION IP- CCTV & ACCESS CONTROL**

<b>No</b>	<b>Item Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Country of origin</b>	<b>Unit Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Total Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Part Numbers</b>
A.	8 MP Dome Camera	No.	13				
B.	4MP Network PTZ	No.	1				
C.	32-ch IntelligentNVR upto 16 TB	No.	1				
D.	Genetec or Hikcentral Video License (per Camera).	No.	14				
E.	IP Access Control System at Entry (Proximity Reader) and Exit (Proximity Reader) complete with Licences, IP readers with inbuilt controller module, Door Maglock, Door Closure and all necessary accessories to complete their installation and which must be compatible and shall be linked to existing GENETEC OR HIKCENTRAL network (Per Door)	No.	2				
F.	32 Inch 1080P LED Monitor C/W mount accessories	No.	0				
G.	Gig Ethernet To Gig rack-mount Fiber optic Media Converter 30km Range industrial type	No.	2				
<b>Total Carried to collection Likoni Substation Page 1</b>							

**Bill of Quantities Likoni Substation Page 2**

No	Item Description	Unit	Qty	Country of origin	Unit Price (PPCBL Incl.) & VAT Excl. (Kes)	Total Price (PPCBL Incl.) & VAT Excl. (Kes)	Part Numbers
A.	Allow for cabling, ducting, brackets, poles and necessary accessories fabrications	Lot	1				
B.	Network Devices accessories & cabinets-3 Edge switches ,1 core switch	Lot	1				
C.	3 KVA true online UPS	No	1				
D.	Allow for integration of the system to existing GENETEC OR HIKCENTRAL server	Lot	1				
E.	Client Work station	Lot	0				
F.	Installation, Testing and Commissioning to client satisfaction	Lot	1				
G.	Biometric Access Control Cards	No.	100				
<b>Total Carried to collection Likoni Substation Page 2</b>							



<b>SUMMARY PAGE LIKONI SUBSTATION IP- CCTV &amp;ACCESS CONTROL BILL OF QUANTITIES</b>			
<b>A.</b>	<b>Total Carried to collection Likoni Substation Page 1</b>		
<b>B.</b>	<b>Total Carried to collection Likoni Substation Page 2</b>		
	<b>SUB-TOTAL-LIKONI SUBSTATION IP- CCTV &amp;ACCESS CONTROL</b>		

**VOI STORES/ DEPOT IP- CCTV & ACCESS CONTROL**

<b>No</b>	<b>Item Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Country of origin</b>	<b>Unit Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Total Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Part Numbers</b>
A	8 MP Dome Camera	No.	32				
B	4MP Network PTZ	No.	2				
C	180° Panoramic Network Camera	No.	2				
D	64-ch Intelligent NVR	No.	1				
E	Genetec or Hikcentral Video License (per Camera).	No.	36				
F.	IP Access Control System at Entry (Proximity Reader) and Exit (Proximity Reader) complete with Licenses, IP readers with inbuilt controller module, Door Maglock, Door Closure and all necessary accessories to complete their installation and which must be compatible and shall be linked to existing GENETEC OR HIKCENTRAL network (Per Door)	No.	6				
G	40 Inch 1080P LED Monitor C/W mount accessories	No.	1				
H	32 Inch 1080P LED Monitor C/W mount accessories	No.	1				
I.	Gig Ethernet To Gig rack-mount Fiber optic Media Converter 30km Range industrial type	No.	2				
<b>Total Carried to Collection Voi stores/depot page 1</b>							

**Bill of Quantities Page 2**

No	Item Description	Unit	Qty	Country of origin	Unit Price (PPCBL Incl.) & VAT Excl. (Kes)	Total Price (PPCBL Incl.) & VAT Excl. (Kes)	Part Numbers
A	Allow for cabling, ducting, poles/brackets and necessary accessories	Lot	1				
B	Network Devices accessories&cabinets- 3 Edge switches ,1 core switch	Lot	1				
C	6 KVA true online UPS	No	1				
D	3 KVA true online UPS	No	2				
E	1.5 KVA true online UPS	No	1				
F	Allow for integration of the system to existing GENETEC OR HIKCENTRAL server	Lot	1				
G	Client Work station	Lot	1				
H	Installation, Testing and Commissioning to client satisfaction	Lot	1				
I	Biometric Access Control cards	No.	200				
<b>Total Carried to Collection Voi stores/depot page 2</b>							

<b>SUMMARY PAGE VOI STORE/DEPOT IP- CCTV &amp;ACCESS CONTROL BILL OF QUANTITIES</b>			
<b>A.</b>	<b>Total Carried to Collection Voi stores/depot page 1</b>		
<b>B.</b>	<b>Total Carried to Collection Voi stores/depot page 2</b>		
	<b>SUB-TOTAL- VOI STORE/DEPOT IP- CCTV &amp;ACCESS CONTROL</b>		

**MALINDI DEPOT IP- CCTV & ACCESS CONTROL**

No	Item Description	Unit	Qty	Country of origin	Unit Price (PPCBL Incl.) & VAT Excl. (Kes)	Total Price (PPCBL Incl.) & VAT Excl. (Kes)	Part Numbers
A.	8 MP Dome Camera	No.	30				
B.	4MP Network PTZ	No.	2				
C.	180° Panoramic Network Camera	No.	1				
D.	64-ch Intelligent NVR	No.	1				
E.	Genetec or Hikcentral Video License (per Camera).	No.	34				
F.	IP Access Control System at Entry (Proximity Reader) and Exit (Proximity Reader) complete with Licences, IP readers with inbuilt controller module, Door Maglock, Door Closure and all necessary accessories to complete their installation and which must be compatible and shall be linked to existing GENETEC OR HIKCENTRAL network (Per Door)	No.	6				
G.	40 Inch 1080P LED Monitor C/W mount accessories	No.	1				
H.	Gig Ethernet To Gig rack-mount Fiber optic Media Converter 30km Range industrial type	No.	2				
<b>Total Carried to collection Malindi depot Page 1</b>							

**Bill of Quantities Malindi depot Page 2**

No	Item Description	Unit	Qty	Country of origin	Unit Price (PPCBL Incl.) & VAT Excl. (Kes)	Total Price (PPCBL Incl.) & VAT Excl. (Kes)	Part Numbers
A.	Allow for cabling, ducting, brackets, poles and necessary accessories fabrications	Lot	1				
B.	Network Devices accessories&cabinets- 3 Edge switches	Lot	1				
C.	3 KVA true online UPS	No	2				
D.	Allow for integration of the system to existing GENETEC OR HIKCENTRAL server	Lot	1				
E.	Client Workstation	Lot	1				
F.	Installation, Testing and Commissioning to client satisfaction	Lot	1				
G.	Biometric Access Control cards	No.	200				
<b>Total Carried to collection Malindi depot Page 2</b>							

<b>SUMMARY PAGE MALINDI DEPOT IP- CCTV &amp;ACCESS CONTROL BILL OF QUANTITIES</b>			
<b>A.</b>	<b>Total Carried to collection Malindi depot Page 1</b>		
<b>B.</b>	<b>Total Carried to collection Malindi depot Page 2</b>		
	<b>SUB-TOTAL- MALINDI DEPOT IP- CCTV &amp;ACCESS CONTROL</b>		

**WUNDANYI OFFICE AND STORE IP- CCTV & ACCESS CONTROL**

<b>No</b>	<b>Item Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Country of origin</b>	<b>Unit Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Total Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Part Numbers</b>
A.	8 MP Dome Camera	No.	16				
B.	4MP Network PTZ	No.	2				
C.	180° Panoramic Network Camera	No.	1				
D.	64-ch IntelligentNVR	No.	1				
E.	Genetec or Hikcentral Video License (per Camera).	No.	19				
F.	IP Access Control System at Entry (Proximity Reader) and Exit (Proximity Reader) complete with Licences, IP readers with inbuilt controller module, Door Maglock, Door Closure and all necessary accessories to complete their installation and which must be compatible and shall be linked to existing GENETEC OR HIKCENTRAL network (Per Door)	No.	6				
G.	40 Inch 1080P LED Monitor C/W mount accessories	No.	1				
H.	Gig Ethernet To Gig rack-mount Fiber optic Media Converter 30km Range industrial type	No.	2				
<b>Total Carried to collection Wundanyi Office and Store Page 1</b>							



**Bill of Quantities Wundanyi Office Page 2**

<b>No</b>	<b>Item Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Country of origin</b>	<b>Unit Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Total Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Part Numbers</b>
A.	Allow for cabling, ducting, brackets, poles and necessary accessories fabrications	Lot	1				
B.	Network Devices accessories&cabinets-3 Edge switches	Lot	1				
C.	3 KVA true online UPS	No	2				
D.	Allow for integration of the system to existing GENETEC OR HIKCENTRAL server	Lot	1				
E.	Client Work station	Lot	1				
F.	Installation, Testing and Commissioning to client satisfaction	Lot	1				
G.	Biometric Access Control cards	No.	200				
<b>Total Carried to collection Wundanyi Office and Store Page 2</b>							

<b>SUMMARY PAGE MALINDI DEPOT IP- CCTV &amp;ACCESS CONTROL BILL OF QUANTITIES</b>			
<b>A.</b>	<b>Total Carried to collection Wundanyi Office and Store Page 1</b>		
<b>B.</b>	<b>Total Carried to collection Wundanyi Office and Store Page 2</b>		
	<b>SUB-TOTAL- WUNDANYI OFFICE AND STORE IP- CCTV &amp;ACCESS CONTROL</b>		

**HOROHO IP- CCTV & ACCESS CONTROL**

No	Item Description	Unit	Qty	Country of origin	Unit Price (PPCBL Incl.) & VAT Excl. (Kes)	Total Price (PPCBL Incl.) & VAT Excl. (Kes)	Part Numbers
A.	8 MP Dome Camera	No.	16				
B.	4MP Network PTZ	No.	2				
C.	180° Panoramic Network Camera	No.	1				
D.	64-ch IntelligentNVR	No.	1				
E.	Genetec or Hikcentral Video License (per Camera).	No.	19				
F.	IP Access Control System at Entry (Proximity Reader) and Exit (Proximity Reader) complete with Licences, IP readers with inbuilt controller module, Door Maglock, Door Closure and all necessary accessories to complete their installation and which must be compatible and shall be linked to existing GENETEC OR HIKCENTRAL network (Per Door)	No.	6				
G.	40 Inch 1080P LED Monitor C/W mount accessories	No.	1				
H.	Gig Ethernet To Gig rack-mount Fiber optic Media Converter 30km Range industrial type	No.	2				
<b>Total Carried to collection Horohoro Page 1</b>							

**Bill of Quantities Horohoro Page 2**

No	Item Description	Unit	Qty	Country of origin	Unit Price (PPCBL Incl.) & VAT Excl. (Kes)	Total Price (PPCBL Incl.) & VAT Excl. (Kes)	Part Numbers
A.	Allow for cabling, ducting, brackets, poles and necessary accessories fabrications	Lot	1				
B.	Network Devices accessories & cabinets-3 Edge switches	Lot	1				
C.	3 KVA true online UPS	No	2				
D.	Allow for integration of the system to existing GENETEC OR HIKCENTRAL server	Lot	1				
E.	Client Workstation	Lot	1				
F.	Installation, Testing and Commissioning to client satisfaction	Lot	1				
G.	Biometric Access Control cards	No.	200				
<b>Total Carried to collection Horohoro Page 2</b>							

	<b>SUMMARY PAGE HOROHORO IP- CCTV &amp;ACCESS CONTROL BILL OF QUANTITIES</b>		
A.	<b>Total Carried to collection Horohoro Page 1</b>		
B.	<b>Total Carried to collection Horohoro Page 2</b>		
	<b>SUB-TOTAL - HOROHORO IP- CCTV &amp;ACCESS CONTROL</b>		

**TECHNICAL TRAINING & PROJECT MANAGEMENT LOT-5**

<b>Bill of Quantities Technical Training &amp; Project Management</b>					
<b>No</b>	<b>Item Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Unit Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Total Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>
<b>A</b>	<b>Manufacturers Training:Factor cost as follows</b>				
i)	Factory Assessment and pre- installation Training for 4no persons	Pc	1	<b>2,300,000.00</b>	<b>2,300,000.00</b>
ii)	Manufacturers Training at the manufacturers for 3no technical persons (Factor only the cost of training i.e venue ,trainers, transport to and from the training venue and certification)	Lot	1		
ii)	Travelling and accommodation for 3no technical persons	Lot	1	<b>3,500,000.00</b>	<b>3,500,000.00</b>
<b>B</b>	Provisional Sum for Project Management	Pc	1	<b>2,000,000.00</b>	<b>2,000,000.00</b>
	Provisional Sum for Contingencies	Pc	1	<b>1,500,000.00</b>	<b>1,500,000.00</b>
	<b>Total PPCBL Incl. &amp; VAT Excl.</b>				
	<b>ADD 16% VAT</b>				
	<b>Grand-Total PPCBL Incl. &amp; VAT Incl. Lot :</b>				
	<b>5</b>				
<b>Total Carried to collection Bill of Quantities - Technical Training &amp; Project Management</b>					

**SUMMARY PAGE BILL OF QUANTITIES LOT 5**

<b>SUMMARY PAGE BILL OF QUANTITIES LOT 5: INSTALLATION OF CCTV MAJOR STORES &amp; OFFICES BILL OF QUANTITIES: COAST REGION</b>			
a	Total carried to collection sub-total- Kipevu Substation IP- CCTV &Access Control		
b	Total carried to collection sub-total- Likoni Substation IP- CCTV &Access Control		
c	Total carried to collection sub-total- Voi Stores/ Depot IP- CCTV &Access Control		
d	Total carried to collection sub-total- Malindi Depot IP- CCTV &Access Control		
e	Total carried to collection sub-total- Wundanyi office and Store IP- CCTV &Access Control		
f	Total carried to collection sub-total- Horohoro IP- CCTV &Access Control		
g	Total carried to collection sub-total- Technical Training & Project Management Page		
	<b>Total PPCBL Incl. &amp; VAT Excl</b>		
	<b>ADD 16% VAT</b>		
	<b>Grand-Total PPCBL Incl. &amp; VAT Incl. LOT 5:</b>		

*SCHEDULE OF MAINTENANCE LOT 5: INSTALLATION OF CCTV MAJOR STORES & OFFICES*

<b>Item</b>	<b>Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Unit Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Total Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>
1	Allow maintenance for a period of 1 (one) year done quarterly as per KPLC SLA.	No	4		
<b>Total PPCBL Incl. &amp; VAT Excl</b>					
<b>ADD 16% VAT</b>					
<b>Grand-Total PPCBL Incl. &amp; VAT Incl. Lot :5</b>					

NB:

To be done after one year warranty of servicing during period



**LOT 5-RECOMMENDED SCHEDULE OF SPARE PARTS**

**NB: The cost of spare parts shall be budgeted for and consumed in subsequent repair & Maintenance budget after the warranty period on as-and- when needed-basis.**

<b>RECOMMENDED SCHEDULE OF SPARE PARTS</b>						
<b>NO.</b>	<b>ITEM</b>	<b>UoM</b>	<b>Qty</b>	<b>Unit Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Total Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Total Price (PPCBL Incl.) &amp; VAT Incl. (Kes)</b>
	<b>CCTV REQUIREMENT</b>					
1.	NVR 16 Channel	No	1			
2.	NVR 32 Channel	No	1			
3.	NVR 64 Channel	No	1			
4.	16 MPOne Omni Directional	No	1			
5.	4 MP Bullet indoor/outdoor IP camera	No	1			
6.	8 MP Bullet indoor/outdoor IP camera	No	1			
7.	8 MP Dome indoor/outdoor IP camera	No	1			
8.	2 MP PTZ indoor/outdoor IP camera	No	1			
9.	4 MP 180° indoor/outdoor Panoramic IP	No	1			
10.	8 MP 360° indoor/outdoor IP camera	No	1			
11.	16 MPOne Omni Directional Indoor/Outdoor Dome IP Cameras (B type)	No	1			
12.	Video monitor 32"	No	1			
13.	Video monitor 42"	No	1			
14.	1TB Hard Disk	No	1			
15.	2TB Hard Disk	No	1			
16.	3TB Hard Disk	No	1			
17.	4TB Hard Disk	No	1			
18.	8TB Hard Disk	No	1			
19.	10 TB Hard Disk	No	1			
20.	12 TB Hard Disk	No	1			
21.	GENETEC or HIKCENTRAL CCTV Archiver	No	1			
22.	Client workstation	No	1			
	<b>LICENSES , SMA AND TRAINING</b>	No	1			
23.	SMA for 2 years for KPLC Genetec or Hikcentral	No	1			

	System					
24.	SMA for 3 years for KPLC Genetec or Hikcentral System	No	1			
25.	SMA for 5 years for KPLC Genetec or Hikcentral System	No	1			
26.	SMA For 2 Years Advancis Security Management Software	No	1			
27.	SMA For 3 Years Advancis Security Management Software	No	1			
28.	SMA For 2 years AEOS NEPAD Access Control System	No	1			
29.	SMA For 3 years AEOS NEPAD Access Control System	No	1			
30.	SMA for UVEYE UVSS system	No	1			
31.	Genetec or Hikcentral CCTV Camera license per camera	No	1			
32.	Genetec or Hikcentral Access Control License per door	No	1			
33.	Genetec or Hikcentral SDK License for Access control System	No	1			
34.	NEPAD Access control License per door	No	1			
35.	Advancis 500 data points license	No	1			
36.	Advancis 1000 data points license	No	1			
37.	Advancis User license per user	No	1			
38.	Integration of a site to Advancis including any required CAD Drawing	No	1			
39.	Establishment of interface between Genetec or Hikcentral and Advancis for a site of 50 Cameras	No	1			
40.	Establishment of interface between Genetec or Hikcentral Access control and SAP Database	No	1			

41.	Technical training for Genetec or Hikcentral Access Control for one persons	No	1			
42.	Technical training for Genetec or Hikcentral Video Management systems for one persons	No	1			
43.	Technical training for Advancis SMS for one persons	No	1			
	<b>NETWORKING REQUIREMENT</b>					
44.	Core Network Switch-24port	No	1			
45.	Main Network switch 24 Port	No	1			
46.	Local switch 24 Port	No	1			
47.	Switch PoE 8 Port	No	1			
48.	24 Port Patch Panel with I-O Ports	No	1			
49.	Patch Cord Cable 1- Meter Cat-6	No	1			
50.	Patch Cord Cable 3- Meter Cat-6	No	1			
51.	Single Mode Fiber Patch Cord LC- LC/ SC-SC/ SC-LC, 1 or 3M, Duplex	No	1			
52.	Multi-Mode Fiber Patch Cord LC- LC/ SC-SC/ SC-LC, 1 or 3M, Duplex	No	1			
53.	Multiprotocol Network Tester (Set)	No	1			
54.	Coaxial Cable (1000ft)	Meter	1			
55.	UTP Cat 6 Cable (1000ft)	Meter	1			
56.	Shielded UTP Cat6 Outdoor Direct Burial 23AWG Pure Copper (1000ft)	Meter	1			
57.	RJ45 Connectors (100 Pack)	Pkt	1			
58.	RJ45 Coupler, 2 Port, UTP	No	1			
59.	PoE Extender	No	1			
60.	PoE Injector for IP cameras	No.	1			
61.	Armored outdoor direct burial 4-6 core fiber optic cable (1000ft)	Roll	1			
62.	Network Media Converter and associated network accessories	No.	1			

63.	SFP Transceiver Module (SMF, 1550nm, 20/50/100km, LC, DOM) Cisco, Max Data Rate: >1000Mbps and associated fiber network accessories	No.	1			
64.	White Conduits 25mm	No	1			
65.	White Conduits 32mm	No	1			
66.	White Bends 25/32mm	No	1			
67.	White Connectors 25/32mm	No	1			
68.	Saddle clips (100 pack)	Pkt	1			
69.	Screws (100-count box of 1¾-inch- long screws)	Pkt	1			
70.	Galvanized Metallic Trunking 100mm X 50mm (3m)	No	1			
71.	PVC Cable Trunk 16 X 25 mm White duct (3m)	No	1			
72.	Camera Stainless Steel Pole	No.	1			
	<b>ACCESS CONTROL</b>					
73.	Door Access Controller Compatible with GENETEC Or Hikcentral	No	1			
74.	Access Controller Door Interface	No.	1			
75.	Access Controller DoorS	No.	1			
76.	Access Control Cards	No.	1			
77.	Biometric/Card Reader Finger Print	No.	1			
78.	Biometric/Card Reader Facial	No.	1			
79.	Smart Card Reader-Proximity	No.	1			
80.	Access Control Management/Application Software	No.	1			
81.	Access control staff card Printer	No	1			
82.	Control Room System Printer	No	1			
83.	Genetec or Hikcentral Synergies Master Controller (SMC)	No.	1			
84.	Single Door Maglock	No.	1			
85.	Double Door Maglock	No.	1			
86.	Emergency Release Button	No.	1			
87.	Key Switch	No.	1			

<b>LICENSING REQUIREMENT</b>						
88.	Genetec or Hikcentral Federation License (general)	No	1			
89.	Advancis License per workstation	No.	1			
90.	Genetec or Hikcentral license per operator/user workstation	No.	1			
91.	Video analytic per channel	No.	1			
92.	Genetec or Hikcentral mission control license	No.	1			
93.	Genetec or Hikcentral Industrial IOT License	No.	1			
94.	Genetec or Hikcentral Logbook License	No.	1			
95.	1no Door License (general price, including integration)	No.	1			
96.	1no IP Camera License (general price, including integration)	No	1			
97.	1no Control ID SDK License (general price, including integration)	No	1			
98.	1no Control ID Interface License (general price, including integration)	No	1			
<b>WORKSHOP DIAGNOSIS &amp; REPAIR</b>						
99.	Repair network switch	No.	1			
100.	Optical drive (HDD)	No.	1			
101.	Power supply unit	No.	1			
102.	Processor and heat sink	No.	1			
103.	System board (Mother Board)	No.	1			
104.	Fan	No.	1			
105.	Drive backplane	No.	1			
106.	Memory module (RAM)	No.	1			
107.	NIC Card	No.	1			
108.	Access control staff card Printer Ribbon	No	1			
109.	Control Room System Printer Cartridge/Tonner	No	1			
110.	Control Room System Printer ink 200ml	No	1			
111.	Renovation/repair of raised floor per 600mm X 600mm with associated accessories	Sq mm (600X 600)	1			

112.	Falls Seiling renovation/replacement per 600mm X 600mm with associated accessories	Sq mm (600X600)	1			
113.	Aluminum frame gypsum partition pers square meter	Sq meter	1			
114.	Door Hingers	No.	1			
115.	Aluminum Door with accessories	No.	1			
116.	Aluminum Double Door with accessories	No.	1			
<b>CONTROL ROOM FUNITURE</b>						
117.	Control Room Chair	No.	1			
118.	Control Room table	No.	1			
<b>AIR CONDITIONER (AC)</b>						
119.	Complete set of Air Conditioner AC	No.	1			
120.	AC Condenser Unit	No.	1			
121.	AC Condenser Split Unit	No.	1			
122.	AC Drainage Pump	No.	1			
123.	AC Remote Control	No.	1			
124.	Refilling of AC gas per refill per AC	No.	1			
<b>EMERGENCY RESPONSE</b>						
125.	Emergency repair for a call/ticket per technician per day (installation and configurations of key components)	No.	1			
126.	Support service for a call/ticket per casual laborer per day (installation of key components)	No.	1			
127.	Emergency repair/meeting for a call/ticket per supervisor	No.	1			
128.	Integration of one third party system as need arises into existing server applications for a call/ticket per one technician per day	No.	1			
129.	Unscheduled service per site as per the description in schedule of requirement	No.	1			

	under preventive maintenance.					
	<b>TOOLS AND POWER ACCESSORIES</b>					
130.	Software Maintenance laptop	No.	1			
131.	Full HD business projector 5,000 lumens	No.	1			
132.	Maintenance tool kit	No.	1			
133.	Cordless Rotary Hammer Drill (Includes 20-Volt Li-ion Rechargeable Battery, Fast Charger, SDS Plus Hammer Drill, Set of drill bits, Heavy Duty Brushless Demolition Hammer)	No	1			
134.	Blower	No.	1			
135.	Leather Hand gloves	No.	1			
136.	Aluminum Multi-Purpose Ladder (16ft)	No.	1			
137.	Aluminum Telescopic Ladder (3.8m)	No.	1			
138.	Windows antivirus complete with license (for 1No. PC)	No.	1			
139.	Multiprotocol Network tester (Pair)	No.	1			
140.	Surge and Voltage protector	No	1			
141.	4 core Alarm cable (100m/Roll)	Roll	1			
142.	Speaker 1.5mm sq. (70/0.15) cable	M	1			
143.	2.5mm sq Stranded Twin with Earth cable (100m/Roll)	Roll	1			
144.	2.5mm sq PVC CU Cable 3 Core	M	1			
145.	2.5mm sq PVC CU Cable S/C (100m/Roll)	Roll	1			
146.	4.0mm sq PVC CU Cable S/C (100m/Roll)	Roll	1			
147.	6.0mm sq PVC CU Cable S/C (100m/Roll)	Roll	1			
148.	4.0mm sq PVC CU Armoured Cable 2 Core (100m/Roll)	Roll	1			
149.	13A Socket 2-gang DP Switched Plug Socket Metal-Clad	No	1			
150.	PVC Insulating Tape	No	1			

151.	Amalgamating Tape (Rubber splicing tape)	No	1			
152.	Conta glue	No	1			
153.	UPS 1.5KVA	No	1			
154.	UPS 3KVA	No	1			
155.	UPS 6KVA	No	1			
156.	UPS 10KVA	No	1			
157.	7AH 12V battery	No	1			
158.	8A ,12V Power supplies	No	1			
159.	12-15 A ,12V Power supplies	No	1			
160.	Power supply transformer 12v	No	1			
161.	Supply and installation of 8m Camera/light Stainless Steel Pole	No.	1			
162.	LED Flood lights 50W (with brackets)	No.	1			
163.	LED Flood lights 100W (with brackets)	No.	1			
164.	12U × Depth 1000mm Wall Mount Cabinet (mounting brackets)	No.	1			
165.	Outdoor Box (Measurement 500x500x250 mm minimum, 1.2mm Galvanized Steel, Powder Coating, Corrosion Resistance, sealed and dustproof; IP54 , Built in Converter Fixed Slots, Air Switch Rail and Fixed Socket Position, clear acrylic inspection window )	NO	1			
	<b>SECURITY LIGHTS</b>	No.	1			
166.	1000 watts Security lights with solar	No.	1			
167.	1000 watts Security lights	No.	1			
168.	300 watts Security lights with solar	No.	1			
169.	300 watts Security lights	No.	1			
170.	200 watts Security lights with solar	No.	1			



171.	200 watts Security lights	No.	1			
172.	Photocell Switch	No.	1			
173.	Security light 6 Meter Pole	No.	1			
174.	600X600 ceiling lights	No.	1			
175.	Lights Dimmer Switch	No.	1			
	<b>ELECTRIC FENCE</b>					
176.	3 Joule Fence Energizer	NO	1			
177.	5 Joule Fence Energizer	NO	1			
178.	8 Joule Fence Energizer	NO	1			
179.	12 Joule Fence Energizer	NO	1			
180.	Energizer Key Switch	NO	1			
181.	Energizer ON/OFF Key	NO	1			
182.	D.C. siren	NO	1			
183.	D.C. strobe light	NO	1			
184.	GSM/IP Module	NO	1			
185.	Timed fence light	NO	1			
186.	12V, 7AH Batteries.	NO	1			
187.	AVS 30 Voltage protector	NO	1			
188.	1.6/2.0mm Solid galvanized HT wire (1000m)	Roll	1			
189.	1.6/2.0mm Solid stainless steel HT wire (1000m)	Roll	1			
190.	Strain posts - Standard (refer to specification)	NO	1			
	<b>INSULATORS &amp; EARTHING</b>					
191.	Flat/round bar insulator	NO	1			
192.	Shield insulator	NO	1			
193.	Pop through hole insulator	NO	1			
194.	Self-tapper hook	NO	1			
195.	Earth Rod	NO	1			
	<b>INTRUDER ALARMS</b>					
196.	Control Panel	NO	1			
197.	Zone Expander	NO	1			
198.	PIR Detector	NO	1			
199.	Ceiling Mount PIR Detector	NO	1			
200.	Siren	NO	1			
201.	GSM Module	NO	1			
	<b>UVSS SPARE PART</b>					
202.	Under Vehicle Scanning system (UVSS) system	No	1			
203.	Under Vehicle Scanning system (UVSS) with similar features to Uveye system	No	1			
204.	Synchronizers (Master and slave)	No	1			
205.	Scanning glass	No	1			

206.	O-ring rubber	No	1			
207.	Bolt and nut (number 17)	No	1			
208.	Loop sensor cable	No	1			
209.	Workstation computer	No	1			
210.	PC quad port NIC card	No	1			
211.	24V 10A power supply	No	1			
212.	Loop detector	No	1			
213.	Flir thermal Camera	No	1			
214.	3KVA online double conversion UPS	No	1			
215.	Cat6A keystone connectors	No	1			
216.	Patch cord 1 meter	No	1			
217.	Graphics card 16GB	No	1			
218.	High beam LED light bar	No	1			
219.	Relays	No	1			
220.	Cat 7 cable	No	1			
221.	UVSS Multicore communication cable	No	1			
	<b>PIDS SPARE PART</b>					
222.	PIDS Detector Line 3M Long	No	1			
223.	Lantronix	No	1			
224.	PIDS Motherboard Qc 2019	No	1			
225.	Power Supply 12V 15A	No	1			
226.	PIDS Connectors	No	1			
	<b>AUTOMATIC BOLLARDS</b>					
227.	Down limit switch	No	1			
228.	Up limit switches	No	1			
229.	New K4 LED strips	No	1			
230.	Old K4 LED strips	No	1			
231.	Spiral LED Cables	No	1			
232.	Side screws M8	No	1			
233.	Top screws m10	No	1			
234.	DIN 7991-M8X20	No	1			
235.	O-rings	No	1			
236.	Solenoids valves	No	1			
237.	One way valves	No	1			
238.	Pressure valves	No	1			
239.	Bollard relays 24vdc	No	1			
240.	Loop detectors	No	1			
241.	24 VDC 10A power supply	No	1			
242.	12VDC 6.3A power supply	No	1			
243.	12VDC 4A power supply	No	1			
244.	Bollard magnetic solenoid	No	1			
245.	Bollard led lens	No	1			
246.	Bollard cup	No	1			

247.	Bollard backup batteries	No	1			
248.	Rubber rings	No	1			
249.	Solenoid power cable(Orange)	No	1			
250.	Piston	No	1			
251.	Traffic light bulbs	No	1			
252.	Arm barrier limit switches	No	1			
253.	Arm barrier arm(SQUARE)	No	1			
254.	Bollard shrink tubes	No	1			
255.	Bollard control panel	No	1			
256.	Bollard push button	No	1			
257.	Remote	No	1			
258.	Receiver	No	1			
259.	centurion d10 motor	No	1			
260.	centurion d20 motor	No	1			
261.	gate rolling wheels	No	1			
262.	centurion vantage arms	No	1			
263.	Batteries 12v 7.2ah	No	1			
264.	IR beam detectors	No	1			
<b>X-RAY BAGGAGE SCANNER</b>						
265.	X-Ray Baggage Scanner system HI Scan 7551i	No	1			
266.	X-Ray Baggage system with same functionality as Scanner HI Scan 7551i or equivalent	No	1			
267.	X-ray Generator HI Scan 7551i	No	1			
268.	Monitor for HI Scan 7551i	No	1			
269.	Control Panel for Hi-Scan 7551i	No	1			
270.	Power Supplies for HI Scan 7551i	No	1			
271.	Management PC complete with Hi scan software	No	1			
272.	Conveyor Belt system for HI Scan 7551i	No	1			
273.	proximity sensors	No	1			
274.	High-voltage cables	No	1			
275.	X-ray tube	No	1			
276.	circuit breakers	No	1			

Name of Tenderer \_\_\_\_\_ Signature & Official Stamp

**LOT 6: INSTALLATION OF IP-CCTV & BIOMETRIC ACCESS CONTROL SYSTEM & ACCESSORIES FOR IESR AND LIVELINE**

<b>No</b>	<b>Item Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Country of origin</b>	<b>Unit Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Total Price (PPCBL Incl.) &amp; VAT Excl. (Kes)</b>	<b>Part Numbers</b>
<b>a</b>	180° Panoramic Network Camera	No.	4				
<b>b</b>	PTZ Camera	No.	3				
<b>c</b>	8 MP Dome Camera	No.	14				
<b>d</b>	8 MP Bullet Camera	No.	20				
<b>e</b>	Camera Poles	No.	5				
<b>f</b>	64-Channel NVR and storage Server up to 40TB	No.	1				
<b>g</b>	NVR-Management Station/Client Work Station	No.	1				
<b>h</b>	NVR Viewing Station	No.	1				
<b>i</b>	Access control door controller	No.	4				
<b>j</b>	Access control reader Type A	No.	4				
<b>k</b>	Door closer	No.	4				
<b>l</b>	Maintenance Laptops	No.	1				
<b>m</b>	Core Network Switches (backbone Switch)	No.	1				
<b>n</b>	Edge Network Local Switches	No.	5				
<b>o</b>	3 KVA UPS	No.	5				
<b>p</b>	6 KVA UPS	No.	1				
<b>q</b>	Fiber Optic cable (FOC)	Lot	1				
<b>r</b>	Interface (SMS-NVR)	Lot	1				
<b>s</b>	Installation Testing and Commissioning	Lot	1				
<b>t</b>	1 Year Maintenance SLA	Lot	1				
<b>u</b>	Training for Eight Administrative staff and Four local staff	Lot	1				

v	GENETEC of Hikcentral Video License (per Camera).	No.	41				
w	Other material necessary to fully meet specifications/scope of the project (Itemize)	Lot	1				
x	Project Management Provisional Sum (PSUM)	Lot	1		<b>2,000,000.00</b>	<b>2,000,000.00</b>	
<b>Total PPCBL Incl. &amp; VAT Excl.</b>							
<b>Add 16% VAT</b>							
<b>Grand-Total PPCBL Incl. &amp; VAT Incl. Lot 6</b>							

**LOT 6 RECOMMENDED SCHEDULE OF SPARE PARTS**

NO.	ITEM	UOM	QTY	Unit Price (PPCBL Incl.) & VAT Excl. (Kes)	Total Price (PPCBL Incl.) & VAT Excl. (Kes)	Total Price (PPCBL Incl.) & VAT Incl. (Kes)
	<b>CCTV REQUIREMENT</b>					
1.	NVR 16 Channel	No	1			
2.	NVR 32 Channel	No	1			
3.	NVR 50 Channel	No	1			
4.	20 MP H.264 One Omni Directional	No	1			
5.	4 MP Bullet indoor/outdoor IP camera	No	1			
6.	4 MP Bullet indoor/outdoor IP (Color Night Vision camera	No	1			
7.	4 MP Dome indoor/outdoor IP camera	No	1			
8.	4 MP PTZ indoor/outdoor IP camera	No	1			
9.	12 MP 180° indoor/outdoor Panoramic IP	No	1			
10.	8 MP 360° indoor/outdoor IP camera	No	1			
11.	20 MP H.264 One Omni Directional Indoor/Outdoor Dome IP Cameras (B type)	No	1			
12.	Video monitor 32''	No	1			
13.	Video monitor 42''	No	1			
14.	1TB Hard Disk	No	1			
15.	2TB Hard Disk	No	1			
16.	3TB Hard Disk	No	1			
17.	4TB Hard Disk	No	1			
18.	8TB Hard Disk	No	1			
19.	12 TB Hard Disk	No	1			
20.	GENTEC CCTV server	No	1			
21.	Client workstation	No	1			
	<b>NETWORKING REQUIREMENT</b>					
22.	Core Network Switch-24port	No	1			
23.	Network switch 24 Port	No	1			
24.	Network switch 48 Port	No	1			
25.	Switch PoE 4 Port	No	1			
26.	24 Port Patch Panel with I-O Ports	No	1			
27.	Patch Cord Cable 1- Meter Cat-6	No	1			

28.	Patch Cord Cable 3- Meter Cat-6	No	1			
29.	Single Mode Fiber Patch Cord LC-LC/ SC-SC/ SC-LC, 1 or 3M, Duplex	No	1			
30.	Multi-Mode Fiber Patch Cord LC-LC/ SC-SC/ SC-LC, 1 or 3M, Duplex	No	1			
31.	Coaxial Cable (1000ft)	Meter	1			
32.	UTP Cat 6 Cable (1000ft)	Meter	1			
33.	Shielded UTP Cat6 Outdoor Direct Burial 23AWG Pure Copper (1000ft)	Meter	1			
34.	RJ45 Connectors (100 Pack)	Pkt	1			
35.	RJ45 Coupler, 2 Port, UTP	No	1			
36.	PoE Extender	No	1			
37.	PoE Injector for IP cameras	No.				
38.	Armored outdoor direct burial 4-6 core fiber optic cable (1000ft)	Roll	1			
39.	Network Media Converter and associated network accessories	No.	1			
40.	SFP Transceiver Module (SMF, 1550nm, 20/50/100km, LC, DOM) Cisco, Max Data Rate: >1000Mbps and associated fiber network accessories	No.	1			
41.	White Conduits 25mm	No	1			
42.	White Conduits 32mm	No	1			
43.	White Bends 25/32mm	No	1			
44.	White Connectors 25/32mm	No	1			
45.	Saddle clips (100 pack)	Pkt	1			
46.	Screws (100-count box of 1¾-inch- long screws)	Pkt	1			
47.	Galvanized Metallic Trunking 100mm X 50mm (3m)	No	1			
48.	PVC Cable Trunk 16 X 25 mm White duct (3m)	No	1			
	<b>ACCESS CONTROL</b>					
49.	Door Access Controller Compatible with GENETEC of Hikcentral	No	1			
50.	Access Controller Door Interface	No.	1			
51.	Access Controller Door	No.	1			
52.	Access Control Cards	No.	1			
53.	Biometric/Card Reader	No.	1			
54.	Smart Card Reader	No.	1			
55.	Access Control	No.	1			

	Management/Application Software					
56.	Synergies Master Controller	No.	1			
57.	Single Door Maglock	No.	1			
58.	Double Door Maglock	No.	1			
59.	Emergency Release Button	No.	1			
	<b>LICENSING REQUIREMENT</b>					
60.	GENETEC of Hikcentral Federation License (general)	No	1			
61.	GENETEC of Hikcentral license per operator/user workstation	No.	1			
62.	Video analytics per channel	No.	1			
63.	GENETEC of Hikcentral mission control license	No.	1			
64.	1no IP Camera License (general price, including integration)	No	1			
65.	Repair network switch	No.	1			
66.	Optical drive (HDD)	No.	1			
67.	Power supply unit	No.	1			
68.	Processor and heat sink	No.	1			
69.	System board (Mother Board)	No.	1			
70.	Fan	No.	1			
71.	Drive backplane	No.	1			
72.	Memory module (RAM)	No.	1			
73.	NIC Card	No.	1			
	<b>EMERGENCY RESPONSE</b>					
74.	Emergency repair for a call/ticket per technician per day (installation and configurations of key components)	No.	1			
75.	Support service for a call/ticket per casual laborer per day (installation of key components)	No.	1			
76.	Emergency repair/meeting for a call/ticket per supervisor	No.	1			
77.	Integration of one third party system as need arises into existing server applications for a call/ticket per one technician per day	No.	1			
78.	Unscheduled service per site as per the description in schedule of requirement under preventive maintenance.	No.	1			
79.	Software Maintenance laptop	No.	1			
80.	Full HD business projector 5,000 lumens	No.	1			



81.	Maintenance tool kit	No.	1			
82.	Blower	No.	1			
83.	Leather Hand gloves	No.	1			
84.	Aluminum Multi-Purpose Ladder (16ft)	No.	1			
85.	Aluminum Telescopic Ladder (3.8m)	No.	1			
86.	Windows antiviruses complete with license (for 1No. PC)	No.	1			
87.	Multiprotocol Network tester (Pair)	No.	1			
88.	Surge and Voltage protector	No	1			
89.	4 core Alarm cable (100m/Roll)	Roll	1			
90.	Speaker 1.5mm sq. (70/0.15) cable	M	1			
91.	2.5mm sq Stranded Twin with Earth cable (100m/Roll)	Roll	1			
92.	2.5mm sq PVC CU Cable 3 Core	M	1			
93.	2.5mm sq PVC CU Cable S/C (100m/Roll)	Roll	1			
94.	4.0mm sq PVC CU Cable S/C (100m/Roll)	Roll	1			
95.	6.0mm sq PVC CU Cable S/C (100m/Roll)	Roll	1			
96.	4.0mm sq PVC CU Armoured Cable 2 Core (100m/Roll)	Roll	1			
97.	13A Socket 2-gang DP Switched Plug Socket Metal-Clad	No	1			
98.	PVC Insulating Tape	No	1			
99.	Amalgamating Tape (Rubber splicing tape)	No	1			
100.	Conta glue	No	1			
101.	UPS 1.5KVA	No	1			
102.	UPS 3KVA	No	1			
103.	UPS 6KVA	No	1			
104.	UPS 10KVA	No	1			
105.	7AH 12V battery	No	1			
106.	8A ,12V Power supplies	No	1			
107.	12-15 A ,12V Power supplies	No	1			
108.	Power supply transformer 12v	No	1			
109.	Supply and installation of 8m Camera/light Stainless Steel Pole	No.	1			
110.	12U × Depth 1000mm Wall Mount Cabinet (mounting brackets)	No.	1			
111.	<b>LIBRARY MANAGEMENT SYSTEM</b> The system should include anti-	No.	1			

	theft library management software, as well as the necessary hardware, such as barcode scanners, detectors and Management stations for a single entrance.					
112.	Full height speed gates complete with licenses and access to reader installation and integration into GENETEC of Hikcentral Access control systems	NO	1			
113.	Full height turnstile gates complete with licenses and access reader installation and integration to GENETEC of Hikcentral Access control systems	NO	1			

## SECTION VI (b) – TECHNICAL SPECIFICATIONS

### CCTV SYSTEMS

<b>8 MP Intelligent Moto Varifocal Dome Camera</b>		
<b>Feature</b>	<b>Technical Specification</b>	<b>Bidder's Response (Yes/No)</b>
<b>Camera</b>		
Image Sensor	1/1.8" Progressive Scan CMOS	
Max. Resolution	3840 × 2160	
Min. Illumination	Color: 0.0005 Lux @ (F1.2, AGC ON),B/W: 0.0001 Lux @ (F1.2, AGC ON),B/W: 0 Lux with IR	
Shutter Time	1 s to 1/100,000 s	
Day & Night	IR cut filter,Blue glass module (less ghost phenomenon)	
Angle Adjustment	Pan: 0° to 355°,tilt: 0° to 75°,rotate: 0° to 355°	
<b>Lens</b>		
Lens Type	Varifocal lens, motorized lens, 2.8 to 12 mm and 8 to 32 mm optional	
Focal Length & FOV	2.8 to 12 mm:	
	horizontal FOV 112.3° to 41.2°, vertical FOV 58.1° to 23.1°, diagonal FOV 137.4° to 47.3°	
	8 to 32 mm:	
	horizontal FOV 41.8° to 15°, vertical FOV 22.9° to 8.5°, diagonal FOV 48.7° to 17.1°	
Focus	Auto,Semi-auto,Manual	
Iris Type	P-iris	
Aperture	2.8 to 12 mm: F1.38 to F2.53, 8 to 32 mm: F1.7 to F1.73	
<b>DORI</b>		
DORI	2.8 to 12 mm:	

	D (Detect): 220.0 m, O (Observe): 87.3 m, R (Recognize): 44.0 m, I (Identify): 22.0 m	
	8 to 32 mm:	
	D (Detect): 580.0 m, O (Observe): 230..2 m, R (Recognize): 116.0 m, I (Identify): 58.0 m	
	The DORI values are calculated using pixel densities for different use cases as recommended by the EN 62676-4 standard.	
<b>Illuminator</b>		
Supplement Light Type	IR	
Supplement Light Range	2.8 to 12 mm: Monitoring: 40 m; 8 to 32 mm: Monitoring: 60 m	
Smart Supplement Light	Yes	
IR Wavelength	850 nm	
<b>AI Open Platform</b>		
Model Specification	Up to 4 models,	
	Model type: detection model, classification model, mixed model (detection model and classification model)	
<b>Video</b>		
Main Stream	Monitoring mode:	
	50 Hz: up to 50 fps (3840 × 2160, 3072 × 1728, 2688 × 1520, 1280 × 720), up to 100 fps (1920 × 1080)	
	60 Hz: up to 60 fps (3840 × 2160, 3072 × 1728, 2688 × 1520, 1280 × 720), up to 120 fps (1920 × 1080)	
	*High frame rate is supported under monitoring mode only.	
	smart mode:	
	50 Hz: 25 fps (3840 × 2160, 3072 × 1728, 2688 × 1520, 1920 × 1080, 1280 × 720)	
	60 Hz: 30 fps (3840 × 2160, 3072 × 1728, 2688 × 1520, 1920 × 1080, 1280 × 720)	
Sub-Stream	50 Hz: 25 fps (1280 × 720, 704 × 576, 640 × 480)	
	60 Hz: 30 fps (1280 × 720, 704 × 480, 640 × 480)	
Third Stream	50 Hz: 25 fps (1920 × 1080, 1280 × 720, 704 × 576, 640 × 480)	
	60 Hz: 30 fps (1920 × 1080, 1280 × 720, 704 × 480, 640 × 480)	
Fourth Stream	50 Hz: 25 fps (704 × 576, 640 × 480)	
	60 Hz: 30 fps (704 × 480, 640 × 480)	
Fifth Stream	50 Hz: 25 fps (704 × 576, 640 × 480)	
	60 Hz: 30 fps (704 × 480, 640 × 480)	
Video Compression	Main stream: H.265+/H.265/H.264+/H.264,	
	Sub-stream: H.265/H.264/MJPEG,	
	Third stream: H.265/H.264,	
	Fourth stream: H.265/H.264/MJPEG,	
	Fifth stream: H.265/H.264/MJPEG	
Video Bit Rate	32 Kbps to 16 Mbps	
H.264 Type	Baseline Profile,Main Profile,High Profile	
H.265 Type	Main Profile	

Bit Rate Control	CBR,VBR	
Scalable Video Coding (SVC)	H.264 and H.265 encoding	
Region of Interest (ROI)	4 fixed regions for each stream	
Target Cropping	Yes	
e-PTZ	Support Patrol and Auto Tracking settings	
<b>Audio</b>		
Audio Type	Mono sound	
Audio Compression	G.711/G.722.1/G.726/MP2L2/PCM/MP3/AAC-LC	
Audio Bit Rate	64 Kbps (G.711ulaw/G.711alaw)/16 Kbps (G.722.1)/16 Kbps (G.726)/32 to 192 Kbps (MP2L2)/8 to 320 Kbps (MP3)/16 to 64 Kbps (AAC-LC)	
Audio Sampling Rate	8 kHz/16 kHz/32 kHz/48 kHz	
Environment Noise Filtering	Yes	
<b>Network</b>		
Protocols	TCP/IP, ICMP, HTTP, HTTPS, FTP, SFTP, SRTP, DHCP, DNS, DDNS, RTP, RTSP, RTCP, PPPoE, NTP,UPnP, SMTP, SNMP, IGMP, 802.1X, QoS, IPv4, IPv6, UDP, Bonjour, SSL/TLS, WebSocket, WebSockets	
Simultaneous Live View	Up to 20 channels	
API	ISAPI,SDK,ISUP,OTAP,ONVIF (Profile S, Profile G, Profile T, Profile M)	
User/Host	Up to 32 users 3 user levels: administrator, operator, and user	
Security	Password protection, complicated password, HTTPS encryption, 802.1X authentication (EAP-TLS, EAP-LEAP, EAP-MD5), watermark, IP address filter, basic and digest authentication for HTTP/HTTPS, WSSE and digest authentication for Open Network Video Interface, RTP/RTSP OVER HTTPS, Control Timeout Settings, Security Audit Log, TLS 1.2, TLS 1.3, TPM 2.0 (FIPS 140-2 level 2), AES128/256	
Web Browser	Plug-in required live view: IE 10, IE 11,	
	Plug-in free live view: Chrome 57.0+, Firefox 52.0+, Edge 89+, Safari 11+,	
	Local service: Chrome 57.0+, Firefox 52.0+, Edge 89+	
Network Storage	NAS (NFS, SMB/CIFS), Auto Network Replenishment (ANR),	
<b>Image</b>		
Image Parameters Switch	Yes	
Image Settings	Rotate mode,saturation,brightness,contrast,sharpness,white balance,AGC,adjustable by client software or web browser	
Day/Night Switch	Day,Night,Auto,Schedule,Alarm Trigger	
Wide Dynamic Range (WDR)	140 dB	
Image Enhancement	BLC,HLC,3D DNR,Distortion Correction,Defog	
SNR	≥ 52 dB	

Privacy Mask	8 programmable polygon privacy masks	
Picture Overlay	LOGO picture can be overlaid on video with 128 × 128 24 bit bmp format.	
Image Stabilization	EIS	
<b>Interface</b>		
Video Output	1 Vp-p Composite Output (75 Ω/CVBS) (Only for debugging)	
Ethernet Interface	1 RJ45 10 M/100 M/1000 M self-adaptive Ethernet port	
On-Board Storage	Built-in memory card slot, support microSD/microSDHC/microSDXC card, up to 1 TB	
Built-in Microphone	Yes, 2 built-in microphones	
Built-in Speaker	Max. power consumption: 1.5 W, max. sound pressure level: 98 dB, speaker range: 10 m	
Audio	1 input (line in), 3.5 mm connector, three-contact, max. input amplitude: 3.3 Vpp, input impedance: 4.7 KΩ, interface type: non-equilibrium,	
	1 output (line out), 3.5 mm connector, three-contact, max. output amplitude: 3.3 Vpp, output impedance: 100 Ω, interface type: non-equilibrium, mono sound	
Alarm	2 inputs, 2 outputs (max. 24 VDC/24 VAC, 1 A)	
Reset Key	Yes	
Power Output	12 VDC, max. 100 mA	
<b>Event</b>		
Basic Event	Motion detection (support alarm triggering by specified target types (human and vehicle)),video tampering alarm,video quality diagnosis,exception (network disconnected, IP address conflict, illegal login, abnormal restart, HDD full, HDD error),vibration detection	
Smart Event	scene change detection,audio exception detection,defocus detection	
Linkage	Upload to FTP/NAS/memory card,notify surveillance center,send email,trigger alarm output,trigger recording,trigger capture,audible warning	
<b>Deep Learning Function</b>		
Multi-target-type Detection	Supports simultaneous detection and capture of human body, face, and vehicle,	
	Gets 7 face features,	
	Gets 13 human body features,	
	Gets 2 vehicle features,	
	Supports counting the number of line crossing targets by type, including human body, non-motor vehicle, motor vehicle,	
	Supports dynamic mosaic mask	
Face Capture	Detects up to 120 faces simultaneously, captures up to 40 face pictures per frame simultaneously and uploads up to 10 face pictures per second,	
	Supports swing left and right from -60° to 60°, tilt up and down from -30° to 30°,	
	Uploads face with background and closed-up face pictures,	

	Supports best shot and quick shot for capture mode,	
	Supports dynamic mosaic mask,	
	Gets 7 face features	
Face Comparison	Up to 10 face libraries. 30,000 faces for each library. 150,000 faces in total,	
	Supports face library encryption	
Perimeter Protection	Line crossing, intrusion, region entrance, region exiting	
	Support alarm triggering by specified target types (human and vehicle)	
	Support combined event alarm triggering	
People Counting	Supports Multi-Dimension People Counting,	
	Supports counting, displaying and exporting the people flow data of entering, exiting and passing by (The data is stored in the flash.),	
	Supports real-time uploading and uploading by statistic cycle,	
	Supports generating daily, weekly, monthly or annually reports,	
	Supports dynamic deduplication based on face picture comparison, and can filter out the target with the same custom face pictures, same attributes, or filter out repeated invalid targets within the set time interval,	
	Supports face feature deduplication,	
	Supports people flow data replenishment	
Queue Management	Supports up to 8 detection regions, and independent arming schedule and linkage method	
	Supports 2 detection modes: regional people queuing-up, waiting time detection	
	Generates reports to compare the efficiency of different queuing-ups and display the changing status of one queue	
	Supports raw data export for further analysis	
	Supports real-time data uploading and scheduled data uploading	
	Regional people queuing-up: supports 4 alarm trigger conditions, including greater than threshold, less than threshold, equal to threshold, not equal to threshold	
	Waiting time detection: supports 1 alarm trigger condition, including greater than threshold	
Heat Map	A graphic description of visits (by calculating amount of people or amount of dwell time) in a configured area.,	
	Two report types are available, space heat map and time heat map line chart.	
Hard Hat Detection	Detects up to 30 human targets simultaneously	
	Supports up to 4 shield regions	
Metadata	Intrusion detection,line crossing detection,region entrance detection,region exiting detection,face capture,multi-target-type detection	
Regional People Counting	Supports up to 8 detection regions, and independent arming schedule and linkage method	

	Supports 3 detection modes: people density detection, number of people exception detection, waiting time exception detection	
	Supports parameter settings: alarm times per exception, alarm interval, first alarm delay	
	Supports searching real-time number of people	
	People density detection: supports scheduled uploading, number of people change uploading, congestion level uploading	
	Number of people exception detection: supports 6 alarm trigger conditions, including greater than threshold A, less than threshold A, equal to threshold A, not equal to threshold A, greater than threshold A and less than threshold B, less than threshold A or greater than threshold B (threshold A should be less than threshold B)	
	Waiting time exception detection: supports 3 alarm trigger conditions, including greater than threshold A, less than threshold A, greater than threshold A and less than threshold B (threshold A should be less than threshold B)	
On/Off Duty Detection	Supports up to 8 detection regions, and independent arming schedule and linkage method	
	Supports 2 detection modes: absence detection, on/off duty detection	
	Supports parameter settings: person on duty, absence duration	

<b>8MP DeepinView Moto Varifocal Bullet Camera</b>		
<b>Feature</b>	<b>Technical Specification</b>	<b>Bidder's Response (Yes/No)</b>
<b>Camera</b>		
Image Sensor	1/1.8" Progressive Scan CMOS	
Max. Resolution	3840 × 2160	
Min. Illumination	Color: 0.0005 Lux @ (F1.2, AGC ON),B/W: 0.0001 Lux @ (F1.2, AGC ON),B/W: 0 Lux with IR	
Shutter Time	1 s to 1/100,000 s	
Day & Night	IR cut filter,	
	Blue glass module (less ghost phenomenon)	
<b>Lens</b>		
Focal Length & FOV	2.8 to 12 mm, horizontal FOV 104° to 41.2°, vertical FOV 54.2° to 23.1°, diagonal FOV 126.5° to 47.3°	
	8 to 32 mm, horizontal FOV 41.8° to 15°, vertical FOV 22.9° to 8.5°, diagonal FOV 48.7° to 17.1°	
Focus	Auto,Semi-auto,Manual	
Iris Type	P-iris	
Aperture	2.8 to 12 mm: F1.38 to F2.53, 8 to 32 mm: F1.7 to F1.73	
<b>DORI</b>		
DORI	Wide:	
	2.8 to 12 mm: D (Detect): 87 m, O (Observe): 34.5 m, R (Recognize): 17.4 m, I (Identify): 8.7 m	

	8 to 32 mm: D (Detect): 218 m, O (Observe): 86.5 m, R (Recognize): 43.6 m, I (Identify): 21.8 m	
	Tele:	
	2.8 to 12 mm: D (Detect): 216 m, O (Observe): 85.7 m, R (Recognize): 43.2 m, I (Identify): 21.6 m	
	8 to 32 mm: D (Detect): 580 m, O (Observe): 230.2 m, R (Recognize): 116 m, I (Identify): 58 m	
	The DORI values are calculated using pixel densities for different use cases as recommended by the EN 62676-4 standard.	
<b>Illuminator</b>		
Supplement Light Type	IR	
Supplement Light Range	2.8 to 12 mm: Monitoring: 60 m; 8 to 32 mm: Monitoring: 100 m	
Smart Supplement Light	Yes	
IR Wavelength	850 nm	
<b>AI Open Platform</b>		
Model Specification	Up to 4 models,	
	Model type: detection model, classification model, mixed model (detection model and classification model)	
<b>Video</b>		
Main Stream	Monitoring mode:	
	50 Hz: up to 50 fps (3840 × 2160, 3072 × 1728, 2688 × 1520, 1280 × 720), up to 100 fps (1920 × 1080)	
	60 Hz: up to 60 fps (3840 × 2160, 3072 × 1728, 2688 × 1520, 1280 × 720), up to 120 fps (1920 × 1080)	
	*High frame rate is supported under monitoring mode only.	
	smart mode:	
	50 Hz: 25 fps (3840 × 2160, 3072 × 1728, 2688 × 1520, 1920 × 1080, 1280 × 720)	
	60 Hz: 30 fps (3840 × 2160, 3072 × 1728, 2688 × 1520, 1920 × 1080, 1280 × 720)	
Sub-Stream	50 Hz: 25 fps (1280 × 720, 704 × 576, 640 × 480)	
	60 Hz: 30 fps (1280 × 720, 704 × 480, 640 × 480)	
Third Stream	50 Hz: 25 fps (1920 × 1080, 1280 × 720, 704 × 576, 640 × 480)	
	60 Hz: 30 fps (1920 × 1080, 1280 × 720, 704 × 480, 640 × 480)	
Fourth Stream	50 Hz: 25 fps (704 × 576, 640 × 480)	
	60 Hz: 30 fps (704 × 480, 640 × 480)	
Fifth Stream	50 Hz: 25 fps (704 × 576, 640 × 480)	
	60 Hz: 30 fps (704 × 480, 640 × 480)	
Video Compression	Main stream: H.265+/H.265/H.264+/H.264,	
	Sub-stream: H.265/H.264/MJPEG,	
	Third stream: H.265/H.264,	
	Fourth stream: H.265/H.264/MJPEG,	
	Fifth stream: H.265/H.264/MJPEG	



Video Bit Rate	32 Kbps to 16 Mbps	
H.264 Type	Baseline Profile,Main Profile,High Profile	
H.265 Type	Main Profile	
Bit Rate Control	CBR,VBR	
Scalable Video Coding (SVC)	H.264 and H.265 encoding	
Region of Interest (ROI)	4 fixed regions for each stream	
Target Cropping	Yes	
e-PTZ	Support Patrol and Auto Tracking settings	
<b>Audio</b>		
Audio Type	Mono sound	
Audio Compression	G.711/G.722.1/G.726/MP2L2/PCM/MP3/AAC-LC	
Audio Bit Rate	64 Kbps (G.711ulaw/G.711alaw)/16 Kbps (G.722.1)/16 Kbps (G.726)/32 to 192 Kbps (MP2L2)/8 to 320 Kbps (MP3)/16 to 64 Kbps (AAC-LC)	
Audio Sampling Rate	8 kHz/16 kHz/32 kHz/48 kHz	
Environment Noise Filtering	Yes	
<b>Network</b>		
Protocols	TCP/IP, ICMP, HTTP, HTTPS, FTP, SFTP, DHCP, DNS, DDNS, SRTP, RTP, RTSP, RTCP, PPPoE, NTP, UPnP, SMTP, SNMP, IGMP, 802.1X, QoS, IPv4, IPv6, UDP, Bonjour, SSL/TLS, ARP, WebSocket, WebSockets	
Simultaneous Live View	Up to 20 channels	
API	ISAPI,SDK,ISUP,OTAP,ONVIF (Profile S, Profile G, Profile T, Profile M)	
User/Host	Up to 32 users 3 user levels: administrator, operator, and user	
Security	Password protection, complicated password, HTTPS encryption, 802.1X authentication (EAP-TLS, EAP-LEAP, EAP-MD5), watermark, IP address filter, basic and digest authentication for HTTP/HTTPS, WSSE and digest authentication for Open Network Video Interface, RTP/RTSP OVER HTTPS, Control Timeout Settings, Security Audit Log, TLS 1.2, TLS 1.3, TPM 2.0 (FIPS 140-2 level 2), AES128/256	
Network Storage	NAS (NFS, SMB/CIFS),Auto Network Replenishment (ANR),	
Web Browser	Plug-in required live view: IE 10, IE 11,	
	Plug-in free live view: Chrome 57.0+, Firefox 52.0+, Edge 89+, Safari 11+,	
	Local service: Chrome 57.0+, Firefox 52.0+, Edge 89+	
<b>Mobile Communication</b>		
Standard	-5G: 5G NR/LTE-FDD/LTE-TDD	

Frequency	-5G:	
	5G NR: n41/n77/n78/n79	
	LTE-FDD: B1/B3/B5/B8	
	LTE-TDD: B38/39/B40/B41	
SIM Card Type	-5G: Micro SIM	
<b>Image</b>		
Image Parameters Switch	Yes	
Image Settings	Rotate mode,saturation,brightness,contrast,sharpness,white balance,AGC,adjustable by client software or web browser	
Day/Night Switch	Day,Night,Auto,Schedule,Alarm Trigger	
Wide Dynamic Range (WDR)	140 dB	
Image Enhancement	BLC,HLC,3D DNR,Distortion Correction,Defog	
SNR	$\geq 52$ dB	
Privacy Mask	8 programmable polygon privacy masks	
Picture Overlay	LOGO picture can be overlaid on video with $128 \times 128$ 24 bit bmp format.	
Image Stabilization	EIS	
<b>Interface</b>		
Video Output	1 Vp-p Composite Output (75 $\Omega$ /CVBS) (Only for debugging)	
Ethernet Interface	1 RJ45 10 M/100 M/1000 M self-adaptive Ethernet port	
On-Board Storage	Built-in memory card slot, support microSD/microSDHC/microSDXC card, up to 1 TB	
Alarm	2 inputs, 2 outputs (max. 24 VDC/24 VAC, 1 A)	
Audio	1 input (line in), 3.5 mm connector, three-contact, max. input amplitude: 3.3 Vpp, input impedance: 4.7 K $\Omega$ , interface type: non-equilibrium,	
	1 output (line out), 3.5 mm connector, three-contact, max. output amplitude: 3.3 Vpp, output impedance: 100 $\Omega$ , interface type: non-equilibrium, mono sound	
Reset Key	Yes	
Power Output	-Y: 12 VDC, max. 100 mA	
<b>Event</b>		
Basic Event	Motion detection (support alarm triggering by specified target types (human and vehicle)),video tampering alarm,video quality diagnosis,exception (network disconnected, IP address conflict, illegal login, abnormal restart, HDD full, HDD error),vibration detection	
Smart Event	scene change detection,audio exception detection,defocus detection	
Linkage	Upload to FTP/NAS/memory card,notify surveillance center,send email,trigger alarm output,trigger recording,trigger capture,audible warning	

Deep Learning Function		
Multi-target-type Detection	Supports simultaneous detection and capture of human body, face, and vehicle,	
	Gets 7 face features,	
	Gets 13 human body features,	
	Gets 2 vehicle features,	
	Supports counting the number of line crossing targets by type, including human body, non-motor vehicle, motor vehicle,	
	Supports dynamic mosaic mask	
Face Capture	Detects up to 120 faces simultaneously, captures up to 40 face pictures per frame simultaneously and uploads up to 10 face pictures per second,	
	Supports swing left and right from -60° to 60°, tilt up and down from -30° to 30°,	
	Uploads face with background and closed-up face pictures,	
	Supports best shot and quick shot for capture mode,	
	Supports dynamic mosaic mask,	
	Gets 7 face features	
Face Comparison	Up to 10 face libraries. 30,000 faces for each library. 150,000 faces in total,	
	Supports face library encryption	
People Counting	Supports Multi-Dimension People Counting,	
	Supports counting, displaying and exporting the people flow data of entering, exiting and passing by (The data is stored in the flash.),	
	Supports real-time uploading and uploading by statistic cycle,	
	Supports generating daily, weekly, monthly or annually reports,	
	Supports dynamic deduplication based on face picture comparison, and can filter out the target with the same custom face pictures, same attributes, or filter out repeated invalid targets within the set time interval,	
	Supports face feature deduplication,	
	Supports people flow data replenishment	
Queue Management	Supports up to 8 detection regions, and independent arming schedule and linkage method	
	Supports 2 detection modes: regional people queuing-up, waiting time detection	
	Generates reports to compare the efficiency of different queuing-ups and display the changing status of one queue	
	Supports raw data export for further analysis	
	Supports real-time data uploading and scheduled data uploading	
	Regional people queuing-up: supports 4 alarm trigger conditions, including greater than threshold, less than threshold, equal to threshold, not equal to threshold	
	Waiting time detection: supports 1 alarm trigger condition, including greater than threshold	
Heat Map	A graphic description of visits (by calculating amount of people or amount of dwell time) in a configured area.,	

	Two report types are available, space heat map and time heat map line chart.	
Perimeter Protection	Line crossing, intrusion, region entrance, region exiting	
	Support alarm triggering by specified target types (human and vehicle)	
	Support combined event alarm triggering	
Hard Hat Detection	Detects up to 30 human targets simultaneously	
	Supports up to 4 shield regions	
Metadata	Intrusion detection,line crossing detection,region entrance detection,region exiting detection,face capture,multi-target-type detection	
Regional People Counting	Supports up to 8 detection regions, and independent arming schedule and linkage method	
	Supports 3 detection modes: people density detection, number of people exception detection, waiting time exception detection	
	Supports parameter settings: alarm times per exception, alarm interval, first alarm delay	
	Supports searching real-time number of people	
	People density detection: supports scheduled uploading, number of people change uploading, congestion level uploading	
	Number of people exception detection: supports 6 alarm trigger conditions, including greater than threshold A, less than threshold A, equal to threshold A, not equal to threshold A, greater than threshold A and less than threshold B, less than threshold A or greater than threshold B (threshold A should be less than threshold B)	
	Waiting time exception detection: supports 3 alarm trigger conditions, including greater than threshold A, less than threshold A, greater than threshold A and less than threshold B (threshold A should be less than threshold B)	
On/Off Duty Detection	Supports up to 8 detection regions, and independent arming schedule and linkage method	
	Supports 2 detection modes: absence detection, on/off duty detection	
	Supports parameter settings: person on duty, absence duration	

<b>8MP DeepinView Moto Varifocal Bullet Camera</b>		
<b>Feature</b>	<b>Technical Specification</b>	<b>Bidder's Response (Y/N)</b>
<b>Camera</b>		
Image Sensor	1/1.8" Progressive Scan CMOS	
Max. Resolution	3840 × 2160	
Min. Illumination	Color: 0.0005 Lux @ (F1.2, AGC ON),B/W: 0.0001 Lux @ (F1.2, AGC ON),B/W: 0 Lux with IR	
Shutter Time	1 s to 1/100,000 s	
Day & Night	IR cut filter,	
	Blue glass module (less ghost phenomenon)	

<b>Lens</b>		
Focal Length & FOV	2.8 to 12 mm, horizontal FOV 104° to 41.2°, vertical FOV 54.2° to 23.1°, diagonal FOV 126.5° to 47.3°	
	8 to 32 mm, horizontal FOV 41.8° to 15°, vertical FOV 22.9° to 8.5°, diagonal FOV 48.7° to 17.1°	
Focus	Auto,Semi-auto,Manual	
Iris Type	P-iris	
Aperture	2.8 to 12 mm: F1.38 to F2.53, 8 to 32 mm: F1.7 to F1.73	
<b>DORI</b>		
DORI	Wide:	
	2.8 to 12 mm: D (Detect): 87 m, O (Observe): 34.5 m, R (Recognize): 17.4 m, I (Identify): 8.7 m	
	8 to 32 mm: D (Detect): 218 m, O (Observe): 86.5 m, R (Recognize): 43.6 m, I (Identify): 21.8 m	
	Tele:	
	2.8 to 12 mm: D (Detect): 216 m, O (Observe): 85.7 m, R (Recognize): 43.2 m, I (Identify): 21.6 m	
	8 to 32 mm: D (Detect): 580 m, O (Observe): 230.2 m, R (Recognize): 116 m, I (Identify): 58 m	
	The DORI values are calculated using pixel densities for different use cases as recommended by the EN 62676-4 standard.	
<b>Illuminator</b>		
Supplement Light Type	IR	
Supplement Light Range	2.8 to 12 mm: Monitoring: 60 m; 8 to 32 mm: Monitoring: 100 m	
Smart Supplement Light	Yes	
IR Wavelength	850 nm	
<b>AI Open Platform</b>		
Model Specification	Up to 4 models,	
	Model type: detection model, classification model, mixed model (detection model and classification model)	
<b>Video</b>		
Main Stream	Monitoring mode:	
	50 Hz: up to 50 fps (3840 × 2160, 3072 × 1728, 2688 × 1520, 1280 × 720), up to 100 fps (1920 × 1080)	
	60 Hz: up to 60 fps (3840 × 2160, 3072 × 1728, 2688 × 1520, 1280 × 720), up to 120 fps (1920 × 1080)	
	*High frame rate is supported under monitoring mode only.	
	smart mode:	
	50 Hz: 25 fps (3840 × 2160, 3072 × 1728, 2688 × 1520, 1920 × 1080, 1280 × 720)	

	60 Hz: 30 fps (3840 × 2160, 3072 × 1728, 2688 × 1520, 1920 × 1080, 1280 × 720)	
Sub-Stream	50 Hz: 25 fps (1280 × 720, 704 × 576, 640 × 480)	
	60 Hz: 30 fps (1280 × 720, 704 × 480, 640 × 480)	
Third Stream	50 Hz: 25 fps (1920 × 1080, 1280 × 720, 704 × 576, 640 × 480)	
	60 Hz: 30 fps (1920 × 1080, 1280 × 720, 704 × 480, 640 × 480)	
Fourth Stream	50 Hz: 25 fps (704 × 576, 640 × 480)	
	60 Hz: 30 fps (704 × 480, 640 × 480)	
Fifth Stream	50 Hz: 25 fps (704 × 576, 640 × 480)	
	60 Hz: 30 fps (704 × 480, 640 × 480)	
Video Compression	Main stream: H.265+/H.265/H.264+/H.264,	
	Sub-stream: H.265/H.264/MJPEG,	
	Third stream: H.265/H.264,	
	Fourth stream: H.265/H.264/MJPEG,	
	Fifth stream: H.265/H.264/MJPEG	
Video Bit Rate	32 Kbps to 16 Mbps	
H.264 Type	Baseline Profile, Main Profile, High Profile	
H.265 Type	Main Profile	
Bit Rate Control	CBR, VBR	
Scalable Video Coding (SVC)	H.264 and H.265 encoding	
Region of Interest (ROI)	4 fixed regions for each stream	
Target Cropping	Yes	
e-PTZ	Support Patrol and Auto Tracking settings	
<b>Audio</b>		
Audio Type	Mono sound	
Audio Compression	G.711/G.722.1/G.726/MP2L2/PCM/MP3/AAC-LC	
Audio Bit Rate	64 Kbps (G.711ulaw/G.711alaw)/16 Kbps (G.722.1)/16 Kbps (G.726)/32 to 192 Kbps (MP2L2)/8 to 320 Kbps (MP3)/16 to 64 Kbps (AAC-LC)	
Audio Sampling Rate	8 kHz/16 kHz/32 kHz/48 kHz	
Environment Noise Filtering	Yes	
<b>Network</b>		
Protocols	TCP/IP, ICMP, HTTP, HTTPS, FTP, SFTP, DHCP, DNS, DDNS, SRTP, RTP, RTSP, RTCP, PPPoE, NTP, UPnP, SMTP, SNMP, IGMP, 802.1X, QoS, IPv4, IPv6, UDP, Bonjour, SSL/TLS, ARP, WebSocket, WebSockets	
Simultaneous Live View	Up to 20 channels	
API	ISAPI, SDK, ISUP, OTAP, ONVIF (Profile S, Profile G, Profile T, Profile M)	

User/Host	Up to 32 users	
	3 user levels: administrator, operator, and user	
Security	Password protection, complicated password, HTTPS encryption, 802.1X authentication (EAP-TLS, EAP-LEAP, EAP-MD5), watermark, IP address filter, basic and digest authentication for HTTP/HTTPS, WSSE and digest authentication for Open Network Video Interface, RTP/RTSP OVER HTTPS, Control Timeout Settings, Security Audit Log, TLS 1.2, TLS 1.3, TPM 2.0 (FIPS 140-2 level 2), AES128/256	
Network Storage	NAS (NFS, SMB/CIFS),Auto Network Replenishment (ANR),	
Web Browser	Plug-in required live view: IE 10, IE 11,	
	Plug-in free live view: Chrome 57.0+, Firefox 52.0+, Edge 89+, Safari 11+,	
	Local service: Chrome 57.0+, Firefox 52.0+, Edge 89+	
<b>Mobile Communication</b>		
Standard	-5G: 5G NR/LTE-FDD/LTE-TDD	
Frequency	-5G:	
	5G NR: n41/n77/n78/n79	
	LTE-FDD: B1/B3/B5/B8	
	LTE-TDD: B38/39/B40/B41	
SIM Card Type	-5G: Micro SIM	
<b>Image</b>		
Image Parameters Switch	Yes	
Image Settings	Rotate mode,saturation,brightness,contrast,sharpness,white balance,AGC,adjustable by client software or web browser	
Day/Night Switch	Day,Night,Auto,Schedule,Alarm Trigger	
Wide Dynamic Range (WDR)	140 dB	
Image Enhancement	BLC,HLC,3D DNR,Distortion Correction,Defog	
SNR	≥ 52 dB	
Privacy Mask	8 programmable polygon privacy masks	
Picture Overlay	LOGO picture can be overlaid on video with 128 × 128 24 bit bmp format.	
Image Stabilization	EIS	
<b>Interface</b>		
Video Output	1 Vp-p Composite Output (75 Ω/CVBS) (Only for debugging)	
Ethernet Interface	1 RJ45 10 M/100 M/1000 M self-adaptive Ethernet port	
On-Board Storage	Built-in memory card slot, support microSD/microSDHC/microSDXC card, up to 1 TB	
Alarm	2 inputs, 2 outputs (max. 24 VDC/24 VAC, 1 A)	

Audio	1 input (line in), 3.5 mm connector, three-contact, max. input amplitude: 3.3 Vpp, input impedance: 4.7 K $\Omega$ , interface type: non-equilibrium,	
	1 output (line out), 3.5 mm connector, three-contact, max. output amplitude: 3.3 Vpp, output impedance: 100 $\Omega$ , interface type: non-equilibrium, mono sound	
Reset Key	Yes	
Power Output	-Y: 12 VDC, max. 100 mA	
<b>Event</b>		
Basic Event	Motion detection (support alarm triggering by specified target types (human and vehicle)),video tampering alarm,video quality diagnosis,exception (network disconnected, IP address conflict, illegal login, abnormal restart, HDD full, HDD error),vibration detection	
Smart Event	scene change detection,audio exception detection,defocus detection	
Linkage	Upload to FTP/NAS/memory card,notify surveillance center,send email,trigger alarm output,trigger recording,trigger capture,audible warning	
<b>Deep Learning Function</b>		
Multi-target-type Detection	Supports simultaneous detection and capture of human body, face, and vehicle,	
	Gets 7 face features,	
	Gets 13 human body features,	
	Gets 2 vehicle features,	
	Supports counting the number of line crossing targets by type, including human body, non-motor vehicle, motor vehicle,	
	Supports dynamic mosaic mask	
Face Capture	Detects up to 120 faces simultaneously, captures up to 40 face pictures per frame simultaneously and uploads up to 10 face pictures per second,	
	Supports swing left and right from -60° to 60°, tilt up and down from -30° to 30°,	
	Uploads face with background and closed-up face pictures,	
	Supports best shot and quick shot for capture mode,	
	Supports dynamic mosaic mask,	
	Gets 7 face features	
Face Comparison	Up to 10 face libraries. 30,000 faces for each library. 150,000 faces in total,	
	Supports face library encryption	
People Counting	Supports Multi-Dimension People Counting,	
	Supports counting, displaying and exporting the people flow data of entering, exiting and passing by (The data is stored in the flash.),	
	Supports real-time uploading and uploading by statistic cycle,	
	Supports generating daily, weekly, monthly or annually reports,	



	Supports dynamic deduplication based on face picture comparison, and can filter out the target with the same custom face pictures, same attributes, or filter out repeated invalid targets within the set time interval,	
	Supports face feature deduplication,	
	Supports people flow data replenishment	
Queue Management	Supports up to 8 detection regions, and independent arming schedule and linkage method	
	Supports 2 detection modes: regional people queuing-up, waiting time detection	
	Generates reports to compare the efficiency of different queuing-ups and display the changing status of one queue	
	Supports raw data export for further analysis	
	Supports real-time data uploading and scheduled data uploading	
	Regional people queuing-up: supports 4 alarm trigger conditions, including greater than threshold, less than threshold, equal to threshold, not equal to threshold	
	Waiting time detection: supports 1 alarm trigger condition, including greater than threshold	
Heat Map	A graphic description of visits (by calculating amount of people or amount of dwell time) in a configured area.,	
	Two report types are available, space heat map and time heat map line chart.	
Perimeter Protection	Line crossing, intrusion, region entrance, region exiting	
	Support alarm triggering by specified target types (human and vehicle)	
	Support combined event alarm triggering	
Hard Hat Detection	Detects up to 30 human targets simultaneously	
	Supports up to 4 shield regions	
Metadata	Intrusion detection,line crossing detection,region entrance detection,region exiting detection,face capture,multi-target-type detection	
Regional People Counting	Supports up to 8 detection regions, and independent arming schedule and linkage method	
	Supports 3 detection modes: people density detection, number of people exception detection, waiting time exception detection	
	Supports parameter settings: alarm times per exception, alarm interval, first alarm delay	
	Supports searching real-time number of people	
	People density detection: supports scheduled uploading, number of people change uploading, congestion level uploading	
	Number of people exception detection: supports 6 alarm trigger conditions, including greater than threshold A, less than threshold A, equal to threshold A, not equal to threshold A, greater than threshold A and less than threshold	

	B, less than threshold A or greater than threshold B (threshold A should be less than threshold B)	
	Waiting time exception detection: supports 3 alarm trigger conditions, including greater than threshold A, less than threshold A, greater than threshold A and less than threshold B (threshold A should be less than threshold B)	
On/Off Duty Detection	Supports up to 8 detection regions, and independent arming schedule and linkage method	
	Supports 2 detection modes: absence detection, on/off duty detection	
	Supports parameter settings: person on duty, absence duration	

<b>25 MP 5-Directional Multisensor Network Dome Camera</b>		
<b>Feature</b>	<b>Technical Specification</b>	<b>Bidder's Response</b>
<b>Camera</b>		
Image Sensor	Varifocal: 1/2.4" Progressive Scan CMOS; Fixed: 1/2.5" Progressive Scan CMOS	
Max. Resolution	2560 × 1920	
Min. Illumination	Color: 0.005 Lux @ (F1.2, AGC ON),B/W: 0.002 Lux @ (F1.2, AGC ON),B/W: 0 Lux with IR	
Shutter Time	1 s to 1/100,000 s	
Day & Night	IR cut filter	
Angle Adjustment	Pan: 0° to 350°,tilt: 0° to 90°,rotate: -90° to 90°	
<b>Lens</b>		
Attributes	4 adjustable lenses in one camera cover up to 360° field of view, ensuring no blind area monitoring and the monitoring tilt angle can be adjusted. One more fixed lens to cover the area beneath the camera	
Lens Type	Varifocal lens, motorized lens, 2.8 to 8 mm,Fixed focal lens, 2 mm	
Focal Length & FOV	Varifocal :2.8 to 8 mm, horizontal FOV 96.5° to 48.9°, vertical FOV 69.9° to 36.5°, diagonal FOV 129° to 61.3°	
	Fixed:2mm, horizontal FOV 71.68°, vertical FOV 71.68°, diagonal FOV 99.16°	
Lens Mount	Ø14	
Focus	Varifocal: Semi-auto,Manual	
Aperture	Varifocal: F1.9; Fixed: F2.25	
<b>Illuminator</b>		
Supplement Light Type	IR	
Supplement Light Range	Up to 30 m	
IR Wavelength	850 nm	
<b>Video</b>		
Main Stream	Channel 1,2,3,4:	
	50 Hz: 25 fps (2560× 1920, 2048× 1536, 1920 × 1080, 1280 × 720)	
	60 Hz: 30 fps (2560× 1920, 2048× 1536, 1920 × 1080, 1280 × 720)	

	Channel 5:	
	50 Hz: 25 fps (1440× 1440)	
	60 Hz: 30 fps (1440× 1440)	
Sub-Stream	Channel 1,2,3,4:	
	50 Hz: 25 fps (704 × 576, 640 × 480)	
	60 Hz: 30 fps (704 × 480, 640 × 480)	
	Channel 5:	
	50 Hz: 25 fps (576× 576, 480× 480)	
	60 Hz: 30 fps (576× 576, 480× 480)	
Third Stream	Channel 1,2,3,4:	
	50 Hz: 25 fps (1920 × 1080, 1280 × 720, 704 × 576, 640 × 480)	
	60 Hz: 30 fps (1920 × 1080, 1280 × 720, 704 × 576, 640 × 480)	
Video Compression	Main stream: H.265+/H.265/H.264+/H.264,	
	Sub-stream: H.265/H.264/MJPEG,	
	Third stream: H.265/H.264	
Video Bit Rate	32 Kbps to 8 Mbps	
H.264 Type	Baseline Profile,Main Profile,High Profile	
H.265 Type	Main Profile	
Scalable Video Coding (SVC)	H.264 and H.265 encoding	
Region of Interest (ROI)	4 fixed regions for each stream	
Target Cropping	Yes	
<b>Audio</b>		
Audio Compression	G.711/G.722.1/G.726/MP2L2/PCM/MP3/AAC-LC	
Audio Bit Rate	64 Kbps (G.711ulaw/G.711alaw)/16 Kbps (G.722.1)/16 Kbps (G.726)/32 to 192 Kbps (MP2L2)/8 to 320 Kbps (MP3)/16 to 64 Kbps (AAC-LC)	
Audio Sampling Rate	8 kHz/16 kHz/32 kHz/48 kHz	
Environment Noise Filtering	Yes	
<b>Network</b>		
Protocols	TCP/IP, ICMP, HTTP, HTTPS, FTP, DHCP, DNS, DDNS, RTP, RTSP, RTCP, PPPoE, NTP, UPnP, SMTP, SNMP, IGMP, 802.1X, QoS, IPv4, IPv6, UDP, Bonjour, WebSocket, WebSockets, SSL/TLS	
Simultaneous Live View	Up to 20 channels	
API	Open Network Video Interface (Profile S, Profile G, Profile T),ISAPI,SDK,ISUP	
User/Host	Up to 32 users	
	3 user levels: administrator, operator, and user	
Security	Password protection, complicated password, HTTPS encryption, 802.1X authentication (EAP-MD5), watermark, IP address filter, basic and digest authentication for HTTP/HTTPS, WSSE and digest authentication for Open Network Video Interface	
Network Storage	NAS (NFS, SMB/CIFS),Auto Network Replenishment (ANR),	
Web Browser	Plug-in required live view: IE 10, IE 11,	

	Plug-in free live view: Chrome 57.0+, Firefox 52.0+, Edge 89+, Safari 11+,	
	Local service: Chrome 57.0+, Firefox 52.0+, Edge 89+	
<b>Image</b>		
Image Settings	Rotate mode,saturation,brightness,contrast,sharpness,AGC,white balance,adjustable by client software or web browser	
Day/Night Switch	Day,Night,Auto,Schedule,Alarm Trigger	
Wide Dynamic Range (WDR)	120 dB	
SNR	≥ 52 dB	
Image Stabilization	EIS	
Image Enhancement	BLC,HLC,3D DNR,Defog	
Privacy Mask	8 programmable polygon privacy masks	
Picture Overlay	LOGO picture can be overlaid on video with 128 × 128 24 bit bmp format.	
<b>Interface</b>		
Ethernet Interface	1 RJ45 10 M/100 M/1000 M self-adaptive Ethernet port	
On-Board Storage	Built-in memory card slot, support microSD/microSDHC/microSDXC card, up to 1 TB	
Audio	1 input (line in), 3.5 mm connector, max. input amplitude: 3.3 Vpp, input impedance: 4.7 KΩ, interface type: non-equilibrium,	
	1 output (line out), 3.5 mm connector, max. output amplitude: 3.3 Vpp, output impedance: 100 Ω, interface type: non-equilibrium	
Alarm	2 inputs, 2 outputs (max. 24 VDC, 1 A)	
Reset Key	Yes	
<b>Event</b>		
Basic Event	Motion detection,video tampering alarm,network disconnected,IP address conflict,illegal login,HDD full,HDD error	
Smart Event	Line crossing detection, intrusion detection, region entrance detection, region exiting detection (support alarm triggered by specified target types (human and vehicle)),scene change detection, unattended baggage detection,object removal detection	
Linkage	Upload to FTP/NAS/memory card,notify surveillance center,send email,trigger alarm output,trigger recording,trigger capture	
<b>Deep Learning Function</b>		
Perimeter Protection	Line crossing, intrusion, region entrance, region exiting	
	Support alarm triggering by specified target types (human and vehicle)	

<b>4MP Network PTZ</b>		
<b>Feature</b>	<b>Technical Specification</b>	<b>Bidder's Response</b>
<b>Camera</b>		
Image Sensor	1/1.8" progressive scan CMOS	
Min. Illumination	Color: 0.0003 Lux @ (F1.2, AGC ON), B/W: 0.0001 Lux @ (F1.2, AGC ON), 0 Lux with IR	
Shutter Speed	1/1 s to 1/30,000 s	

Slow Shutter	Yes	
Day & Night	IR cut filter	
Zoom	42x optical, 16x digital	
Max. Resolution	2688 × 1520	
<b>Lens</b>		
Focus	Auto, semi-auto, manual, rapid focus	
Focal Length	6.0 mm to 252 mm, 42× Optical	
Zoom Speed	Approx. 4.5 s (optical, wide-tele)	
FOV	Horizontal field of view: 56.6° to 1.7°(wide-tele),	
	vertical field of view: 33.7° to 0.9°(wide-tele),	
	diagonal field of view: 63.4° to 1.9°(wide-tele)	
Aperture	Max. F1.2	
<b>Illuminator</b>		
Supplement Light Type	IR	
Supplement Light Range	IR Distance: up to 400 m	
Smart Supplement Light	Yes	
<b>PTZ</b>		
Movement Range (Pan)	360°, Smart Pan-Tilt Correction	
Movement Range (Tilt)	-20° to 90° (auto flip), Smart Pan-Tilt Correction	
Pan Speed	Pan speed: configurable from 0.1° to 160°/s; preset speed: 240°/s	
Tilt Speed	Tilt speed: configurable from 0.1° to 120°/s, preset speed 200°/s	
Proportional Pan	Yes	
Presets	300	
Patrol Scan	8 patrols, up to 32 presets for each patrol	
Pattern Scan	4 pattern scans, record time over 10 minutes for each scan	
Power-off Memory	Yes	
Park Action	Preset, pattern scan, patrol scan, auto scan, tilt scan, random scan, frame scan, panorama scan	
3D Positioning	Yes	
PTZ Status Display	Yes	
Preset Freezing	Yes	
Scheduled Task	Preset, pattern scan, patrol scan, auto scan, tilt scan, random scan, frame scan, panorama scan, dome reboot, dome adjust, aux output	
<b>Video</b>		
Main Stream	50 Hz: 50 fps (2688 × 1520, 2560 × 1440), 100 fps (1920 × 1080, 1280 × 960, 1280 × 720);	
	60 Hz: 60 fps (2688 × 1520, 2560 × 1440), 120 fps (1920 × 1080, 1280 × 960, 1280 × 720)	

	*High frame rate is supported under monitoring mode only.	
Sub-Stream	50 Hz: 25 fps (704 × 576, 640 × 480, 352 × 288)	
	60 Hz: 30 fps (704 × 480, 640 × 480, 352 × 240)	
Third Stream	50 Hz: 25 fps (1920 × 1080, 1280 × 960, 1280 × 720, 704 × 576, 640 × 480, 352 × 288)	
	60 Hz: 30 fps (1920 × 1080, 1280 × 960, 1280 × 720, 704 × 480, 640 × 480, 352 × 240)	
Video Compression	Main stream: H.265+/H.265/H.264+/H.264	
	Sub-stream: H.265/H.264/MJPEG	
	Third stream: H.265/H.264/MJPEG	
Video Bit Rate	32 Kbps to 16384 Kbps	
H.264 Type	Baseline Profile/Main Profile/High Profile	
H.265 Type	Main Profile	
Scalable Video Coding (SVC)	H.264 and H.265 encoding	
Region of Interest (ROI)	8 fixed regions for each stream	
Target Cropping	No	
<b>Audio</b>		
Audio Compression	G.711alaw, G.711ulaw, G.722.1, G.726, MP2L2, PCM	
Audio Bit Rate	64 Kbps (G.711)/16 Kbps (G.722.1)/16 Kbps (G.726)/32 to 192 Kbps (MP2L2)	
Audio Sampling Rate	MP2L2: 16kHz, 32kHz, 48kHzAAC-LC: 16kHz, 32kHz, 48kHzPCM: 8kHz, 16kHz, 32kHz, 48kHzMP3: 8kHz, 16kHz, 32kHz, 48kHz	
Environment Noise Filtering	Yes	
<b>Network</b>		
Smooth Streaming	Yes	
Security	Password protection, complicated password, HTTPS encryption, 802.1X authentication (EAP-TLS, EAP-LEAP, EAP-MD5), watermark, IP address filter, basic and digest authentication for HTTP/HTTPS, WSSE and digest authentication for Open Network Video Interface, RTP/RTSP over HTTPS, control timeout settings, security audit log, TLS 1.3, host authentication (MAC address), TPM 2.0 (FIPS 140-2 level 2)	
Network Storage	NAS (NFS, SMB/ CIFS), ANR	
Protocols	IPv4/IPv6, HTTP, HTTPS, 802.1x, Qos, FTP, SMTP, UPnP, SNMP, DNS, DDNS, NTP, RTSP, RTCP, RTP, TCP/IP, DHCP, PPPoE, UDP, IGMP, ICMP, Bonjour	
API	ISUP, ISAPI, Open Network Video Interface (Profile S, Profile G, Profile T, Profile M), OTAP	
Simultaneous Live View	Up to 20 channels	
User/Host	Up to 32 users. 3 levels: Administrator, Operator and User	
Web Browser	IE11, Chrome 57.0+, Firefox 52.0+, Safari 11+	

<b>Image</b>		
Image Parameters Switch	Yes	
Image Settings	Saturation, brightness, contrast, sharpness, gain, and white balance adjustable by client software or web browser	
Day/Night Switch	Day, night, auto, scheduled-switch	
Image Enhancement	BLC, HLC, 3D DNR	
Wide Dynamic Range (WDR)	150 dB WDR	
Defog	Optical defog	
Image Stabilization	Yes. Built-in gyroscope to improve EIS performance.	
Regional Exposure	Yes	
Regional Focus	Yes	
Privacy Mask	Up to 24 masks, polygon region, mosaic mask, mask color configurable	
SNR	≥ 52 dB	
<b>Supplement Detection</b>		
Gyroscope	Yes	
Satellite Positioning	No	
Compass	No	
<b>Interface</b>		
Reset	Yes	
Ethernet Interface	1 RJ45 10M/100M self-adaptive Ethernet port	
On-board Storage	Built-in memory card slot, support MicroSD/MicroSDHC/MicroSDXC, up to 1 TB	
Alarm	7 inputs, 2 outputs	
Audio	1 input (line in), max. input amplitude: 2-2.4 vpp, input impedance: 1 KΩ ± 10%; 1 output (line out), line level, output impedance: 600 Ω	
Video Output	1.0V[p-p]/75Ω, PAL, NTSC, BNC connector	
<b>Event</b>		
Basic Event	Motion detection,video tampering alarm,exception (network disconnected, IP address conflict, illegal login, HDD full, HDD error),alarm input and output,vandal-proof alam,audio exception detection,unattended baggage detection, object removal detection	
Linkage	Upload to FTP/NAS/memory card,notify surveillance center,send email,trigger recording,and PTZ actions (such as preset, patrol scan, pattern scan)	
<b>Deep Learning Function</b>		
Perimeter Protection	Line crossing detection, region entrance detection, intrusion detection, region exiting detection	
Multi-Target-Type Detection	Supports simultaneous detection and capture of human body, face and vehicle,	

	Gets 7 face features, 14 human body features and 8 vehicle features	
Face Capture	Detects up to 30 faces simultaneously,	
	Uploads face with background and closed-up face pictures, Supports detecting, tracking, capturing, grading, selecting of face in motion, and outputs the best face picture	
Face Comparison	Up to 10 face libraries. 30000 faces for each library. 150000 faces in total,	
	Recognizes face identity via face modeling, grading and comparing to those in face library,	
	Supports face library encryption	
Road Traffic and Vehicle Detection	Smart Function:	
	Support license plate recognition of vehicles and motorcycles (only in checkpoint scenario)	
	Support vehicle attribute detection, including vehicle type, color, brand, driving direction, etc.	
	Support vehicle and non-vehicle counting	
	Blocklist and allowlist: up to 10,000 records	
	LPR Countries/Regions:	
	4 areas (Europe, Middle East, Asia-Pacific, Africa) and more than 124 countries/regions	
	Accuracy (Under recommended installation and lighting conditions):	
	License plate recognition rate $\geq 98\%$	
	Capture rate $\geq 99\%$	
	Driving direction accuracy rate $\geq 98\%$	
	Vehicle Capture Speed:	
	Front installation in checkpoint scenario: up to 120 km/h	
	Side installation: up to 80 km/h	
Capture Mode: License Plate and Vehicle Mode, Vehicle Priority Mode		
<b>Linkage and Tracking</b>		
Smart Tracking	Manual tracking, auto-tracking 3.0	
Object Tracking	Support person arming. When the device detects the armed face or human body in the monitoring scene, it triggers alarms, and tracks and captures the target. During the tracking, the target location and other related information are uploaded. Support vehicle arming. When the device detects the armed vehicles in the monitoring scene, it triggers alarms, and tracks and captures the target. During the tracking, the target location and other related information are uploaded.	



<b>Workstation</b>		
<b>Feature</b>	<b>Technical Specification</b>	<b>Bidder's Response</b>
<b>Hardware Specifications</b>		
CPU	i7-12700, 2.10 GHz, 25 MB Cache, 12 Cores, 20 Threads	
Memory	Standard Config : 2 × 8GB UDIMM, 3200MT/s Scalability : 4 × 32GB UDIMM	
Hard Disks	Standard Config : 1 × 1TB M.2 SSD Scalability : 1 × 4TB 3.5inch SATA HDD	
Supported Operating Systems	Win10 multilingual version pre-installed	
Graphic Card	Standard Config : UHD Graphics 770 (intergrated in CPU) Scalability : 1 × Semi-high Independent graphics card (Please contact technical support for more info.)	
PCIe Slots	1*PCIe 4.0 x16 Slot 1*PCIe 4.0 x4 Slot	
<b>Ports</b>		
Type-C	1	
USB 3.0	1 (Front) +3 (Rear)	
USB 2.0	2 (Front) +2 (Rear)	
Universal Audio Port	1	
Ethernet Port	1 x LAN 10/100/1000	
VGA	/ (HDMI port can be used as VGA port)	
HDMI	1	
DP	3 (DP port can be used as HDMI port)	

<b>LCD MONITORS 32/40/42 INCHES</b>		
<b>Feature</b>	<b>Technical Specification</b>	<b>Bidder's Response</b>
Resolution	Minimum 1920 x 1080p full HD native resolution.	
LED Backlight Technology	Must use energy saving LED backlighting rather than cold cathode fluorescent lights (CCFL)	
Energy Star certified	Must be energy Star certified, ensuring reliability in a 24/7 security installation environment	
Design	Must be constructed of a lightweight aluminum frame composition for desktop or wall-mount installations.	

<b>NETWORK MEDIA CONVERTORS</b>		
<b>Feature</b>	<b>Technical Specification</b>	<b>Bidder's Response</b>

General	· Industrial Gigabit and Supports 1000Base-SX/LX with SC connector, or SFP slot	
	· Link Fault Pass-through (LFP)	
	· -40 to 75°C operating temperature range (T models)	
	· Supports Energy Efficient Ethernet (IEEE 802.3az)	
Interface	RJ45 Ports: 10/100/1000BaseT(X)	
	Fiber Ports: 100/1000Base-SX/LX or 100/1000BaseSFP slot	
Power Requirement	Input Voltage: 12 to 48 VDC, redundant inputs Input Current: 285 mA @ 48 VDC max. Connection: Removable terminal block	
	Overload Current Protection: 1.5 A	
	Reverse Polarity Protection: Present	
LED Indicators	PWR1, PWR2, G1 (copper port 10M/100M/1000M), G2 (fiber port 100M/1000M)	
DIP Switches	Fiber speed 100M/1000M, Link Fault Pass-through, Energy Efficient Ethernet	
Optical Fiber	Multi-mode Transmission Distance: 1000BaseSX: 0 to 500 m, 850 nm (50/125 μm, 400 MHz*km)	
	Single-mode Transmission Distance: 1000BaseLX: 0 to 10 km, 1310 nm (9/125 μm, 3.5 PS/(nm*km))	

<b>16-ch DeepinMind NVR</b>		
<b>Feature</b>	<b>Technical Specification</b>	<b>Bidder's Response</b>
<b>Intelligent Analytics</b>		
AI by NVR	Facial recognition, perimeter protection, video structuralization, AcuSearch	
AI by Camera	Facial recognition, perimeter protection, video structuralization, AcuSearch, motion detection2.0, ANPR, people counting, VCA	
Engine	2, each engine can run an intelligent algorithm, engine mode is adjustable	
<b>Facial Recognition</b>		
Facial Detection and Analytics	Face picture comparison, human face capture, face picture search	
Face Picture Library	Up to 32 face picture libraries, up to 100,000 face pictures in list library, up to 10,000 face pictures in stranger library, up to 10,000,000 face pictures in face capture (each picture ≤ 4 MB, total capacity ≤ 20 GB)	
Face Picture Comparison (Captured from Camera)	16-ch (24-ch for each engine);	
	Comparison speed: 48 pictures per second	
Facial Detection and Analytics Performance	16-ch 2 MP (8-ch for each engine), up to 8 MP	
<b>AcuSearch</b>		

By NVR	up to 8-ch, up to 691,200 targets/day	
By Camera	All channels, up to 691,200 targets/day	
	The camera should enable AcuSearch function	
<b>Perimeter Protection</b>		
By NVR	perimeter protection powered by LargeModel : 12-ch 2 MP or 8-ch 4MP or 4-ch 8MP	
	perimeter protection without LargeModel : 24-ch 2 MP or 16ch-4MP or 8-ch 8MP	
By Camera	perimeter protection powered by LargeModel with AcuSense cameras: All channels	
<b>Video Structuralization</b>		
Structured Analysis	12-ch 2 MP (6-ch for each engine), up to 8 MP	
Face Picture Library	Up to 32 face picture libraries, up to 100,000 face pictures in list library, up to 10,000 face pictures in stranger library, up to 10,000,000 face pictures in face capture (each picture ≤ 4 MB, total capacity ≤ 20 GB)	
Face Picture Comparison	16-ch;	
	Comparison speed: 32 pictures per second	
<b>ANPR</b>		
By Camera	All channels	
Vehicle Attributes	Vehicle brand, vehicle color, vehicle type	
Plate Attributes	Plate number, license plate color, license plate type	
<b>Video and Audio</b>		
IP Video Input	16-ch	
	Up to 32 MP resolution	
Incoming Bandwidth	320 Mbps	
Outgoing Bandwidth	400 Mbps	
HDMI 1 Output	8K (7680 × 4320)/30Hz, 4K (3840 × 2160)/60Hz, 4K (3840 × 2160)/30Hz, 2K (2560 × 1440)/60Hz, 1920 × 1080/60Hz	
Incoming Bandwidth (RAID Mode)	320 Mbps	
HDMI 2 Output	4K (3840 × 2160)/60Hz, 4K (3840 × 2160)/30Hz, 2K (2560 × 1440)/60Hz, 1920 × 1080/60Hz	
	*: When HDMI 1 output resolution is 8K, the maximum HDMI 2 output resolution is 1080p.	
Outgoing Bandwidth (RAID mode)	400 Mbps	
VGA 1 Output	1920 × 1080/60Hz	
VGA 2 Output	1920 × 1080/60Hz	
Video Output Mode	HDMI1/VGA1 simultaneous output, HDMI2/VGA2 simultaneous output	
CVBS Output	1-ch, BNC (1.0 Vp-p, 75 Ω), resolution: PAL: 704 × 576, NTSC: 704 × 480	

Audio Output	2-ch, RCA (Linear, 1 K $\Omega$ )	
Two-Way Audio	1-ch, RCA (2.0 V <sub>p-p</sub> , 1 k $\Omega$ )	
<b>Decoding</b>		
Decoding Format	H.265/H.265+/H.264/H.264+	
Decoding Capability	2-ch@32 MP (30 fps)/2-ch@24 MP (30fps)/4-ch@16 MP (30fps)/8-ch@8 MP (30fps)/16-ch@4 MP (30fps)/32-ch@2 MP (30fps)	
Synchronous Playback	16-ch	
Recording Resolution	32 MP/24 MP/12 MP/8 MP/6 MP/5 MP/4 MP/3 MP/1080p/UXGA/720p/VGA /4CIF/DCIF/ 2CIF/CIF/QCIF	
<b>Network</b>		
Remote Connection		128
Network Protocol	TCP/IP, DHCP, IPv4, IPv6, DNS, DDNS, NTP, RTSP, SADP, SMTP, SNMP, NFS, iSCSI, ISUP, UPnP™, HTTP, HTTPS, ONVIF(Version 2.2), OTAP	
API	ONVIF (profile S/G); SDK; ISAPI	
Compatible Browser	IE11, Chrome V57, Firefox V52, Safari V12, Edge V89, or above version	
Network Interface	2, RJ-45 10/100/1000 Mbps self-adaptive Ethernet interface	
Camera Access Protocol	ONVIF(Version 2.5), RTSP	
<b>RAID</b>		
RAID Type	RAID0, RAID1, RAID5, RAID6, RAID10	
<b>Auxiliary Interface</b>		
Ctrl 12V	Controllable 12 VDC, 1 A power output for external alarm device; The power will be turned on when the alarm output is triggered.	
	*: The Ctrl 12V power is controlled by alarm output 9.	
DC 12V	12 VDC, 1 A power output	
SATA	8 SATA interfaces; 3.5-inch HDD	
eSATA	1 eSATA interface	
Capacity	Up to 16 TB capacity for each HDD	
Serial Interface	1 RS-232, 1 RS-485 (full-duplex)	
USB Interface	Front panel: 2 × USB 2.0; Rear panel: 1 × USB 3.0	
Alarm In/Out	16 input & 9 output	

<b>32-ch Intelligent NVR</b>		
<b>Feature</b>	<b>Technical Specification</b>	<b>Bidder's Response</b>
<b>Intelligent Analytics</b>		

AI by NVR	Pre-installed AI Algorithm Package		
	Human ( 3 Algorithm models )		
	1. Facial recognition:		
	2. People counting: regional people counting, people counting statistics		
	3. PPE: safety helmets and reflective vests detection		
	Vehicle ( 2 Algorithm models )		
	1. Vehicle attributes: vehicle brand, vehicle color, vehicle type		
	2. Non-motorized vehicle detection: motorcycle, bicycles		
	Dangerous Event( 2 Algorithm models )		
	1. Fire and smoke detection		
	2. Occupation of fire escape		
	Behaviour ( 4 Algorithm models )		
	1. Street level behaviour : falling down detection, people gathering detection, fast moving detection, physical conflict detection		
	2. Indoor: playing mobile phone, number of people exception, overstaying detection		
	3. Perimeter: intrusion detection, line crossing detection, region entrance detection, region exiting detection		
	4. Smoke detection, call detection		
	AIOP (Up to 16 models)		
	Model type: detection model, classification model, mixed model (detection model and classification model)		
	<b>AI Open Platform Performance</b>		
	Live Video Analysis	2 engines in total, up to 4-ch for each engine (4-ch@4 MP, 2-ch@6 MP, 1-ch @8 MP)	
Auto-Switch Video Analysis	2 engines in total, up to 8-ch for each engine (switching time should between 10 to 3600 sec)		
Scheduled Capture Analysis	2 engines in total, up to 8-ch for each engine, (switch time should between 3 to 3600 seconds)		
<b>Video and Audio</b>			
IP Video Input	32-ch		
Incoming Bandwidth	320 Mbps		
Outgoing Bandwidth	400 Mbps		
HDMI 1 Output	HDMI1 : 8K (7680 × 4320)/30 Hz, 4K (3840 × 2160)/60 Hz, 4K (3840 × 2160)/30 Hz, 2K (2560 × 1440)/60 Hz, 1080P (1920 × 1080)/60 Hz		
	*: When HDMI 1 output resolution is 8K, the maximum HDMI 2 output resolution is 1080p.		
HDMI 2 Output	HDMI2 : 4K (3840 × 2160)/60Hz, 4K (3840 × 2160)/30Hz, 2K (2560 × 1440)/60Hz, 1920 × 1080/60Hz		
VGA 1 Output	1080P (1920 × 1080)/60 Hz		
VGA 2 Output	1080P (1920 × 1080)/60 Hz		

Video Output Mode	HDMI1/VGA1 simultaneous output, HDMI2/VGA2 simultaneous output	
Audio Output	1-ch, RCA (Linear, 1 K $\Omega$ )	
Two-Way Audio	1-ch, RCA (2.0 V <sub>p-p</sub> , 1 k $\Omega$ )	
<b>Decoding</b>		
Decoding Format	H.265/H.265+/H.264/H.264+	
Decoding Capability	Up to 2-ch@32 MP/2-ch@24 MP/4-ch@12 MP/8-ch@8 MP/16-ch@4 MP/32-ch@1080P	
Synchronous Playback	16-ch	
Recording Resolution	32 MP/24 MP/12 MP/8 MP/6 MP/5 MP/4 MP/3 MP/1080p/UXGA/720p/VGA /4CIF/DCIF/ 2CIF/CIF/QCIF	
	*: After ultra HD resolution mode is enabled, the NVR supports up to 8-ch 32 MP/24 MP IP video inputs.	
<b>Network</b>		
Remote Connection		128
Network Protocol	TCP/IP, DHCP, IPv4, IPv6, DNS, DDNS, NTP, RTSP, SADP, SMTP, SNMP, NFS, iSCSI, ISUP, UPnP™, HTTP, HTTPS	
API	ONVIF (profile S/G); SDK; ISAPI	
Compatible Browser	IE11, Chrome V57, Firefox V52, Safari V12, Edge V89, or above version	
Network Interface	2, RJ-45 10/100/1000 Mbps self-adaptive Ethernet interface	
<b>RAID</b>		
RAID Type	RAID0, RAID1, RAID5, RAID6, RAID10	
<b>Auxiliary Interface</b>		
Ctrl 12V	Controllable 12 VDC, 1 A power output for external alarm device; The power will be turned on when the alarm output is triggered.	
	*: The Ctrl 12V power is controlled by alarm output 9.	
DC 12V	12 VDC, 1 A power output	
SATA	8 SATA interfaces; 3.5-inch HDD	
eSATA	1 eSATA interface	
Capacity	Up to 16 TB capacity for each HDD	
Serial Interface	1 RS-232, 1 RS-485 (full-duplex)	
USB Interface	Front panel: 2 × USB 2.0; Rear panel: 2 × USB 3.0	
Alarm In/Out	16 input & 9 output	

<b>32-ch DeepinMind NVR</b>		
<b>Feature</b>	<b>Technical Specification</b>	<b>Bidder's Response</b>
<b>Intelligent Analytics</b>		
AI by NVR	Pre-installed AI Algorithm Package	
	Human ( 3 Algorithm models )	
	1. Facial recognition:	
	2. People counting: regional people counting, people counting statistics	
	3. PPE: safety helmets and reflective vests detection	

	Vehicle ( 2 Algorithm models )	
	1. Vehicle attributes: vehicle brand, vehicle color, vehicle type	
	2. Non-motorized vehicle detection: motorcycle, bicycles	
	Dangerous Event( 2 Algorithm models )	
	1. Fire and smoke detection	
	2. Occupation of fire escape	
	Behaviour ( 4 Algorithm models )	
	1. Street level behaviour : falling down detection, people gathering detection, fast moving detection, physical conflict detection	
	2. Indoor: playing mobile phone, number of people exception, overstaying detection	
	3. Perimeter: intrusion detection, line crossing detection, region entrance detection, region exiting detection	
	4. Smoke detection, call detection	
	AIOP (Up to 16 models)	
	Model type: detection model, classification model, mixed model (detection model and classification model)	
<b>AI Open Platform Performance</b>		
Live Video Analysis	2 engines in total, up to 4-ch for each engine (4-ch@4 MP, 2-ch@6 MP, 1-ch @8 MP)	
Auto-Switch Video Analysis	2 engines in total, up to 8-ch for each engine (switching time should between 10 to 3600 sec)	
Scheduled Capture Analysis	2 engines in total, up to 8-ch for each engine, (switch time should between 3 to 3600 seconds)	
<b>Video and Audio</b>		
IP Video Input	32-ch	
Incoming Bandwidth	320 Mbps	
Outgoing Bandwidth	400 Mbps	
HDMI 1 Output	HDMI1 : 8K (7680 × 4320)/30 Hz, 4K (3840 × 2160)/60 Hz, 4K (3840 × 2160)/30 Hz, 2K (2560 × 1440)/60 Hz, 1080P (1920 × 1080)/60 Hz	
	*: When HDMI 1 output resolution is 8K, the maximum HDMI 2 output resolution is 1080p.	
HDMI 2 Output	HDMI2 : 4K (3840 × 2160)/60Hz, 4K (3840 × 2160)/30Hz, 2K (2560 × 1440)/60Hz, 1920 × 1080/60Hz	
VGA 1 Output	1080P (1920 × 1080)/60 Hz	
VGA 2 Output	1080P (1920 × 1080)/60 Hz	
Video Output Mode	HDMI1/VGA1 simultaneous output, HDMI2/VGA2 simultaneous output	
Audio Output	1-ch, RCA (Linear, 1 KΩ)	
Two-Way Audio	1-ch, RCA (2.0 Vp-p, 1 k Ω)	
<b>Decoding</b>		
Decoding Format	H.265/H.265+/H.264/H.264+	

Decoding Capability	Up to 2-ch@32 MP/2-ch@24 MP/4-ch@12 MP/8-ch@8 MP/16-ch@4 MP/32-ch@1080P	
Synchronous Playback	16-ch	
Recording Resolution	32 MP/24 MP/12 MP/8 MP/6 MP/5 MP/4 MP/3 MP/1080p/UXGA/720p/VGA /4CIF/DCIF/2CIF/CIF/QCIF	
	*: After ultra HD resolution mode is enabled, the NVR supports up to 8-ch 32 MP/24 MP IP video inputs.	
<b>Network</b>		
Remote Connection	128	
Network Protocol	TCP/IP, DHCP, IPv4, IPv6, DNS, DDNS, NTP, RTSP, SADP, SMTP, SNMP, NFS, iSCSI, ISUP, UPnP™, HTTP, HTTPS	
API	ONVIF (profile S/G); SDK; ISAPI	
Compatible Browser	IE11, Chrome V57, Firefox V52, Safari V12, Edge V89, or above version	
Network Interface	2, RJ-45 10/100/1000 Mbps self-adaptive Ethernet interface	
<b>RAID</b>		
RAID Type	RAID0, RAID1, RAID5, RAID6, RAID10	
<b>Auxiliary Interface</b>		
Ctrl 12V	Controllable 12 VDC, 1 A power output for external alarm device; The power will be turned on when the alarm output is triggered.	
	*: The Ctrl 12V power is controlled by alarm output 9.	
DC 12V	12 VDC, 1 A power output	
SATA	8 SATA interfaces; 3.5-inch HDD	
eSATA	1 eSATA interface	
Capacity	Up to 16 TB capacity for each HDD	
Serial Interface	1 RS-232, 1 RS-485 (full-duplex)	
USB Interface	Front panel: 2 × USB 2.0; Rear panel: 2 × USB 3.0	
Alarm In/Out	16 input & 9 output	

<b>64-ch Intelligent NVR</b>		
<b>Feature</b>	<b>Technical Specification</b>	<b>Bidder's Response</b>
<b>Intelligent Analytics</b>		
AI by NVR	Facial recognition, perimeter protection, video structuralization	
AI by Camera	Facial recognition, perimeter protection, video structuralization, AcuSearch, motion detection2.0, ANPR, people counting, VCA	
<b>Facial Recognition</b>		
Facial Detection and Analytics	Face picture comparison, human face capture, face picture search	
Face Picture Library	Up to 64 face picture libraries, up to 300,000 face pictures in list library (each picture ≤ 4 MB, total capacity ≤ 10 GB)	
Face Picture Comparison (Captured from Camera)	16-ch	
	Comparison speed: 24 pictures per second	



Facial Detection and Analytics Performance	Simultaneous mode: 8-ch, up to 2 MP	
	independent mode: 4-ch, up to 2 MP.	
<b>AcuSearch</b>		
By NVR	Up to 32-ch	
By Camera	All channels , up to 345,600 targets per day	
	Note: The camera should enable AcuSearch function.	
<b>Perimeter Protection</b>		
By NVR	Simultaneous mode: 8-ch, up to 2 MP	
	independent mode: 4-ch, up to 2 MP.	
By Camera	All channels	
<b>Video Structuralization</b>		
Structured Analysis	Simultaneous mode: 8-ch, up to 2 MP	
	independent mode: 4-ch, up to 2 MP.	
Face Picture Library	Up to 64 face picture libraries, up to 300,000 face pictures in list library (each picture ≤ 4 MB, total capacity ≤ 10 GB)	
Face Picture Comparison	16-ch;	
	Comparison speed: 24 pictures per second	
<b>Video and Audio</b>		
IP Video Input	64-ch	
	Up to 32 MP resolution	
Incoming Bandwidth	1024 Mbps	
Outgoing Bandwidth	800 Mbps	
Incoming Bandwidth (RAID Mode)	512 Mbps	
Outgoing Bandwidth (RAID mode)	400 Mbps	
HDMI 1 Output	4K (4096 × 2160)/30 Hz, 4K (3840 × 2160)/60 Hz, 4K (3840 × 2160)/30 Hz, 2K (2560 × 1440)/60 Hz, 1080P (1920 × 1080)/60 Hz	
HDMI 2 Output	4K (4096 × 2160)/30 Hz, 4K (3840 × 2160)/60 Hz, 4K (3840 × 2160)/30 Hz, 2K (2560 × 1440)/60 Hz, 1080P (1920 × 1080)/60 Hz	
HDMI 3 Output	8K (7680 × 4320)/30 Hz, 4K (4096 × 2160)/30 Hz, 4K (3840 × 2160)/60 Hz, 4K (3840 × 2160)/30 Hz, 2K (2560 × 1440)/60 Hz, 1080P (1920 × 1080)/60 Hz	
HDMI 4 Output	1080P (1920 × 1080)/60 Hz	
VGA 1 Output	1080P (1920 × 1080)/60 Hz	
VGA 2 Output	1080P (1920 × 1080)/60 Hz	
Video Output Mode	Mode 1 (default output mode): simultaneous output with 1080p resolution;	
	Mode 2 (simultaneous output): HDMI 1, VGA 1, HDMI 2, VGA 2, HDMI 3, and HDMI 4 provide simultaneous output, the maximum resolution for VGA 1/VGA 2/HDMI 4 is 1080p, the maximum resolution for HDMI 1/HDMI 2/HDMI 3 is 4K;	

	Mode 3 (independent output and 8K HDMI 3 output resolution): HDMI 1/VGA 1/HDMI 2/VGA 2, HDMI 3, and HDMI 4 provide independent output respectively. The maximum resolution is 8K + 4K + 1080p;	
	Mode 4 (independent output and HDMI 3 output resolution ≤ 4K): HDMI 1/VGA 1, HDMI 2/VGA 2, HDMI 3, and HDMI 4 provide independent output respectively. The maximum resolution is 8K × 4K + 1080p.	
HDMI Input	1-ch	
HDMI Loopback	1-ch (matching the HDMI input)	
Audio Output	2-ch, RCA (Linear, 1 KΩ)	
Two-Way Audio	1-ch, RCA (2.0 Vp-p, 1 k Ω)	
<b>Decoding</b>		
Decoding Format	H.265/H.265+/H.264/H.264+	
Decoding Capability	2-ch@32 MP (30 fps)/2-ch@24 MP (30fps)/4-ch@16 MP (30fps)/8-ch@8 MP (30fps)/16-ch@4 MP (30fps)/32-ch@2 MP (30fps)	
Synchronous Playback	16-ch	
Recording Resolution	32 MP/24 MP/12 MP/8 MP/6 MP/5 MP/4 MP/3 MP/1080p/UXGA/720p/VGA /4CIF/DCIF/ 2CIF/CIF/QCIF	
<b>Network</b>		
Remote Connection		128
Network Protocol	TCP/IP, DHCP, IPv4, IPv6, DNS, DDNS, NTP, RTSP, SADP, SMTP, SNMP, NFS, iSCSI, ISUP, UPnP™, HTTP, HTTPS, ONVIF (version 2.2), OTAP	
API	ONVIF (profile S/G); SDK; ISAPI	
Compatible Browser	IE11, Chrome V57, Firefox V52, Safari V12, Edge V89, or above version	
Network Interface	4, RJ-45 10/100/1000/2500 Mbps self-adaptive Ethernet interface	
Camera Access Protocol	ONVIF (version 2.5), RTSP	
<b>RAID</b>		
RAID Type	RAID 0, RAID 1, RAID 5, RAID 6, RAID 10	
<b>Auxiliary Interface</b>		
SATA	8 SATA interfaces; 3.5-inch HDD	
eSATA	1 eSATA interface	
Capacity	Up to 20 TB capacity for each HDD	
Serial Interface	1 RS-232, 2 RS-485 (half-duplex)	
USB Interface	Front panel: 2 × USB 2.0; Rear panel: 4 × USB 3.0	
Alarm In/Out	16 input & 8 output	

<b>64-ch DeepinMind NVR</b>		
<b>Feature</b>	<b>Technical Specification</b>	<b>Bidder's Response</b>
<b>Intelligent Analytics</b>		

AI by NVR	Facial recognition, perimeter protection, video structuralization	
AI by Camera	Facial recognition, perimeter protection, video structuralization, AcuSearch, motion detection2.0, ANPR, people counting, VCA	
<b>Facial Recognition</b>		
Facial Detection and Analytics	Face picture comparison, human face capture, face picture search	
Face Picture Library	Up to 64 face picture libraries, up to 300,000 face pictures in list library (each picture ≤ 4 MB, total capacity ≤ 10 GB)	
Face Picture Comparison (Captured from Camera)	16-ch	
	Comparison speed: 24 pictures per second	
Facial Detection and Analytics Performance	Simultaneous mode: 8-ch, up to 2 MP	
	independent mode: 4-ch, up to 2 MP.	
<b>AcuSearch</b>		
By NVR	Up to 32-ch	
By Camera	All channels , up to 345,600 targets per day	
	Note: The camera should enable AcuSearch function.	
<b>Perimeter Protection</b>		
By NVR	Simultaneous mode: 8-ch, up to 2 MP	
	independent mode: 4-ch, up to 2 MP.	
By Camera	All channels	
<b>Video Structuralization</b>		
Structured Analysis	Simultaneous mode: 8-ch, up to 2 MP	
	independent mode: 4-ch, up to 2 MP.	
Face Picture Library	Up to 64 face picture libraries, up to 300,000 face pictures in list library (each picture ≤ 4 MB, total capacity ≤ 10 GB)	
Face Picture Comparison	16-ch;	
	Comparison speed: 24 pictures per second	
<b>Video and Audio</b>		
IP Video Input	64-ch	
	Up to 32 MP resolution	
Incoming Bandwidth	1024 Mbps	
Outgoing Bandwidth	800 Mbps	
Incoming Bandwidth (RAID Mode)	512 Mbps	
Outgoing Bandwidth (RAID mode)	400 Mbps	
HDMI 1 Output	4K (4096 × 2160)/30 Hz, 4K (3840 × 2160)/60 Hz, 4K (3840 × 2160)/30 Hz, 2K (2560 × 1440)/60 Hz, 1080P (1920 × 1080)/60 Hz	
HDMI 2 Output	4K (4096 × 2160)/30 Hz, 4K (3840 × 2160)/60 Hz, 4K (3840 × 2160)/30 Hz, 2K (2560 × 1440)/60 Hz, 1080P (1920 × 1080)/60 Hz	

HDMI 3 Output	8K (7680 × 4320)/30 Hz, 4K (4096 × 2160)/30 Hz, 4K (3840 × 2160)/60 Hz, 4K (3840 × 2160)/30 Hz, 2K (2560 × 1440)/60 Hz, 1080P (1920 × 1080)/60 Hz	
HDMI 4 Output	1080P (1920 × 1080)/60 Hz	
VGA 1 Output	1080P (1920 × 1080)/60 Hz	
VGA 2 Output	1080P (1920 × 1080)/60 Hz	
Video Output Mode	Mode 1 (default output mode): simultaneous output with 1080p resolution;	
	Mode 2 (simultaneous output): HDMI 1, VGA 1, HDMI 2, VGA 2, HDMI 3, and HDMI 4 provide simultaneous output, the maximum resolution for VGA 1/VGA 2/HDMI 4 is 1080p, the maximum resolution for HDMI 1/HDMI 2/HDMI 3 is 4K;	
	Mode 3 (independent output and 8K HDMI 3 output resolution): HDMI 1/VGA 1/HDMI 2/VGA 2, HDMI 3, and HDMI 4 provide independent output respectively. The maximum resolution is 8K + 4K + 1080p;	
	Mode 4 (independent output and HDMI 3 output resolution ≤ 4K): HDMI 1/VGA 1, HDMI 2/VGA 2, HDMI 3, and HDMI 4 provide independent output respectively. The maximum resolution is 8K × 4K + 1080p.	
HDMI Input	1-ch	
HDMI Loopback	1-ch (matching the HDMI input)	
Audio Output	2-ch, RCA (Linear, 1 kΩ)	
Two-Way Audio	1-ch, RCA (2.0 Vp-p, 1 kΩ)	
<b>Decoding</b>		
Decoding Format	H.265/H.265+/H.264/H.264+	
Decoding Capability	2-ch@32 MP (30 fps)/2-ch@24 MP (30fps)/4-ch@16 MP (30fps)/8-ch@8 MP (30fps)/16-ch@4 MP (30fps)/32-ch@2 MP (30fps)	
Synchronous Playback	16-ch	
Recording Resolution	32 MP/24 MP/12 MP/8 MP/6 MP/5 MP/4 MP/3 MP/1080p/UXGA/720p/VGA /4CIF/DCIF/2CIF/CIF/QCIF	
<b>Network</b>		
Remote Connection	128	
Network Protocol	TCP/IP, DHCP, IPv4, IPv6, DNS, DDNS, NTP, RTSP, SADP, SMTP, SNMP, NFS, iSCSI, ISUP, UPnP™, HTTP, HTTPS, ONVIF (version 2.2), OTAP	
API	ONVIF (profile S/G); SDK; ISAPI	
Compatible Browser	IE11, Chrome V57, Firefox V52, Safari V12, Edge V89, or above version	
Network Interface	4, RJ-45 10/100/1000/2500 Mbps self-adaptive Ethernet interface	
Camera Access Protocol	ONVIF (version 2.5), RTSP	
<b>RAID</b>		
RAID Type	RAID 0, RAID 1, RAID 5, RAID 6, RAID 10	
<b>Auxiliary Interface</b>		

SATA	8 SATA interfaces; 3.5-inch HDD	
eSATA	1 eSATA interface	
Capacity	Up to 20 TB capacity for each HDD	
Serial Interface	1 RS-232, 2 RS-485 (half-duplex)	
USB Interface	Front panel: 2 × USB 2.0; Rear panel: 4 × USB 3.0	
Alarm In/Out	16 input & 8 output	

<b>Software Server</b>		
<b>Feature</b>	<b>Technical Specification</b>	<b>Bidder's Response</b>
<b>Hardware Specifications</b>		
CPU	4410T x 1, 2.7G Hz, 26.25MB Cache, 10 Cores, 20 Threads	
Memory	Standard Config : 1 x 32GB RDIMM, 4800MT/s;	
	Slots : Single CPU with 8 slots available, dual CPUs with 16 slots available	
Hard Disks	Standard Config: 960GB SSD×2(RAID_1) + 2TB 7.2K SATA HDD ×2(RAID_1)	
	Slots : 8 3.5-inch slots in total	
Storage Controller	Standard Config : PERC H355 adaptor LP (support RAID 0/1/10)	
Supported Operating Systems	WinSvr2022 multilingual version pre-installed	
PCIe Slots	Slots : Single CPU with 4 PCIe slots, dual CPUs with 6 PCIe slots	
<b>Management</b>		
Remote Manage	iDrac9 Enterprise	
OpenManage™ Software	Support OpenManage Enterprise and Plugins (PowerManager, SupportAssist, and Update Manager)	
Integrations and Connections	Integrations: Microsoft® System Center, VMware® vCenter™, BMC Truesight (available from BMC), Red Hat Ansible;	
	Connections: Nagios Core & Nagios XI, Micro Focus Operations Manager i (OMi), IBM Tivoli Netcool / OMNibus	
Security	Support Cryptographically signed firmware; Secure Boot; Secure Erase; Silicon Root of Trust; System Lockdown (requires iDRAC9 Enterprise or Datacenter);	
<b>Ports</b>		
USB 3.0	0 (Front) +1 (Rear)	
USB 2.0	1 (Front) +1 (Rear)	
Ethernet Port	6 x 1GbE	
VGA	2	
iDRAC Direct (Micro-AB USB) Port	1	
iDRAC Ethernet Port	1	

<b>24-slot Single Controller Storage</b>		
<b>Feature</b>	<b>Technical Specification</b>	<b>Bidder's Response</b>
<b>Network</b>		
Protocol	iSCSI, RTSP, ONVIF, PSIA	
<b>External interface</b>		
USB	2*USB3.0, 1*USB2.0	
VGA	Supported	
Data network interface	4, 1000M Ethernet interface(4 × GbE or 2 × 10GbE is extendable)	
MiniSAS interface	1	
COM	1	
Management network interface	1, 1000M Ethernet interface	
<b>Storage</b>		
HDD slot	24	
Interface/capacity	SATA/1 TB, 2 TB, 3 TB, 4 TB, 6 TB, 8 TB, 10 TB, 12 TB, 14 TB, 16 TB	
Hot-swapping	Supported	
HDD support	RAID(Enterprise Hard Disk)	
RAID	RAID 0, 1, 3, 5, 6, 10, 50,JBOD, Hot-Spare	
<b>Performance</b>		
Direct Streaming Mode: video (2 Mbps) + picture	512-ch	
<b>Hardware</b>		
Structure	Controller Structure	
Processor	64-bit multi-core processor	
Cache	4 GB (extendable to 64GB)	
<b>Storage Management</b>		
Disk management	Disk inspection, alarm and repair	
Logical volume management	iSCSI volume, video volume management	
<b>Recording Management</b>		
Recording mode	Timing recording, manual recording, alarm recording	
Video protection	Lock key video, N+1 service protection, ANR, video loss detection and alarm	
Searching mode	Search by time and event	
Downloading mode	Quick download, batch download, download by segment, download by merging	
<b>Device Maintenance</b>		
Management mode	Web-based GUI, serial port CLI, centralized management of multiple devices	
Alarm mode	Sound, light, email, message, web page	
Log downloading	Download on web page	

**ACCESS CONTROL SYSTEMS**

<b>Access Control Terminal</b>		
<b>Feature</b>	<b>Technical Specification</b>	<b>Bidder's Response</b>
<b>System</b>		
Operating system	Linux	
<b>Audio</b>		
Audio output	1 built-in buzzer	
<b>Network</b>		
Bluetooth	Support	
Wired network	10/100 Mbps self-adaptive	
Wi-Fi	2.4 GHz, IEEE802.11b, 802.11g, 802.11n, 802.11d, 802.11e, 802.11h, 802.11i	
<b>Interface</b>		
RS-485	1, supports OSDP	
Network interface	1	
Wiegand	Wiegand 26/34	
Lock control	1	
Exit button	1	
Door contact input	1	
Alarm input	2	
Alarm output	1	
TAMPER	1	
<b>Capacity</b>		
Card capacity	10,000	
Fingerprint capacity	3000	
Event capacity	100,000	
<b>Authentication</b>		
Card type	M1 card	
Card reading distance	0 to 4 cm	
Card reading duration	< 1 s	
Fingerprint module	Optical fingerprint module	
Fingerprint comparing mode	1:1 and 1:N	
Fingerprint recognition duration	< 1 s	
<b>Function</b>		
Configuration via Web Browser	Support PC web configuration and mobile web operation	

**TYPE A ACCESS CONTROL**

<b>Feature</b>	<b>Technical Specification</b>	<b>Bidder's Response</b>
<b>Display</b>		
Screen size	7 inch	
Operation method	Capacitive touch screen	
Type	IPS	
<b>Face</b>		
Recognition distance	0.3 to 3 m	
Face recognition duration	$n < 0.2 \text{ s/User}$	
Face recognition accuracy rate	$\geq 99\%$	
Capacity	10,000 face capacity, 10,000 fingerprint capacity (With fingerprint module), 50,000 card capacity, and 150,000 event capacity	
Mode	Supports single person and multiple people (Up to 5 people) recognition	
<b>Video</b>		
Lens	2	
Resolution	2 MP	
FOV	HFOV = 75.5°; VFOV = 41.5°; DFOV = 87°	
<b>Audio</b>		
Audio quality	Built-in omnidirectional microphone	
<b>Network</b>		
Wired network	Support	
Wi-Fi	Support, 2.4 G, 802.11b/g/n	
<b>Interface</b>		
Network interface	1 RJ-45, 10/100/1000 M self-adaptive	
Lock control	1	
Exit button	1	
Door contact input	1	
Alarm input	2	
Alarm output	1	
TAMPER	1	
RS-485	1 RS-485 (Half duplex)	
Wiegand	1 Wiegand	
USB	1 (For Module)	
Audio output interface	1 (3.5 mm)	
<b>Authentication</b>		
Card type	M1 card, DESfire card, Felica card	
<b>Function</b>		
Face anti-spoofing	Support	



**NETWORK SWITCHES**

<b>Feature</b>	<b>Technical Specification</b>	<b>Bidder's Response</b>
Port Number	24 Gigabit electrical ports and 6 10 Gigabit SFP+ optical port	
Forwarding Mode	Store-and-forward switching	
MAC Address Table	32 K	
Switching Capacity	Whole-Device Performance:168 Gbps	
	Port Performance:168 Gbps	
Packet Forwarding Rate	Whole-Device Performance:124.99 Mpps	
	Port Performance:124.99 Mpps	
Device Maintenance	Support Console, Telnet, SSH	
	Support web, http,https	
	Support FTP, TFTP, Xmodem, SFTP	
	Support SNMP V1/V2c/V3	
	Support RMON	
	Support NTP	
Reliability	Support STP/RSTP/MSTP	
	Support EAPS/MEAPS	
	Support MRD-Ring	
	Support ERPS	
	Support VRRP	
	Support BFD for OSPF	
	Support BFD for BGP	
VLAN	Support IEEE 802.1Q (VLAN), 4096 VLAN IDs	
	Support GVRP	
	Support QinQ	
	Support VLAN based on MAC/ protocol /IP subnet / policy / port	
	Support Private VLAN	
	Support 1:1 and N:1 VLAN Mapping functions	
Port Mirroring	Support local and remote port mirroring	
	Support N:4 port mirroring	
	Support flow mirroring	
	Support MAC mirroring	
Routing	Support Static routing, RIP, OSPF,BGP,MPLS	
	Support IPv4/IPv6 ECMP	
	Support VRRP, VRRP v3	
	Support IPv4/IPv6 Policy-based routing	
	Support IPv4/IPv6 Routing policy	
	Support IPv4/IPv6 dual stack	

	Support IPv6 static routing, RIPng, OSPFv3	
QoS	Support Diff-Serv QoS	
	Support 802.1p/DSCP priority mapping	
	Support Queue scheduling including SP, WRR, WFQ, SP+WRR, SP+WFQ	
	Support Priority marking and remarking	
	Support Traffic shaping	
	Support Congestion avoidance, Tail-Drop and WRED	
	Support 802.1p, TOS, DSCP, and EXP priority mapping	
	Support Port/Flow- based Rate Limiting	
Multicast	Support IGMP v1/v2/v3 Snooping	
	Support IGMP V1/V2/V3	
	Support MLD Snooping v1/v2	
	Support MLD v1/v2	
ACL	Support IP-based ACL/MAC-based ACL	
	Support based on MAC Address, IP Address, Ethertype, Protocol Type, VLAN ID, DSCP, 802.1p Priority	
	Support up to 256 ACLs	
Link Aggregation	Support IEEE 802.3ad LACP/static link aggregation	
Security	Support AAA,TACACS+ Radius Authentication	
	Support 802.1X authentication, MAC authentication, MAC bypass authentication	
	Support to prevent DOS, ARP attack function, ICMP anti attack	
	Support binding of IP, MAC, port and VLAN	
	Support MAC authentication	
	Support MAC address filtering	
	Support Broadcast/Multicast/Unknown-unicast Storm Control	
Shell	Iron shell, Fan cooling design	
weight	3.4 kg (7.50 lb)	
Dimension (W × H × D)	440 mm × 44 mm × 280 mm	
Operating Temperature	0°C to 50°C (32°F to 122°F)	
Storage Temperature	-20°C to 70°C (-4°F to 158°F)	
Operating Humidity	10% to 90% (no condensation)	
Relative Humidity	5% to 95% (no condensation)	
Power Supply	AC : 100V-240V, 50/60Hz	
	Hot plug dual power supply optional	
Power Consumption in Idle	75 W	

<b>Edge Switch</b>		
<b>Feature</b>	<b>Technical Specification</b>	<b>Bidder's Response</b>
Service ports	24×10/100/1000BASE-T ports (POE+), 4×1000Base-X SFP ports.	
Switching capacity	Whole-Device Performance:56 Gbps	
	Port Performance:56 Gbps	
Packet forwarding rate	Whole-Device Performance:41.66 Mpps	
	Port Performance:41.66 Mpps	
Management port	1 Console port	
Electrical port attribute	Half-duplex, full-duplex, and auto-negotiation	
	MDI/MDI-X	
POE	POE+ with the maximum 30w output power per port	
Ethernet functions	LLDP	
	Static MAC configuration	
	Limit of number of MAC addresses to be learned (up to 8K)	
	Port mirroring and traffic mirroring	
	Port aggregation (up to 24 groups and 8 ports for each group)	
	Port isolation	
	STP/RSTP/MSTP	
	IEEE 802.3ad (dynamic link aggregation) and static port aggregation	
VLAN	802.1Q (up to 4K VLAN)	
	Protocol-based VLAN	
	MAC-based VLAN	
	GUEST VLAN	
	VLAN mapping	
	MVRP	
IP routing	Static routing	
DHCP	DHCP Relay	
	DHCP Client	
	DHCP Snooping	
Multicast	IGMP V1/V2/V3 snooping	
	PIM Snooping	
	Multicast VLAN	
	IPv6 multicast setting	
QoS	SP/WRR/SP+WRR queue scheduling	
	802.1p and DSCP priority mapping	
	Port speed limit	
ACL	ACL on Layer 2, Layer 3 and Layer 4	
	IPv4 and IPv6 ACLs	
	VLAN ACL	
IPv6	IPv6 static routing and dual-stack	
	DHCPv6 Client and DHCPv6 Snooping	
	ND and PMTU	
	IPv6 Ping, IPv6 Telnet, IPv6 SSHv2, and IPv6 domain name resolution	

Reliability	Ethernet OAM	
	DLDP	
	Smart Link	
	Monitor Link	
Security	Hierarchical user management and password protection	
	SSH for a secure encrypted channel for user login	
	Specific IP address based FTP logging and password mechanism	
	Prevent attacks from ARP, unknown multicast packet, broadcast packet, unknown unicast packet, TTL=1 packet, and protocol packet	
	MAC address limit	
	IP+MAC+PORT binding	
	IEEE 802.1x	
	Radius and AAA	
	SNMPv3	
Broadcast suppression		
System management	Command line configuration via console/AUX Modem/Telnet/SSH	
	Uploading and downloading of FTP, TFTP, and Xmodem, and SFTP files	
	SNMP V1/V2c/V3	
	sFlow	
	NQA	
	NTP clock	
	System operating logs	

<b>Edge Switch</b>		
<b>Feature</b>	<b>Technical Specification</b>	<b>Bidder's Response</b>
Service ports	24×10/100/1000BASE-T ports (POE+), 4×1000Base-X SFP ports.	
Switching capacity	Whole-Device Performance:56 Gbps Port Performance:56 Gbps	
Packet forwarding rate	Whole-Device Performance:41.66 Mpps Port Performance:41.66 Mpps	
Management port	1 Console port	
Electrical port attribute	Half-duplex, full-duplex, and auto-negotiation	
	MDI/MDI-X	
POE	POE+ with the maximum 30w output power per port	
Ethernet functions	LLDP	
	Static MAC configuration	
	Limit of number of MAC addresses to be learned (up to 8K)	
	Port mirroring and traffic mirroring	
	Port aggregation (up to 24 groups and 8 ports for each group)	
	Port isolation	
	S/TP/RSTP/MSTP	
IEEE 802.3ad (dynamic link aggregation) and static port aggregation		
VLAN	802.1Q (up to 4K VLAN)	

	Protocol-based VLAN	
	MAC-based VLAN	
	GUEST VLAN	
	VLAN mapping	
	MVRP	
IP routing	Static routing	
DHCP	DHCP Relay	
	DHCP Client	
	DHCP Snooping	
Multicast	IGMP V1/V2/V3 snooping	
	PIM Snooping	
	Multicast VLAN	
	IPv6 multicast setting	
QoS	SP/WRR/SP+WRR queue scheduling	
	802.1p and DSCP priority mapping	
	Port speed limit	
ACL	ACL on Layer 2, Layer 3 and Layer 4	
	IPv4 and IPv6 ACLs	
	VLAN ACL	
IPv6	IPv6 static routing and dual-stack	
	DHCPv6 Client and DHCPv6 Snooping	
	ND and PMTU	
	IPv6 Ping, IPv6 Telnet, IPv6 SSHv2, and IPv6 domain name resolution	
Reliability	Ethernet OAM	
	DLDP	
	Smart Link	
	Monitor Link	
Security	Hierarchical user management and password protection	
	SSH for a secure encrypted channel for user login	
	Specific IP address based FTP logging and password mechanism	
	Prevent attacks from ARP, unknown multicast packet, broadcast packet, unknown unicast packet, TTL=1 packet, and protocol packet	
	MAC address limit	
	IP+MAC+PORT binding	
	IEEE 802.1x	
	Radius and AAA	
	SNMPv3	
Broadcast suppression		
System management	Command line configuration via console/AUX Modem/Telnet/SSH	
	Uploading and downloading of FTP, TFTP, and Xmodem, and SFTP files	
	SNMP V1/V2c/V3	
	sFlow	

	NQA	
	NTP clock	
	System operating logs	

### UNINTERRUPTED POWER SUPPLY SYSTEMS

#### 1.5KVA,3KVA, 6KVA, 10KVA, DOUBLE CONVERSATION UPS SPECIFICATIONS

Note that for

#### 1.5KVA,3KVA, 6KVA, 10KVA, DOUBLE CONVERSATION

No.	Parameter	Requirement	Bidders Compliance
1.	<b>Nominal capacity (kVA) / Power (kW) per module</b>	10kVA 6 kVA 3 kVA	
1.1	UPS type	On-line double conversion UPS	
1.2	Parallel operations	Parallel redundant configuration maximizing the availability	
1.3	Design	Rack/Tower convertible design	
2.	<b>Input</b>		
2.1	Nominal voltage	230VAC 1-phase	
2.2	Voltage range	160 to 280 Vac	
2.3	Frequency and range	50 Hz, 45 to 65 Hz	
2.4	Input Power Factor	>0.99	
2.5	Current THD	< 5% (at 100% non-linear load)	
3.	<b>Output</b>		
3.1	Nominal voltage	230VAC $\pm$ 2% with pure sine wave	
3.2	Frequency	50Hz	
3.3	Harmonic distortion	< 2% (linear load) / < 5% (non-linear load)	
3.4	Crest factor	3:1	
3.5	Efficiency	ECO-mode $\geq$ 98% / Normal mode $\geq$ 90%	
3.6	Mode of operation	On-line double conversion	
4.	<b>Battery</b>		
4.1	Autonomy time internal battery (min.)	50% load (> 15mins) 100% load (> 5mins)	
4.2	Additional backup time	Allow for external battery cabinet	
4.3	Charging Parameters	Built in super smart charger, shorten 50% of charging time	
5.	<b>Protection</b>		
5.1	Input / Output	Overload, Overheating, Short Circuit, Battery Low, Noise and Spike Suppression	
5.2	Overload AC-Mode	104% continuous, 150% for 160 seconds, >150% transfer to bypass	
5.3	Overload Battery Mode	$\leq$ 110% - 30sec / $\leq$ 125% - 1sec /	

		≤150% - 200msec	
5.4	Overload Bypass Mode	Input Breaker 60A	
6.	<b>Alarms - Indication</b>		
6.1	Audible alarm	Beeping sound for Line Failure, Battery Low, Bypass - Overload Status, Fault Status	
6.2	LED-Alarm	Line - Backup - Eco Mode, Bypass, Battery Low/Bad/Disconnect, Overload, Fault	
6.3	LCD-Display	Big touchscreen display 5"	
7.	<b>Bypass</b>		
7.1	Type	Internal static (automatic) and manual bypass / External bypass optional	
7.2	Bypass voltage range	Max. Voltage: +15 % (optional +5/10/25%) / Min. voltage: -45% (optional -20/30%) Frequency protection range: ±10%	
8.	<b>Standards</b>		
8.1	Quality assurance, environment, health and safety	Quality assurance, environment, health and safety	
8.2	Safety	IEC/EN 62040-1	
8.3	EMC	IEC/EN 62040-2	
8.4	Marking	CE	
8.5	Protection class	IP20	
9.	<b>Environment</b>		
9.1	Temperature	Working temperature: 0 - 40°C / Storage temperature: -25 - 55°C	
9.2	Humidity / Altitude	0-95% non-condensing / < 2000m	
9.3	Audible noise at 1m	<50dB /1m according to EN62040-2	
10.	<b>Interface</b>		
10.1	In the cabinet	RS232 / RS485 / 2 free slots / dry contacts / EPO - software included	
10.2	In the module	RS232, USB, Ethernet	
10.3	Networking	SNMP-Adapter	
10.4	<b>Battery capacity</b>	UPS system shall provide BackUP power for four (4) hours	

#### *ADDITIONAL INFORMATION CCTV*

##### **1. Inspection, testing and commissioning**

On completion of installation, all the equipment and installations shall be inspected jointly by the

Employer and the Contractor for their correctness and completeness at the site of installation during acceptance tests.

Any other tests, as Employer may deem fit so as to confirm the performance or to establish the compliance to technical specifications of either individual hardware items or integrated operation of Access Control system shall be conducted by the Contractor at site. Should the results of these tests show any deficiency/deviation to specifications, the contractor shall do the modification/replacement/addition necessary to make the system compliant to specifications at own cost.

All Hardware and software comprising the Biometric Time and Attendance system installed at each of the stations within the scope of the tender shall be put on reliability test for 30 days before the Employer issues the certificate of successful commissioning.

### **Taking Over**

The system shall be taken over by the Employer from the contractor after the successful completion of site test and commissioning as per the tests mentioned above. A completion certificate will then be issued.

### **SCOPE OF WORKS**

Scope of work under this section covers:

- i. The provision of labour, tools, material and performance of work necessary for the design, manufacture, quality assurance, quality control, assembly, testing, delivery at site, site storage and preservation,
- ii. Installation & commissioning,
- iii. Performance & acceptance testing both at the Factory and at site ,
- iv. Training of Employer's personnel both local and overseas,
- v. handing over to Employer and guarantee of the complete system, as per specification hereunder, each complete with all accessories,
- vi. Supply of spare parts and warranting trouble free safe operation of the installations,
- vii. Providing maintenance support (Including supply/replacement of spares) during the warranty period and, if desired by the Employer also during post warranty period.
- viii. Installation and commissioning of the local area network (Hardware, software and cabling) on which the system will run.
- ix. The contractor shall provide all the required equipment and services, whether explicitly mentioned in these specifications or not to fulfill the intent of the specification and to ensure



the completeness, operation and maintainability of the system at no extra cost to the Employer.

- x. The Tenderer is required to submit with their offer the detailed specifications, drawings, catalogues, brochures etc. for the equipment they intend to supply.
- xi. It shall be in the scope of the tenderer to acquire any requisite authorizations or licensing from local authorities where applicable, that may be required in the course of the project
- xii. The Tenderer shall be required to present information along with their offers as follows:
  - Shortest possible delivery period of the product.
  - Information on proper representative and/or equipped local workshop for back-up service/repair and certified personnel including their names and addresses.
- i. Installation of the Server Workstations inclusive of the attendant operating software, management software and necessary peripherals such as the mouse, keyboard and connection to a power socket outlet
- ii. Installation of Client Workstations inclusive of the attendant operating software, client management software and necessary peripherals such as the mouse, keyboard and connection to a power socket outlet
- iii. Installation of Access control systems at the specified doors of the control center's which are suitable to withstand the required environment. The Access controllers will be PoE or 12VDC and be single door controllers, any loss in connection to the central database will allow each controller to act as a "stand-alone" unit.
- iv. Installation, mounting and configuration of external storage equipment
- v. Installation and termination of PoE switches inclusive of all attendant Category 6a Ethernet cables, all required media converters and ftp cables
- vi. Conduct FATs at manufacturers premises witnessed by KPLC Engineers
- vii. Conduct Site Acceptance Tests as witnessed by KPLC Engineers
- viii. Conduct comprehensive training of KPLC Engineers and Staff
- ix. Providing maintenance spares
- x. Providing maintenance tools.
- xi. Providing at least 3 Year warranty on CCTV(cameras,NVRS etc and Access control equipment and 1year warranty on all other devices and equipment.
- xii. The contractor shall ensure that before the completion of the project, at least four copies of the relevant manuals and documentation, including as built drawings are availed to KPLC in hard copy and soft copy forms.

## **2. PRE-BID SURVEY**

Prior to submitting the bids, bidders shall visit each of the stations accompanied by KPLC staff to ascertain for themselves the requirements for each station at own cost. During this survey, a sketch for the installations shall be carried out and the transmission requirements

determined. This sketch shall indicate the location of the various components and the required mounting structures and cabling. The bidder must conduct the mandatory site survey and submit the project plan and detailed design together with the bid that should include:

- (i) Site survey report and connectivity diagrams.
- (ii) Design Documents (Network servers, storage servers, IP readers and their locations as well as power supply cabling)
- (iii) A detailed Work Breakdown Structure and project plan that outlines all tasks, milestones, durations, and resources needs.

### **3. Site Acceptance Tests**

- 1.1. Satisfactory performance of the whole system, simulating all inputs, outputs and foreign device communications must be demonstrated to the satisfaction of KPLC.
- 1.2. The systems TCP/IP communication shall form a mandatory part of these tests upon which their failure shall make the whole project be revoked at the contractor's cost.

#### **IMPORTANT!**

The Contractor shall provide complete test procedure for approval and acceptance by KPLC.

The system shall be fully operable and fully tested to the satisfaction of KPLC.

The tests to be carried out by the Contractor shall include a total system test, as detailed below, verifying all inputs and outputs for correct operation, the operation of external alarms and external communications interface.

The system tests shall be carried out on the complete system.

The following headings are recommended as minimum requirement and shall be developed in detail during implementation of the test procedures.

- i. Inspection of equipment
- ii. Power Supply Variations
- iii. Functional Tests including:
  - Operating Software Control functions.
  - Failure and interaction between systems.
  - Systems Diagnostic Tests, including self-test facilities.
  - System functional and fault alarms.
  - Offline and online operation without system fail

### **Pre-Commissioning & Commissioning**

#### **i. Pre-commissioning**

It shall be the responsibility of the Contractor to carry out tests / inspections necessary to prepare the installations for commissioning and site acceptance tests. Such tests and inspections shall be carried out on individual equipment and in groups where possible. KPLC reserves the right to attend such tests.

#### **ii. Commissioning**

- It shall be the Contractor's responsibility to prepare a commissioning Specification for approval by KPLC prior to the equipment being shipped.
- The Contractor may be required to have engineers on site during the commissioning of the plant. These engineers shall be authorised to carry out any modifications or repairs as may become necessary, and shall be competent to do so.
- On completion of commissioning, the entire system will be subject to final site acceptance tests that are a repeat of the factory acceptance tests and any other tests as proposed by the purchaser that could not have been achieved during the FAT.
- The Contractor shall be responsible for updating all As-Built documentation and drawings.

### **Documentation**

The following documentation must be supplied before installation

- i. Electrical drawing of each System in a station - Approved PLAN
- ii. Cable Layout drawings for the stations - Approved PLAN
- iii. Equipment modules manuals
- iv. Functional Design Specification- Approved PLAN

The following documentation must be supplied after installation and commissioning

- i. Functional Design Specification- Approved AS-BUILT
- ii. Electrical drawing of each System in a station- AS-BUILT
- iii. Cable Layout drawings for the stations - AS-BUILT

### **TRAINING SPECIFICATIONS**

The bidder shall factor the following:

- (i) Submission of detailed training schedule and course outline in respective category/Lot bidding for ,outlining the objective, training grade, qualifications or experience attained in various modules, pre-training registration requirement, and post training follow up courses.
- (ii) Training shall include Pre-installation, on-installation and Post-installation phases.
- (iii) Local Pre-installation training shall prepare the client on necessary preparation for the environment under which the systems will operate, outlining all necessary requirement for client's preparation
- (iv) Oversee training shall include all necessary cost of hiring the facility, trainers, movement to and from training ground, meals and refreshment during the training period
- (v) Provision of all necessary training materials including manuals/notes both hardcopy and softcopy on Flash-disk, files, writing materials etc.
- (vi) Training certifications
- (vii) Any necessary registration and access to manufacturer portals
- (viii) The cost for travelling and accommodation shall be processed upon guidance and approval by Kplc as per approved rates by the company.
- (ix) A training report shall be submitted at the end of every training.
- (x) The bidder shall take care of transport logistic to and from the place of accommodation and training venue.

**Additional information on Training**

- i. The training shall be offered to selected staff from Engineering and Security Department.
  - ii. The selected staff shall possess minimum technical qualifications / knowledge to understand systems.
  - iii. The methodology of the training shall be developed on the vendor's experience in the design, construction, operation and maintenance of Surveillance systems
  - iv. The methodology of training shall include the following as a minimum:
    - Two week classroom training with slide presentation and written materials
    - Field training at site
    - Furnishing the final report with comments to be followed up for the improvement of staff skills.
    - Provision of certificates to participants who attend the full training.
1. The basic structure of the training shall include, as a minimum:
    - Operation and maintenance of the complete CCTV and Access control system
    - The Vendor shall provide a concise training programme with the quote for approval by KPLC.
    - The Vendor shall include the training duration in the training programme.
    - Training shall be conducted in English

**Site Acceptance Tests**

- 1.3. Satisfactory performance of the whole system, simulating all inputs, outputs and foreign device communications must be demonstrated to the satisfaction of KPLC.
- 1.4. The systems TCP/IP communication shall form a mandatory part of these tests upon which their failure shall make the whole project be revoked at the contractor's cost.

**IMPORTANT!**

The Contractor shall provide complete test procedure for approval and acceptance by KPLC.

The system shall be fully operable and fully tested to the satisfaction of KPLC.

The tests to be carried out by the Contractor shall include a total system test, as detailed below, verifying all inputs and outputs for correct operation, the operation of external alarms and external communications interface.

The system tests shall be carried out on the complete system.

The following headings are recommended as minimum requirement and shall be developed in detail during implementation of the test procedures.

- iv. Inspection of equipment
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- vi. Functional Tests including:

Operating Software Control functions.

Failure and interaction between systems.

Systems Diagnostic Tests, including self-test facilities.

System functional and fault alarms.

Offline and online operation without system fail