



**KOLKATA PORT TRUST  
HALDIA DOCK COMPLEX**

Administration Division, Jawahar Tower Complex,  
P.O.: - Haldia Township, Dist.: Purba Medinipur,  
PIN: 721607, West Bengal.  
FAX: 03224-263152

Haldia Dock Complex (HDC), Kolkata Port Trust (KoPT) invites E-Tender under single stage two part system (Part I: Techno-Commercial Bid and Part II: Price Bid) from bonafide and reputed System Integrator (SI) / Organization for Port Access Control & Tracking System (PACTS), which includes supply, installation, integration, testing, customizing, configuring, commissioning, operating & maintaining Radio Frequency Identification (RFID) based solution at Haldia Dock Complex, Kolkata Port Trust.

Bid Document may be downloaded from MSTC website [www.mstcecommerce.com](http://www.mstcecommerce.com). Corrigendum / addendum / clarifications, if any, shall be hosted on the above mentioned website only. Tenderer should visit the website frequently.

**SCHEDULE OF TENDER (SOT):**

a.	<b>TENDER NO.</b>	<b>Ad/007/Computer/RFID/2016</b>
b.	MODE OF TENDER	e-Procurement System (Online Part I - Techno-Commercial Bid and Part II - Price Bid) through <a href="http://www.mstcecommerce.com">www.mstcecommerce.com</a> of MSTC Ltd. The intending bidders are required to submit their offer electronically through e-tendering portal. No physical tender shall be accepted by Haldia Dock Complex, Kolkata Port Trust.
c.	E-Tender No. (System Generated)	<b>KoPT/Haldia Dock Complex/Admn. Div/16/15-16/ET/158</b>
d.	Date of NIT available to parties to download	<b>December 25, 2015</b>
e.	Offline Pre-Bid Meeting starting date & Time	<b>January 07, 2016</b>
f.	Pre –Bid Meeting closing date & Time	NA
g.	i) Earnest Money Deposit	The intending bidders should submit Earnest Money of <b>INR 55,00,000/-</b> (Rupees Fifty Five Lacs only) to Haldia Dock Complex along with their offer otherwise their offer will be summarily rejected.  The bidders are advised to deposit Earnest Money through ECS (RTGS/NEFT) in favor of Kolkata Port Trust, Haldia Dock Complex directly into the designated bank account. Details of the bank account are appended

			<p>hereunder.</p> <p><b>a) Name of Bank &amp; Branch:</b> United Bank of India, Haldia Dock Complex Branch,</p> <p><b>b) Account No.:</b> 1604050000310</p> <p><b>c) IFS Code:</b> UTBI0HDCF75.</p> <p><b>Concerned tenderers must ensure that the remitting bank positively enters their name and System Generated E - Tender no. in the 'Sender to Receiver' column at the time of making payment of earnest money by RTGS/NEFT.</b></p> <p>Tenderers should deposit Earnest Money before filling and submission of bids.</p> <p>Details of Earnest money remitted should be entered by the participating vendor/contractor in the space provided in the e-tender as indicated hereunder :</p> <p><b>a) Name of remitting vendor/contractor :</b></p> <p><b>b) E- Tender No. : KoPT/Haldia Dock Complex/Admn. Div/16/15-16/ET/158</b></p> <p><b>c) Amount remitted :</b></p> <p><b>d) Remittance Bank Details:</b></p> <p><b>e) U.T.R No. :</b></p> <p><b>f) Date:</b></p>
	ii)	Bid Document fee	<p>The intending bidders should submit the tender cost of INR <b>5000/-</b> (Rupees Five Thousand only) (non-refundable) as per the payment mode mentioned above [Refer item g (i)] along with their offer otherwise their offer will be summarily rejected.</p> <p>Bidders should deposit bid document fee before filling and submission of bids.</p> <p>Details of Tender Cost remitted should be entered by the participating vendor/contractor</p>

			<p>in the space provided in the e-tender as indicated hereunder :</p> <p>a) Name of remitting vendor/contractor :</p> <p>b) E- Tender No. : <b>KoPT/Haldia Dock Complex/Admn. Div/16/15-16/ET/158</b></p> <p>c) Amount remitted :</p> <p>d) Remittance Bank Details:</p> <p>e) <b>U.T.R No. :</b></p> <p>f) Date:</p>
	iii)	Transaction Fee	<b>INR 17175/-</b> (Rupees Seventeen Thousand One Hundred Seventy Five only) (Including Service Tax & other charges @14.5 % on Service Charge) Payment of Transaction fee by NEFT/RTGS in favour of MSTC LIMITED (refer clause. No. 4 of Annexure -I )
h.	Last date of submission of EMD & Bid Document fee at HDC.		<b>January 27, 2016 up to 1430 hours</b>
	Last date of submission of Transaction fee through RTGS/NEFT in favour of MSTC Limited, Kolkata.		Three working days before the last date of <u>closing of online bidding for the e-tender.</u>
i.	Date of Starting of e-Tender for submission of on line Techno-Commercial Bid and price Bid at <a href="http://www.mstcecommerce.com/eprochome/kopt">www.mstcecommerce.com/eprochome/kopt</a>		<b>From January 15, 2016 , 0930 hours</b>
j.	Date of closing of online e-tender for submission of Techno-Commercial Bid & Price Bid.		<b>January 27, 2016 upto 1500 hours</b>
k.	Date & time of opening of Part-I (i.e. Techno-Commercial Bid) Part-II Price Bid: Date of opening of Part II i.e. price bid shall be informed separately		<b>January 27, 2016 from 1500 hours</b>

<b><u>List of Annexure :</u></b>		
<b>Important Instructions to Bidders</b>	<b>:</b>	<b>Annexure - I</b>
<b>Necessary Information for Commissioning the Project</b>	<b>:</b>	<b>Annexure - II</b>
<b>Commercial Terms &amp; Conditions</b>	<b>:</b>	<b>Annexure - III</b>
<b>Scope of work</b>	<b>:</b>	<b>Annexure- IV</b>
<b>General Conditions Of Contract</b>	<b>:</b>	<b>Annexure- V</b>
<b>Documents to be uploaded</b>	<b>:</b>	<b>Annexure- VI</b>
<b>Price Bid</b>	<b>:</b>	<b>Annexure-VII</b>
<b>Drawing of Coverage Area and Nomenclature of Zones</b>	<b>:</b>	<b>Annexure - VIII</b>
<b>Historical information</b>	<b>:</b>	<b>Annexure - IX</b>
<b>Declaration by the Bidder</b>	<b>:</b>	<b>Annexure - X</b>
<b>Profile of the Bidder</b>	<b>:</b>	<b>Annexure-XI</b>
<b>Format of Power Of Attorney</b>	<b>:</b>	<b>Annexure-XII</b>
<b>Affidavit Format in case the Bidder is not covered under ESI Act or exempted from it</b>	<b>:</b>	<b>Annexure - XIII</b>
<b>Affidavit Format in case the Bidder is not covered under Provident Fund Act or exempted from it.</b>	<b>:</b>	<b>Annexure - XIV</b>
<b>Indemnity Bond</b>	<b>:</b>	<b>Annexure - XV</b>
<b>Performance Guarantee Format</b>	<b>:</b>	<b>Annexure -XVI</b>
<b>Minimum Guiding Technical Specification</b>	<b>:</b>	<b>Annexure -XVII</b>
<b>Service Level Agreement (SLA)</b>	<b>:</b>	<b>Annexure -XVIII</b>

### **Important instructions to the Bidder for E-procurement**

This is an e-procurement event of Haldia Dock Complex, Kolkata Port Trust. The e-procurement service provider is MSTC Ltd., 225C, A.J.C. Bose Road, Kolkata-700 020.

Bidders are requested to read the terms & conditions (**Annexure- II**) of this tender before submitting online tender. Bidders who do not comply with the conditions with documentary proof (wherever required) will not qualify in the Tender for opening of price bid.

1.	<p><b>Process of E-tender :</b></p> <p><b>A) Registration:</b> The process involves vendor's registration with MSTC e-procurement portal <b>which is free of cost</b>. Only after registration, the vendor(s) can submit his/their bids electronically. Electronic Bidding for submission of Techno-Commercial Bid as well as Price Bid over the internet will be done. The Vendor should possess <b>Class III</b> signing type digital certificate. Vendors are to make their own arrangement for bidding from a P.C. connected with Internet. MSTC is not responsible for making such arrangement. (Bids will not be recorded without Digital Signature).</p> <p><b>SPECIAL NOTE: THE PRICE BID AND THE COMMERCIAL BID HAS TO BE SUBMITTED ON-LINE AT <u><a href="http://www.mstcecommerce.com/eprochome/kopt">www.mstcecommerce.com/eprochome/kopt</a></u></b></p> <p>1). Vendors are required to register themselves online with <u><a href="http://www.mstcecommerce.com">www.mstcecommerce.com</a></u> → e-Procurement → Psu / Govt depts → Register as Vendor Filling up details and creating own user id and password → Submit.</p> <p>2). Vendors will receive a system generated mail confirming their registration in their email which has been provided during filling the registration form.</p> <p><b>Tenderers are requested to submit bid keeping sufficient time in hand. They should not wait for last minute to avoid any problem.</b></p> <p>In case of any clarification, please contact HDC/MSTC, (before the scheduled time of the e-tender).</p> <p><b>Contact person (Haldia Dock Complex):</b></p> <table border="0"> <tr> <td>1. Shri J Roy Senior Deputy Manager (Admin.) Haldia Dock Complex Ph. No.- 03224 263178 E-Mail – jroy.hdc@nic.in</td> <td>2. I.T. Cell Haldia Dock Complex Ph. No.- 03224 265742 E-Mail – service.hdc@nic.in</td> </tr> </table> <p><b>Contact person (MSTC Ltd):</b></p> <table border="0"> <tr> <td>1. Mr. Arindam Bhattacharjee Deputy. Manager (E-commerce) Haldia Dock Complex</td> <td>2. Mr. Sabyasachi Mukherjee Junior Manager (E-commerce) Mobile- 07278030407</td> </tr> </table>	1. Shri J Roy Senior Deputy Manager (Admin.) Haldia Dock Complex Ph. No.- 03224 263178 E-Mail – jroy.hdc@nic.in	2. I.T. Cell Haldia Dock Complex Ph. No.- 03224 265742 E-Mail – service.hdc@nic.in	1. Mr. Arindam Bhattacharjee Deputy. Manager (E-commerce) Haldia Dock Complex	2. Mr. Sabyasachi Mukherjee Junior Manager (E-commerce) Mobile- 07278030407
1. Shri J Roy Senior Deputy Manager (Admin.) Haldia Dock Complex Ph. No.- 03224 263178 E-Mail – jroy.hdc@nic.in	2. I.T. Cell Haldia Dock Complex Ph. No.- 03224 265742 E-Mail – service.hdc@nic.in				
1. Mr. Arindam Bhattacharjee Deputy. Manager (E-commerce) Haldia Dock Complex	2. Mr. Sabyasachi Mukherjee Junior Manager (E-commerce) Mobile- 07278030407				

	<p>MobileNo:09330102643 Landline:03322901004 Email-arindam@mstcindia.co.in</p> <p>Email: smukherjee@mstcindia.co.in</p> <p><b>B) System Requirement:</b></p> <p>i) Windows 98 / XP-SP3 &amp; above/Windows 7 Operating System / Windows 8</p> <p>ii) IE-7 and above Internet browser.</p> <p>iv) Signing type digital signature</p> <p>v) JRE 7 update 9 and above software to be downloaded and installed in the system.</p> <p>To enable ALL active X controls and disable 'use pop up blocker' under Tools→Internet Options→ custom level</p>
2.	<p>(A) Part I Techno-Commercial bid will be opened electronically on specified date and time as given in the NIT. Bidder(s) can witness electronic opening of bid.</p> <p>(B) Part II Price bid will be opened electronically of only those bidder(s) whose Part I Techno-Commercial Bid is found to be Techno-Commercially acceptable by HDC. Such bidder(s) will be intimated date of opening of Part II Price bid, through valid email confirmed by them.</p>
3.	All entries in the tender should be entered in online Technical & Commercial Formats without any ambiguity.
4.	<p><b><u>Special Note towards Transaction fee:</u></b> PAYMENT OF Transaction fee BY RTGS in favour of MSTC Limited .The Bank details, format etc for sending Transaction fee by RTGS to MSTC is detailed below</p> <p>Bank Details : Axis Bank ,Shakespeare Sarani Branch</p> <p>Account Details : Axis Bank A/c.No.005010200057840</p> <p>IFSC Code No. : UTIB0000005.</p> <p>"The vendors shall enter the transaction fee details by using the "Transaction Fee Entry" Link under "My Menu" in the vendor login. The vendors have to select the particular tender in which they want to participate against the transaction fee by clicking on the tick box at the right and then Clicking on the "Submit" Button at the bottom of the page. Then the page appears where the vendors are required to fill up the transaction details, namely the UTR No, Date of Transaction, and the Remitting Bank in the given fields and then click on the "Confirm" Button".</p> <p><b>NOTE :</b> The bidders should submit the transaction fee well in advance before the last date of submission of tender as they will be activated for bid submission only after receipt of transaction fee by MSTC.</p> <p><b>Contact Details :</b></p> <p>Fax No. : 033- 22831002</p> <p>Email ids: <a href="mailto:sanjibpoddar@mstcindia.co.in">sanjibpoddar@mstcindia.co.in</a>, <a href="mailto:arindam@mstcindia.co.in">arindam@mstcindia.co.in</a>, <a href="mailto:rpradhan@mstcindia.co.in">rpradhan@mstcindia.co.in</a>, <a href="mailto:smukherjee@mstcindia.co.in">smukherjee@mstcindia.co.in</a>.</p> <p>Bidders may please note that the transaction fee should be deposited by debiting the account of the bidder only; transaction fee deposited from or by debiting any other party's account will not be accepted. Transaction fee is nonrefundable.</p> <p>In case of failure to access the payment towards Transaction fee for any reason, the vendor, in term, will not have the access to online e-tender.</p>
5.	In case of failure to access the payment towards cost of tender document & EMD for any

	<p>reason, the vender, in term, will not have the access to on line e-tender and no correspondence in this respect will be entertained and HDC will not be responsible for any such lapses on this account. Bidder(s) are advised to make remittance of tender fee and EMD through ECS (RTGS/NEFT) well in advance and verify completion of transaction in respect of tender fee and EMD</p> <p>Vendors are instructed to use <b>Upload Documents</b> link in My menu to upload documents in document library. Multiple documents can be uploaded. Maximum size of single document for upload is 5 MB.</p> <p>Once documents are uploaded in the library, vendors can attach documents through <b>Attach Document</b> link against the particular tender. For further assistance please follow instructions of vendor guide.</p>
6.	<p>All notices and correspondence to the bidder(s) shall be sent by email only during the process till finalization of tender by HDC. Hence the bidders are required to ensure that their corporate email I.D. provided is valid and updated at the stage of registration of vendor with MSTC (i.e. Service Provider). Bidders are also requested to ensure validity of their DSC (Digital Signature Certificate).</p>
7.	<p>(i) Please note that there is no provision to take out the list of parties downloading the tender document from the web site mentioned in NIT. As such, bidders are requested to see the web site once again before the due date of tender opening to ensure that they have not missed any corrigendum uploaded against the said tender after downloading the tender document. <b>The responsibility of downloading the related addendum / corrigendum, if any, will be that of the downloading parties.</b></p> <p>(ii) No separate intimation in respect of corrigendum to this NIT (if any) will be sent to tenderer (s) who have downloaded the documents from web site. Please see website <a href="http://www.mstcecommerce.com/eprichome/">www.mstcecommerce.com/eprichome/</a> of MSTC Ltd.</p>
8.	E-tender cannot be accessed after the due date and time mentioned in NIT.
9.	<b><u>Bidding in e-tender:</u></b>
	<p>a. Bidder(s) need to submit necessary EMD, Tender fees (if any) and Transaction fees to be eligible to bid online in the e-tender. Tender fees and Transaction fees are non refundable. No interest will be paid on EMD. EMD of the unsuccessful bidder(s) will be refunded by HDC. Bank details i.e. name of bank and &amp; address, Current a/c no, IFS Code to be mentioned by the tenderer for refund.</p>
	<p>b. The process involves Electronic Bidding for submission of Techno Commercial Bid as well as Price Bid.</p>
	<p>c. The bidder(s) who have submitted the above fees can only submit their Techno Commercial Bids and Price Bid through internet in MSTC website <a href="http://www.mstcecommerce.com">www.mstcecommerce.com</a> → e-procurement →Psu/Govt depts→ Login →My menu→ Auction Floor Manager→ live event →Selection of the live event→ Techno Commercial Bid.</p>
	<p>d. The bidder should allow to run an application namely enApple by accepting the risk and clicking on run. This exercise has to be done twice immediately after clicking on the Techno-Commercial bid. If this application is not run then the bidder will not be able to</p>

		save/submit his bid.
	e.	After filling the Techno-Commercial Bid, bidder should click 'save' for recording their Techno-Commercial bid. Once the same is done, the Price Bid link becomes active and the same has to be filled up and then bidder should click on "save" to record their price bid. Then once both the Techno-Commercial bid & price bid has been saved, the bidder can click on the "Submit" button to register their bid
		<b>NOTE:</b> - The Techno-Commercial Bid & price bid cannot be revised once the submit button has been clicked by the bidder.
	a.	In all cases, bidder should use their own ID and Password along with Digital Signature at the time of submission of their bid.
	b.	During the entire e-tender process, the bidders will remain completely anonymous to one another and also to everybody else.
	c.	The e-tender floor shall remain open from the pre-announced date & time and for as much duration as mentioned above.
	d.	All electronic bids submitted during the e-tender process shall be legally binding on the bidder. Any bid will be considered as the valid bid offered by that bidder and acceptance of the same by the Buyer will form a binding contract between Buyer and the Bidder for execution of supply. Such successful tenderer shall be called hereafter SUPPLIER
	e.	It is mandatory that all the bids are submitted with digital signature certificate otherwise the same will not be accepted by the system.
	f.	Buyer reserves the right to cancel or reject or accept or withdraw or extend the tender in full or part as the case may be without assigning any reason thereof.
	g.	No deviation of the terms and conditions of the tender document is acceptable. Submission of bid in the e-tender floor by any bidder confirms his acceptance of terms & conditions for the tender.
	h.	Unit of Measure (UOM) is indicated in the e-tender Floor. Rate to be quoted should be in Indian Rupee as per UOM indicated in the e-tender floor/tender document.
10.		Any order resulting from this open e-tender shall be governed by the terms and conditions mentioned therein.
11.		No deviation to the technical and commercial terms & conditions are allowed.
12.		After submitting online bid, the bidder cannot access the tender, once it has been submitted with digital signature.
13.		HDC has the right to cancel this e-tender without assigning any reason thereof.
14.		The online tender should be submitted strictly as per the terms and conditions and procedures laid down in the website <a href="http://www.mstcecommerce.com/eprochome/mstc">www.mstcecommerce.com/eprochome/mstc</a> of MSTC Ltd.
15.		The bidders must upload all the documents required as per terms of NIT. Any other document uploaded which is not required as per the terms of the NIT shall not be considered.
16.		The bid will be evaluated based on the filled-in technical & commercial formats.
17.		The documents uploaded by bidder(s) will be scrutinized. In case any of the information furnished by the bidder is found to be false during scrutiny, EMD of defaulting bidder(s) will be forfeited. Punitive action including suspension and banning of business can also be taken against defaulting bidders.
18.		Necessary addendum / corrigendum (if any) of tender would only be hosted in the e-tendering portal of M.S.T.C.
19.		Micro & Small Enterprises (MSEs) registered with NSIC (under single point registration



	scheme) are exempted from depositing Cost of Tender Document and Earnest Money having valid NSIC Certificate for MSEs along with DIC's (DISTRICT INDUSTRIES CENTRE) Certificate.
20.	<p>Micro &amp; Small Enterprises (MSEs) registered with NSIC under Single Point Registration Scheme (SPRS) are eligible to get the benefits under new Public Procurement policies for MSEs as notified by Govt. of India, Ministry of Micro, Small &amp; Medium Enterprises (MSME) vide Gazette Notification, dated 26.03.2012.</p> <p>When splitting of tender quantity is not possible purely on technical ground, trustees reserve the right not to negotiate price with MSE if their price is within the band of L1+15% in comparison with L1 price of non-MSE for consideration of award of order for 20% of tender quantity against any item as per new public procurement policy.</p>
21	If Micro & Small Enterprises (MSEs) registered with NSIC intends to participate in the tender, for the items they are not registered with NSIC, then they will have to deposit cost of Tender Document, full amount of Earnest Money as per NIT. Otherwise their offer for those items will not be considered.
22	Copy of valid NSIC Certificate for MSEs along with DIC's (DISTRICT INDUSTRIES CENTRE) Certificate has to be submitted along with the bid.
23	Due date of submission of tender will not be extended under any situation.

1. **NECESSARY INFORMATION FOR COMMISSIONING THE PROJECT AT HALDIA DOCK COMPLEX (HDC), KOLKATA PORT TRUST (KoPT)**

- 1.1 **General features of HDC-KoPT:** HDC-KoPT is a premier dock system in eastern India under the administrative control of the Ministry of Shipping; Government of India commanding 6367 acres of land and handling vessels and cargo to cater the demand of a vast hinterland. HDC-KoPT manages vessel and cargo operation of around 2400 vessels of various types annually, handling around 30 million tons of cargo. There are 14 modern berths within the impounded dock system in addition to 3 riverine oil jetties.
- 1.2 **Use of ICT at HDC-KoPT:** Presently, HDC-KoPT uses various Information & Communication Technology (ICT) enabled solutions to handle its day-to-day management and operational activities. An established optic fiber network covering all major locations / buildings act as the backbone for information flow (PORTNET). The proposed solution shall have to be seamlessly integrated with the existing ICT environment at HDC-KoPT.
- 1.3 **Physical security at HDC-KoPT:** The physical security of HDC-KoPT is the responsibility of the Central Industrial Security Force (CISF).
- 1.4 **Existing Permit System at HDC-KoPT:** The Port Area is restricted in nature and physical access into this area is administered through issuance of Dock Entry Permits falling under various categories. Presently, at HDC-KoPT, permits are generated using integrated application software developed by National Informatics Centre (NIC) deployed at ten (10) Permit Generating Office Counters. Paper passes are generated through this system and printed. Verification is carried out by CISF personnel at designated gates of HDC-KoPT.
- 1.5 **Operational timing:** HDC-KoPT is a 24x7 port. The prospective bidder must take the same into consideration during participation.
- 1.6 **Environment:** HDC-KoPT handles all types of cargo round the year. The prospective bidder must take the same into consideration during participation.
- 1.7 **Historical Information:** As per Annexure IX.

**COMMERCIAL TERMS & CONDITIONS:**

**2. ELIGIBILITY CRITERIA:**

**2.1** The bidder shall submit evidence that the bidder has successfully executed similar work (**Order letter and successful execution certificate to be provided**) as per the following:

(1) At least 3 similar Works each worth not less than INR 11.10 ( eleven point one zero) Crores over a period of last 7 years ending on 31.12.2015 or

(2) At least 2 similar Works each worth not less than INR13.88 (thirteen point eight eight) Crores over a period of last 7 years ending on 31.12.2015 or

(3) At least 1 similar Work each worth not less than INR 22.21 (twenty two point two one) Crores over a period of last 7 years ending on 31.12.2015

**NOTE:** Similar work shall mean having experience in Access Control & Tracking System , which includes supply, installation, integration, testing, customizing, configuring, commissioning, operating & maintaining Radio Frequency Identification (RFID) based solution.

**2.2** Audited balance sheet and Profit & Loss account for the last 3 (three) financial years. Average annual financial turnover during the above mentioned period must be at least INR 8.33 Crores (Rupees Eight Crores Thirty Three Lacs only). If due date (scheduled opening date of tender) falling within three months (April to June) of the closing of the latest financial year, the latest financial year may be ignored and financial turnover of the three years, year previous to the latest financial year may be considered.

**2.3** The bidder shall submit certified copy of valid Service Tax Registration Number / Code Number.

**2.4** The bidder shall submit Self certified copy of PAN.

**2.5** The bidder shall submit certified copy of 'Employees State Insurance (ESI) Registration Certificate' OR an Affidavit affirmed before a First Class Judicial Magistrate as per Annexure XIII in case the Bidder is not covered under ESI Act or exempted from it.

**2.6** The bidder shall submit certified copy of 'Provident Fund Registration Certificate' OR an Affidavit affirmed before a First Class Judicial Magistrate as per Annexure XIV in case the Bidder is not covered under Provident Fund Act or exempted from it.

**2.7** The bidder shall submit certified copy of up-to-date Profession Tax Payment Challan (PTPC), if applicable. If this is not applicable, the bidder should submit a declaration in this regard.

### 3. **SCOPE OF WORK:**

- 3.1 Objective of the project:** With the primary objective of bolstering security and addressing traffic congestion, the Competent Authority of HDC-KoPT has decided to deploy an ICT enabled Port Access Control & Tracking System (PACTS), which includes **supply, installation, integration, testing, customizing, configuring, commissioning, operating & maintaining an RFID based solution**. The proposed system shall, as an end result, ensure security requirement of HDC-KoPT, ease congestion at gates and other locations and provide textual, statistical, graphical & spatial information empowering the port authorities / CISF to manage the flow of people and vehicles and act on alarms etc. Harnessing ICT to facilitate electronic governance is an objective of this project. The proposed system must result in implementation and commissioning of an online fully automated system which will -
- Significantly enhance security at all the gates of the port
  - Automate & speed up movement & activity within the port
  - Generate visibility of activities within and around port area
  - Control and limit access to authorized time & zones
  - Track every movement of man & vehicle across the port
  - Trace each movement and alert on anonymous pattern of activity
  - Record all movements of individuals & vehicles to create verifiable historical audit trail
  - Prevent revenue leakage and any malpractices at the gates
  - Meet ISPS Code compliance requirement
- 3.2 Technology independent solution:** The requirement of HDC-KoPT can be met by the prospective bidder by choosing any type of RFID enabled solution i.e. HDC-KoPT intends to highlight that the solution solicited from prospective bidders can be of any technology but shall have to meet the requirement of HDC-KoPT based on the information contained in this document.
- 3.3 Estimated change:** The number of RFID Dock Entry Permits generated shall be in line with the type of cargo handled by the Port. For the purpose of estimation, information history may be referred and an annual change of 5% be considered across the board. The estimate is indicative only and HDC-KoPT does not guarantee any fixed volume of work.
- 3.4 Facilitation by HDC-KoPT:** For successful commissioning of the project, HDC-KoPT shall **ONLY** provide Room space and raw power on chargeable basis as per availability (if

required). Charges shall be as per Scale or Rates of HDC, KoPT. Providing adequate power backups to ensure uninterrupted power supply to the PACTS shall remain the sole responsibility of the intending bidder.

**3.5 Duration of project:** Duration of the project shall be 10 years.

**3.6 Location of permit generation and RFID tagging / de-tagging:** The centralized pre-hold area measuring about 10 acres is available near City Centre, Haldia, Purba Medinipur; West Bengal, India. This centralized pre-hold area, which is 2 KM away from the main gate of HDC- KoPT, shall be utilized as primary RFID tagging zone such that vehicles along with Drivers, Khalasi etc. arriving at the port gates are in a ready state to avoid congestion. In addition to this central pre-hold area, at least 5 other locations will also act as scaled down permit generating & RFID tagging zones viz. Chiranjibpore Operational Office, General Cargo Berth Main Gate, Empty Gate, Finger Jetty Gate & Phosphate Berth Gate. The intending bidder must ensure adequate number of counters at the centralized pre-hold area as well as each of the locations mentioned above for congestion-free uninterrupted operations. Removal of RFID tags (if the solution so requires) must take place at individual gates, before allowing any such vehicle / equipment to pass out.

**3.7 Movement plan / zoning vis-à-vis categories of vehicles / equipment:** Two categories of container / cargo carrying vehicles and mechanical equipments work at HDC-KoPT –

- The first category of vehicles / equipments enters and exits dock primarily for the purpose of aggregation / evacuation of cargo from storage yard / Container Parking Yard (CPY) on a daily basis. This category of vehicles / equipments enter dock on the basis of daily permits and are supposed to work at a specific yard for loading / unloading of cargo.
- The second category of vehicles / equipments is usually engaged in ship-face operation, movement of cargo to and from hook-points & storage areas / loading / unloading of outbound vehicles / rakes. This category of vehicles / equipments operates on the basis of annual permits and moves freely touching various locations inside the dock.

The zoning plan shall be developed by the successful bidder in consultation with HDC-KoPT and the said logic shall form the basis of the track & trace function as well as logging of information along with backup and retrieval of the same as and when desired by HDC-KoPT. The drawing of coverage area intended along with nomenclature of zones is enclosed as Annexure VIII for reference.

**3.8 Ambit of objects to be tagged:** Personnel, vehicles, locomotives and tugs shall have to be tagged with RFID enabled equipment. The prospective bidder must note that the project under consideration shall be utilized for access control as well as track & trace of moving objects.

**3.9 Composite operations:** Issuance of RFID tags must be a single-window operation enabling the users to transact at one place only. The successful bidder shall have to

undertake the function of issuance of RFID based Dock Entry Permits complying with the requirement of the International Ship and Port Facility Security Code (ISPS code).

- 3.10 Exception handling:** The bidder shall have to address the issue of vehicle / equipment breakdown inside dock en route to the permitted yard / zone, breakdown while coming from pre-hold area to dock, breach of permitted route and alteration of traffic flow to accommodate repairing of road / blockade of road for some other purpose etc. In a nutshell, the software for track & trace, which would be commissioned, must be capable of addressing all events / exceptions from the central monitoring station on-the-fly based on the movement plan of HDC-KoPT. Such plan would be dynamic in nature.
- 3.11 Allied work:** All civil, mechanical and electrical work (e.g. provisioning and erection of required structures, fixtures, modification of gates if any) required for successful commissioning as well as maintenance of the solution shall be the exclusive responsibility of the successful bidder during the tenure of the contract.
- 3.12 Training:** The successful bidder shall have to train personnel of HDC-KoPT initially after commissioning the system and once each year during the contract period as refresher training. Such training shall include operational and system administration aspects to be carried out by the port. It is highlighted that operation of counters resulting in issuance of permits and RFID tagging shall be the exclusive responsibility of the manpower of the successful bidder.
- 3.13 Licensing:** HDC-KoPT shall neither be responsible nor pay for any system or application software licenses. It is reiterated that no payment for any system or application software or for any component shall be made by HDC-KoPT.
- 3.14 Ownership:** All deliverables like network, hardware / equipments, system software, application software, manpower, vehicles, spares, labour etc. for the project shall be owned by the bidder primarily. After expiry of the contract HDC, KoPT shall own all equipments / installations (network, hardware / equipments, system software, application software etc.) without any extra cost. The same must be taken into consideration while participating.
- 3.15 Free upgrade of proposed solution:** The successful bidder must ensure upgrading the system software as well as proposed solution commissioned for a period of 10 years from the date of successful commissioning. This shall be in accordance to any business logic change of HDC-KoPT as well as law of the land. For this purpose, no additional payment shall be made by HDC-KoPT.
- 3.16 Security & authentication:** The successful bidder shall be responsible for security of the entire solution as well as role based authentication for users of HDC-KoPT using the commissioned system. The commissioned system must allow audit of captured data using software, which the bidder must be competent to deliver as required by HDC-KoPT from time to time.

- 3.17 Viewing & controlling over World Wide Web:** The successful bidder shall be responsible for making the system available over the World Wide Web for use by stakeholders 24 X 7. For this purpose, all equipment, manpower, domain registration, bandwidth etc. shall be the responsibility of the bidder.
- 3.18 Tariff for Permits & RFID:** Tariff for permits and RFID will be fixed on the basis of rates quoted by successful bidder and accepted by HDC, KoPT. Such rates shall be collected from the users at the time of issue of Permit and RFID.
- 3.19 Transportation:** Transportation of equipment and manpower for the project shall have to be arranged by the successful bidder during the entire period.
- 3.20 IT Infrastructure:** The successful bidder shall have to establish their own reliable and fail-safe IT infrastructure. Necessary network connectivity between the pre-hold area, gates, and various zones of HDC-KoPT shall have to be established by the successful bidder, which must include active and passive components. It shall be the exclusive responsibility of the successful bidder to ensure that the RFID network (connectivity between the pre-hold area, gates, and various zones of HDC-KoPT) remains connected to the fiber backbone of HDC-KoPT continuously i.e. 24 X 7.
- 3.21 Coverage area:** Drawing and list of the intended coverage area of HDC-KoPT is annexed. The proposed RFID solution must ensure incorporation of Permit information within the RFID tokens / tags prior to tagging such that authentication, logging of data and track & trace facility is available for tagged objects within the coverage area proposed. For locomotives the solution should provide information regarding availability within area as per drawing i.e. inside gate / outside gate. Similarly for tugs, the same would be required when they are near quay line as per drawing.
- 3.22 Broad areas to be covered:** The proposed RFID System will be an integrated intelligent system comprising of the following subsystems –
- A. RFID based passes to workers, drivers, khalasi, employees, visitors (guests, passengers, etc.)
  - B. Automated entry/exit of vehicles with gate barriers
  - C. Automated entry/exit of individuals with flap-barrier/turnstiles
  - D. LED visuals of users & vehicles for CISF & Gate Security
  - E. Automatic Vehicle Identification with RFID tags on vehicle windshield
  - F. Automatic License Plate Capturing System and Recording
  - G. Pass holder photo capturing & recording for each entry & exit
  - H. Online web based Pass Issue Request System
  - I. Simplified Approval System with Email, SMS, & Mobile alerts to Scrutinizer

- J. Provision for online payment gateway
- K. Conveniently available Pass Collection Counters including third party such as (ICDs, CFS, e-Governance Centers, Authorized Centers, etc.)
- L. Class III Digital Signature based Authentication
- M. RFID based Internal Tracking of Equipment, Container, Vehicle, & Visitors within the Port premises.
- N. Handheld Terminal for Mobile Spot Checking as well as speedy movement at the gates
- O. Live Control Room for Round-the-clock Monitoring
- P. Distributed Architecture
- Q. High Availability Master Database
- R. Archival & Retrieval System
- S. Backup & DR
- T. Integration APIs
- U. Battery Assisted Passive (BAP) RFID Tags based Equipment & Asset Tracking within Port premises
- V. Offline image processing and anomaly alerts with matching and comprehensive results
- W. GPS based Internal Vehicle and Equipment Tracking System
- X. Integration with Sarathi database and Vahan database
- Y. Supply of required hardware networking for successful installation and commissioning

### **3.23 Guiding information regarding clause 3.22**

- A. RFID based passes to workers, drivers, khalasis, employees, visitors (guests, passengers, etc.)
  - 1. RFID Passes will be issued to workers, drivers, khalasis, vehicles, equipment, and each and every Port users.
  - 2. Port cannot be accessed without an RFID pass
  - 3. Each RFID pass will be unique identified with Chip Serial Number CSN
  - 4. The data in the RFID card will be encrypted
  - 5. The RFID pass will determine the time limit and the area that the pass holder can access
- B. Automated entry/exit of vehicles with Gate Barriers
  - 1. Vehicles with authorized passes will be allowed speedy entry by automatic opening of the gate barrier when the vehicle card is flashed on the RFID reader
  - 2. The Gate barrier will open under 0.6 seconds from closed state
  - 3. The Gate barrier will also have sensors to ensure that it does not fall on standing vehicle



- C. Automated entry/exit of individuals with flap-barrier/turnstiles
  - 1. Authorized Pass holders are allowed access into the Port gates through flap-barrier / turnstiles
  - 2. On successful authentication of the RFID pass, the flap-barrier will retrieve instantaneously
  - 3. The flap-barriers/turnstile will restrict multiple person entry on a single pass
- D. LED visuals of users & vehicles for CISF & Gate Security
  - 1. CISF personnel standing at the gate will see authorized person & vehicle image on the LED display screen
  - 2. If an expired pass or a blocked pass is flashed on the RFID Access Control readers then the LED display will immediately indicate it to the CISF security
- E. Automatic Vehicle Identification with RFID tags on vehicle windshield
  - 1. All temporary & permanent vehicles using the Port will be given an RFID windshield tags
  - 2. Vehicle & owner identification details will be recorded in the RFID tag
  - 3. As the vehicles enter/exit the movement details of the vehicle will be recorded for security purposes
- F. Automatic License Plate Capturing System and Recording
  - 1. As the vehicle arrives at the gate and driver flashes the RFID passes, the license plate will be captured and recorded
  - 2. License plate capturing system works in conjunction with AVI and Vehicle pass to ensure that the vehicle is authenticate
  - 3. Alert will be raised when the License Plate Captured is different from the one recorded in AVI or RFID Pass
- G. Pass holder photo capturing & recording for each entry & exit
  - 1. For each entry and exit into & out of the Port Gates, the time as well as photo image of the RFID pass holder will be captured
  - 2. The captured image is stored along with the timestamp, gate, & lane entry information
  - 3. Any attempt by unauthenticated attempts will also be recorded with photo image
- H. Online web based Pass Issue Request System
  - 1. Pass Issue request can be placed by registered firms from the comfort of their office
  - 2. Using Class 3 digital signature key, they will be able to login to the system and place a request
  - 3. On approval by the concerned port authority, a Pass Generation Number will be provided for collection of pass from pass issue counter
- I. Simplified Approval System with Email, SMS, & Mobile alerts to Scrutinizer or Port Authority
  - 1. Pass Issue request placed online by registered companies can be accessed by the Port Authority through Port intranet

2. The request placed by companies will also have option of alert by email, SMS, mobile alert
  3. As per the Port policy, the system can also be configured to set the policy framework for pass issue
- J. Provision for online payment gateway
1. Online payment gateway option will be provided for Port users to make payment directly to the Port for pass issue and other related activities
  2. The Port users should be able to make the payment from any bank of their convenience
  3. Net banking, Debit card, Credit card, Debit + ATM, etc will be made available
- K. Conveniently available Pass Collection Counters including third party such as (ICDs, CFS, e-Governance Centers, Authorized Centers, etc.)
1. RFID passes will be stocked at authorized CFS/ICDs, e-Governance centers and authorized third party centers in addition to Port Pass Section or Gate Pass Section
  2. Based on the PGN number, approval record is retrieved
  3. On submission of ID, image & details will be captured & pass printed
  4. The image & details are recorded and RFID pass issued
- L. Class III Digital Signature based Authentication
1. The access to Port Access Control System will be highly secured with Class III digital signature key issued by a verified & approved agency.
  2. CFS/ICDs, Authorized Pass Issue Centers, Registered Companies, etc. will access the system after keying in Class III digital signature based authentication
  3. Access of the system from inside the Port network will not require key authentication
- M. RFID based Internal Tracking of Equipment, Container, Trailers, & Cargo Vehicles within the Port premises
1. RFID Transceivers will be placed at various locations to capture internal movement of containers, trailers, & cargo vehicles
  2. Location of Equipment, Containers, & Vehicles can be accessed online
  3. Alert will be generated for unauthorized activities such as over stay, restricted zone access, untimely actions, etc.
- N. Handheld Terminal (HHT) for Mobile Spot Checking as well as speedy movement at the gates
1. CISF and Port Authorized personnel will be provided with HHT terminal which will be connected via WiFi / GSM to Port Access Control Database
  2. Spot checks can be carried out by reading the RFID passes of users and RFID tags on vehicle
  3. In case of congestion at the gates, HHT can double up as authentication device for faster movement of traffic
- O. Live Control Room for Round-the-clock Monitoring

1. Control room will be established to monitor the gates 24/7
  2. Visual view of traffic position at the gates will be displayed
  3. Unauthorized access or anomalous movement will be highlighted
  4. Dashboard display of various parameters with real-time updates
- P. Distributed Architecture
1. The system will be highly distributed for better performance and decentralized activities
  2. The high level of Gate Automation demands that each gate be installed with a local server with an instance of data replication
  3. The server at each gate will be connected to a Central Server in the control room
  4. The Central Server should be of high-end to stand online requests from CFS/ICDs, eGovernance Centers, Authorized Centers, etc.
- Q. High Availability Master Database
1. The Master database with information on all users, vehicles, policies, etc. will be high availability with active fail over
  2. Master Database should be robust to support large scale online requests
  3. Mirroring of Master Database will be implemented
  4. Replication of Master tables will be available at the Gates & Pass Issue Sections
- R. Archival & Retrieval System
1. The transaction data generated by the actions such as RFID pass issue, gate authentication, image capturing, vehicle identification, etc. will be available in the active database for a specific period
  2. The data is then rolled over to active archival system which will have capacity to hold 5 years data
  3. The archival data should be in multiple copies with adequate backups
  4. Archival data should be actively searchable and available for retrieval anytime
- S. Backup & Disaster Recovery
1. Port Access Control Software will have real time fail over as well as DR server
  2. DR Server will be physically located separate from Central Server
  3. DR Server will have instance of Master Data that is not any older than 2hours from the live data server
- T. Integration APIs
1. Multi-level APIs will be provided by PACTS supplier for integration with other systems.
  2. Standard Text, XML & Web Services will be available
  3. Data format and communication protocol will be open for future integrations
- U. Battery Assisted Passive (BAP) RFID Tags based Equipment & Asset Tracking within Port premises

1. BAP RFID Tags which provide long range readability similar to Active RFID will be used to tag Equipment and Assets within Port premises
  2. The BAP RFID tags will provide location information of assets & equipment on real-time basis
  3. The same RFID Infrastructure including UHF Transceivers and HF Controllers & Readers will be able to read the BAP RFID tags
- V. Offline image processing and anomaly alerts with matching and comprehensive results
1. Offline comparison of man, material, and vehicle images captured by cameras
  2. Alerts when images are not consistent
  3. Comparative results and anomaly reports
- W. GPS based Internal Vehicle and Equipment Tracking System
1. Real time information of internal tracking of vehicles and equipment within the port should be available
  2. Ability to form rules based on location should be provided
  3. Graphical User Interface or Dash board to be provided to see the location of the internal vehicle
- X. Integration with Sarathi database and Vahan database
1. Proposed system should have provision to work in integration with Sarathi and Vahan database
  2. All records in Vahan such as vehicle registration, tax, permits, etc. could be integrated with the proposed system
  3. All records in Sarathi such as Driving license, cleaner license, fees, etc. could be integrated with the proposed system

### **3.24 Application Software for Dock Entry Permit (DEP):**

Design, implement, commission and maintain application software for automating the business processes associated with physical access control to Port premises.

The application software to have capabilities such as:

- a. Multiuser multitasking to allow for independent activities and monitoring to occur simultaneously at different workstations.
- b. Support authentication and enrolment;
  - Pass verification,
  - Expiration date check, Blacklisting and its management
  - Digital photo display/check,
  - Validate signatures of authorizer / recommender etc.
- c. Graphical user interface to show pull-down menus and a menu tree format that complies with interface guidelines of Microsoft Windows operating system.
- d. Real time monitoring and tracking of entry / exit of personnel and vehicles to Port.

- e. System license shall be for the entire system and shall include capability for future additions that are within the indicated system size limits specified in this Section.
- f. System shall have open architecture that allows importing and exporting of data and interfacing with other systems.
- g. Accountability of system components - audit trail.
- h. System Administration of the Application including Access controls for access to various modules
- i. Operator login and access shall be utilized via integrated smart card reader and password protection.
- j. Interactive Reporting: It should be equipped with suitable MIS for enabling Port Management to get business information as well as monitor the system. The application software to be customized to include all business rules applicable to issue of Passes in Port.
- k. Information Transfer: Transfer transaction information on daily, monthly and yearly basis to port information system in mutually agreed format.
- l. Stakeholder should be able to issue passes by login into the system. The system should allow printing of only authorized port users after authentication.
- m. Information & software interface with third parties.
- n. Server reconciled with the payment collected.

**3.25** Supply, installation, integration, testing, customizing, configuring, commissioning, operating & maintaining the Port Access Control & Tracking System in a manner such that the commissioned solution must run uninterrupted 24 X 7 at HDC-KoPT and offer centralized pooling of data in a comprehensive database capable of generating reports and remain interoperable with similar local and national systems using integration API.

**3.26 Technical Specification:** The successful bidder shall strictly follow the minimum guiding technical specification or better for all hardware / equipments and software as per Annexure XVII.

**3.27 Service Level Requirement (SLR) and Service Level Agreement (SLA):**

A. The successful bidder shall ensure uptime availability of PACTS System at least 99.999%. All computations will be on monthly basis. The downtime will be calculated as below

Permissible downtime in a month =  $24 \times 30 \times 1/100 = 7.2$  Hrs Uptime is defined as follows:

Uptime =  $\{1 - [(\text{System downtime}) / (\text{Total Time} - \text{Scheduled Downtime})]\}$  Total Time shall be measured on 24\*7 basis

B. Scheduled Downtime:

Scheduled downtime is defined as the period of time when system will remain unavailable for conducting necessary preventive maintenance, urgent repairs etc. This is the Maximum duration, which the contractor can take with the prior written permission of HDC, KoPT for Scheduled downtime purposes.

The maximum scheduled downtime for any site would be 10 hrs in every calendar month.

The successful bidder shall be required to execute a "Service Level Agreement (SLA)", signed jointly with HDC, KoPT under official seals within a period of 30 days from issuance of Order Letter. The Parameters of the agreement (SLA) shall be as per Annexure XVIII.

#### **4. PRE-BID CONFERENCE:**

(a) A Pre-Bid Conference shall be held on January 07, 2016 at 11 AM at the Office of the General Manager (M&S); Haldia Dock Complex, Kolkata Port Trust at Jawahar Tower; Haldia Township; Purba Medinipur; West Bengal, India; PIN – 721 607. Interested Bidders may participate, if they so desire.

(b) The intending bidders are advised to formulate their queries relating to any aspect mentioned in the tender document or any clarification required well in advance and forward the same in writing by January 06, 2016 to the Office of General Manager (M&S) ; Haldia Dock Complex, Kolkata Port Trust at Jawahar Tower; Haldia Township; Purba Medinipur; West Bengal, India; PIN – 721 607 so that the same may be discussed / clarified in the Pre-Bid Conference. During the Pre-Bid Conference, the queries received in advance would be clarified first followed by those raised during the meeting.

(c) HDC, KoPT will furnish response to all such queries including the description of the queries (without identifying the sources raising such queries) in MSTC Website as well as the official website of KoPT including modifications / amendments, if any, to the terms and conditions of the original tender, scope of the project etc. which the intending bidder is to note for submitting their tender. The amendments / modifications / clarifications shall be hosted in the form of an "Addendum" which shall become an integral part of the tender document for all purposes and shall be binding on the bidder.

(d) Attending the Pre-Bid Conference will be helpful for the intending bidder but is not mandatory.

#### **5. Validity of Offer:**

The tender shall remain open for acceptance for a period of 120 days from the date of opening of the same. If before expiry of this validity period, the Bidder amends his quoted rates or tender, making them unacceptable to the Trustees and / or withdraws his tender, the Earnest Money deposited shall be liable to forfeiture at the option of the Trustees / sanctioning Authority.

#### **6. Earnest Money:**

(a) Bid / Tender submitted without Earnest Money shall be rejected outright without any reference to the Bidder whatsoever.

- (b) The amount of Earnest Money will be refunded (subject to provisions of forfeiture of Earnest Money deposit, as indicated in this tender document) to the Bidders without interest after the selection of Successful Bidder.
- (c) The Earnest Money shall be forfeited if the Bidder submits any forged document(s).
- (d) The Earnest Money will also be forfeited as per the other provisions, specifically mentioned in this Tender Document.
- (e) Earnest Money will be exempted for Micro and Small Enterprises (MSE) with NSIC registered organizations in case of single point registration covering all components of the said tender.

## **7. Price Bid:**

Rate to be quoted on line as per Annexure-VII.

Please note that KoPT does not provide any concessional Sales Tax Form. Full rate of Sales Tax/ VAT should be considered while quoting.

## **8. Evaluation of Techno Commercial Bid:**

- (a) The techno commercial offers of the bidders found responsive will then be evaluated as per eligibility criteria and tender terms and conditions as laid down in this tender document.
- (b) HDC, KoPT reserves the right to get the financial capability of the bidder verified from the Annual Accounts of the bidder (to be submitted along with Techno Commercial Bid) and in case of any discrepancy found, findings, as will be ascertained by HDC, KoPT, shall prevail for the purpose of evaluation.
- (c) Mere submission of offer / participation shall not mean that it will be automatically considered qualified and entertained. Such qualification will be done at the time of evaluation of offers.

## **9. Evaluation of Price Bid:**

The evaluation of the rates will only be made for the techno-commercially qualified bidders. Price Bid opening time and date shall be intimated separately to the techno-commercially qualified bidders.

For the purpose of evaluation, the process given below shall be followed –

Let cost of RFID Tag for "Employees / personnel of HDC-KoPT" quoted by the bidder = A  
 Let cost of RFID Tag for "Equipment – I ( Daily)" quoted by the bidder = B  
 Let cost of RFID Tag for "Equipment – I (Annual)" quoted by the bidder = C  
 Let cost of RFID Tag for "Equipment – II ( Daily)" quoted by the bidder = D  
 Let cost of RFID Tag for "Equipment – II (Annual)" quoted by the bidder = E  
 Let cost of RFID Tag for "Vehicle ( Daily)" quoted by the bidder = F

Let cost of RFID Tag for "Vehicle (Annual)" quoted by the bidder = G  
 Let cost of RFID Tag for "Cart ( Daily)" quoted by the bidder = H  
 Let cost of RFID Tag for "Cart (Annual)" quoted by the bidder = I  
 Let cost of RFID Tag for "General Man (Daily)" quoted by the bidder = J  
 Let cost of RFID Tag for "General Man (Monthly)" quoted by the bidder = K  
 Let cost of RFID Tag for "General Man( Qtrly)" quoted by the bidder = L  
 Let cost of RFID Tag for "Driver Khalasi (Daily)" quoted by the bidder = M  
 Let cost of RFID Tag for "Driver Khalasi (Monthly)" quoted by the bidder = N  
 Let cost of RFID Tag for "Driver Khalasi ( Qtrly)" quoted by the bidder = O  
 Let cost of RFID Tag for "Security Personnel (Daily)" quoted by the bidder = P  
 Let cost of RFID Tag for "Security Personnel (Monthly)" quoted by the bidder = Q  
 Let cost of RFID Tag for "Security Personnel (Qtrly)" quoted by the bidder = R  
 Let cost of RFID Tag for "Ship Personnel (Weekly)" quoted by the bidder = S  
 Let cost of RFID Tag for "Locomotives" quoted by the bidder = T  
 Let cost of RFID Tag for "Tugs" quoted by the bidder = U

Then,

$$\text{"EV"} = (A * 3227) + (B * 3276) + (C * 35) + (D * 4902) + (E * 28) + (F * 15621) \\ + (G * 4) + (H * 121) + (I * 1) + (J * 13994) + (K * 2397) + (L * 899) + (M \\ * 35072) + (N * 517) + (O * 269) + (P * 39) + (Q * 14) + (R * 12) + (S * 900) + (T \\ * 12) + (U * 10)$$

NOTE: Values above are as per indicative requirement of RFID Tag given in the Price Bid as per Annexure-VII

Subject to fulfillment of conditions stipulated in the tender, evaluation shall be made on the minimum financial impact to HDC; KoPT i.e. the quote of the bidder resulting in the lowest value of "EV", calculated as per process stated above shall be considered the lowest. It is, however, not obligatory on the part of the HDC, KoPT to accept the lowest rate quoted. HDC, KoPT reserves the right to accept a tender in full or in part and / or reject a tender without assigning any reason thereof.

10. **Revenue Sharing:** The successful bidder shall have to transfer 2% of gross revenue to HDC, KoPT on every month. For this purpose a separate Escrow Accounts to be maintained by the successful bidder.
11. **Acts, Laws and Statues etc. :** The successful vendor shall comply with the requirements of all the Acts, Laws, Statues, Bylaws, Rules and Regulations and any such other applicable Central / State Acts from time to time for the purpose of fulfilling all the obligations of the contract as may be deemed necessary in this regard.
12. **Acceptance of Order Letter:**

After finalization of the tender, HDC, KoPT shall issue Order Letter to the successful bidder. The successful bidder, on receipt of the same, shall remit requisite Performance Guarantee as per Annexure XVI within a period of 30 days from the date of issuance of Order Letter, failing which the Order Letter will become liable for cancellation with forfeiture of Earnest



Money. Pending execution of Contract Agreement, the Order Letter and its acceptance by the successful bidder will be construed as an Agreement between HDC, KoPT and the successful bidder for fulfilling the scope of work and obligation of the contract by the successful bidder.

**13. Execution of the Order in Totality:**

- (a) The contract shall commence from the date of Order Letter.
- (b) All activities as per "scope of work" shall have to be completed within 90 days from the date of Order Letter including.
- (c) The contract shall remain valid for a period of 10 Years, as per "scope of work", from the date of "successful execution of the order in totality".

**14. Successful Bidder to Indemnify:**

The successful bidder shall indemnify and keep indemnified HDC, KoPT and its every member, officer and staff against all actions, proceedings, claims, costs and expenses whatsoever in respect of or arising out of any action, failure or default by the successful bidder in due performance of his/their obligation under this contract. The successful bidder shall be required to submit Indemnity Bond as per Annexure XV.

The successful bidder shall indemnify HDC, KoPT from the possible future demand of workers / employees engaged by them under this contract, for absorption in HDC, KoPT. It will be the responsibility of the successful bidder to find a solution for such demand if it arises.

**15. Performance Guarantee / Security Deposit:**

The successful bidder, at own expense, shall have to provide to HDC, KoPT an unconditional and irrevocable Bank Guarantee as per Annexure XVI within 30 days from the date of Order Letter, in favour of "Kolkata Port Trust, Haldia Dock Complex", as Performance Guarantee. The Performance Guarantee shall be for a sum of Rs. 1.39 crores (Rupees one crore and thirty nine lakh only). The Performance Guarantee, shall be valid for an initial period of 1 (one) year and shall be renewed 30 (thirty) Days prior to expiry of each year, for an additional term of 1 (one) year.

The Performance Guarantee shall be held by the "Engineer of the Contract" as security for the performance of the successful bidder's obligation under the contract. The Performance Guarantee shall be refunded after successful completion of the entire period of contract plus three months subject to recovery of damage and / or loss incurred, if any, by HDC, KoPT due to default on the part of the successful bidder.

**16. Compensation:**

In the event of successful bidder failing to execute the contract within the stipulated time frame or such extensions thereof as may be allowed by the "ENGINEER OF THE CONTRACT" in writing, the successful bidder shall be required to pay as compensation/ liquidated damages, and not as penalty, at the rate of 0.1% (zero point one percent) of the Performance Guarantee for every Day of delay in fulfilling the specified obligations on or before a Milestone Date including a delay in obtaining the Completion Certificate or the Provisional Certificate on or before the Scheduled Project Completion Date. Provided such liquidated damages shall not in aggregate exceed 5% (five percent) of the Performance Guarantee and unless the delay is in obtaining of the Completion Certificate or the Provisional Certificate, shall not be payable for less than 15 (fifteen) Days of delay from a Milestone Date, in fulfilling a specified obligation. In case the aggregate delay exceeds 180 (one hundred and eighty) Days or the aggregate liquidated damages paid and/or payable under this provision exceeds the specified limit of 5% (five percent) of the Estimated Project Cost, HDC, KoPT shall be entitled to terminate this Contract. The "ENGINEER OF THE CONTRACT" may, at its discretion recover any amounts with respect to liquidated damages from the Performance Guarantee.

**17. Force Majeure:**

The term "FORCE MAJEURE" as employed herein shall mean acts of God, Earthquake, War, Revolt, Riot, Fire, Flood, Sabotage, Hurricane / Cyclone and Strike, excluding strikes by the employees of the successful bidder. In the event of either party being rendered unable by Force Majeure to perform any obligation required to be performed by them under the Contract, the relative obligation of the party affected by such Force Majeure shall, upon notification to the other party, be suspended for the period during which Force Majeure event last. Upon occurrence of such cause and upon its termination, the party alleging that it has been rendered unable as aforesaid, shall notify the other party in writing immediately but not later 7 (seven) days after the alleged beginning thereof, giving full particulars and satisfactory evidence in support of its claim. If the period of Force Majeure continues or is in the reasonable judgment of the parties likely to continue beyond a period of 90 days, the parties may mutually decide to terminate the contract or continue the contract on mutually agreed revised terms.

**18. Dispute / Amicable Settlement:**

In the event of any dispute, question or difference arising during the contractual period or during any other time, as to any matter connected with or arising out of the contract, the decision of the Deputy Chairman, HDC, KoPT shall be final and binding upon all parties.

**GENERAL CONDITIONS OF CONTRACT**

'General Conditions of Contract, Forms and Agreements' as sanctioned by the Board of Trustees of KoPT, HDC for the Port of Kolkata is hosted at [www.kolkataporttrust.gov.in](http://www.kolkataporttrust.gov.in). (<http://www.kolkataporttrust.gov.in/showfile.php?layout=1&lang=1&lid=1342>). Only those Clauses, Forms or Formats, which are not covered elsewhere in this Tender Document, shall be applicable. Also, for the sake of interpretation of the contents of the Appendices, the terms contained in the main tender document (other than Appendices) including the 'General Conditions of Contract, Forms and Agreements' shall prevail.

**DOCUMENTS TO BE UPLOADED****(Documents to be downloaded, filled up, signed, scanned and uploaded)**

**Following documents for meeting the pre-qualification criteria should be uploaded by the Bidder along with offer otherwise their offer may be rejected: -**

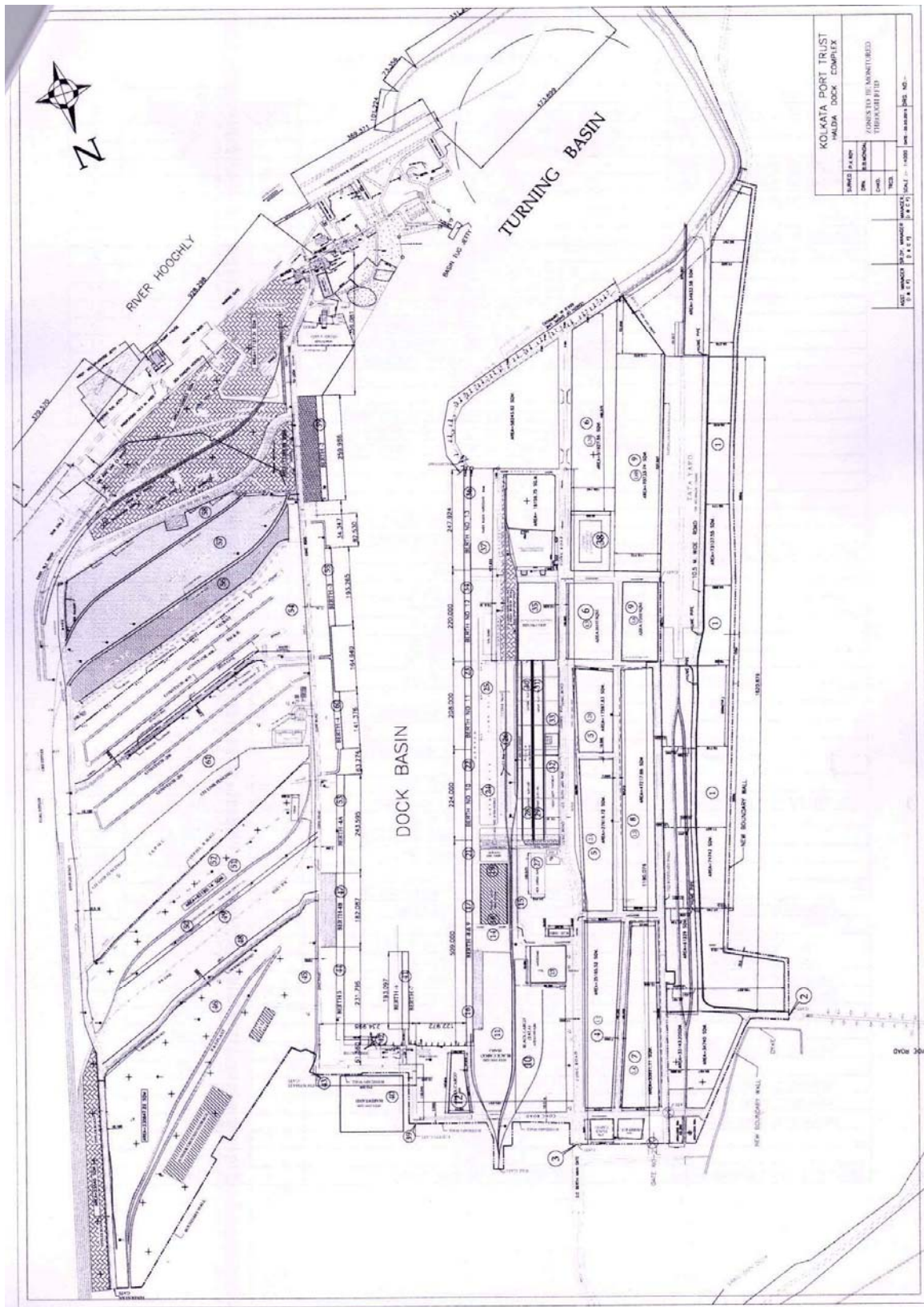
1. Evidence that the bidder has successfully executed similar work (order letter and successful execution certificate to be provided) as per the following:
(a) At least 3 similar Works each worth not less than INR 11.10 ( eleven point one zero) Crores over a period of last 7 years ending on 31.12.2015 <b>or</b>
(b) At least 2 similar Works each worth not less than INR 13.88 (thirteen point eight eight) Crores over a period of last 7 years ending on 31.12.2015 <b>or</b>
(c) At least 1 similar Work each worth not less than INR 22.21 (twenty two point two one) Crores over a period of last 7 years ending on 31.12.2015.
2. Audited balance sheet and Profit & Loss account for the last <b>3 (three)</b> financial years. Average annual financial turnover during the above mentioned period must be at least INR 8.33 Crores (Rupees Eight Crores Thirty Three Lacs only).
3. The bidder shall submit certified copy of valid Service Tax Registration Number / Code Number.
4. The bidder shall submit Self certified copy of PAN.
5. The bidder shall submit certified copy of 'Employees State Insurance (ESI) Registration Certificate' OR an Affidavit affirmed before a First Class Judicial Magistrate as per Appendix 26 in case the Bidder is not covered under ESI Act or exempted from it.
6. The bidder shall submit certified copy of 'Provident Fund Registration Certificate' OR an Affidavit affirmed before a First Class Judicial Magistrate as per Appendix 26 in case the Bidder is not covered under Provident Fund Act or exempted from it.
7 The bidder shall submit certified copy of up-to-date Profession Tax Payment Challan (PTPC), if applicable. If this is not applicable, the bidder should submit a declaration in this regard.
8. Power of Attorney as per Annexure - X.
9. Profile of Bidder as Annexure - IX.
10. Declaration by the bidder as per Annexure - VIII.
11. Copy of valid NSIC Certificate for MSEs along with DIC's (DISTRICT INDUSTRIES CENTRE) Certificate for Micro & Small Enterprises (MSEs) registered with NSIC (under single point registration scheme)

**PRICE BID****[BIDDER NOT TO QUOTE HERE, QUOTE ONLY ONLINE]****SCHEDULE OF RATES**

Type of RFID Tag	Frequency	Approximate Average RFID Tag required per Month	Unit Price in INR (Excluding Taxes)
Equipment – I	Daily	3276	
Equipment – I	Annual	35	
Equipment – II	Daily	4902	
Equipment – II	Annual	28	
Vehicle	Daily	15621	
Vehicle	Annual	4	
Cart	Daily	121	
Cart	Annual	1	
General Man	Daily	13994	
General Man	Monthly	2397	
General Man	Qtrly	899	
Driver Khalasi	Daily	35072	
Driver Khalasi	Monthly	517	
Driver Khalasi	Qtrly	269	
Security Personnel	Daily	39	
Security Personnel	Monthly	14	
Security Personnel	Qtrly	12	
Ship Personnel	Weekly	900	

Type of RFID Tag	Approximate Permanent RFID Tag required	Unit Price in INR (Excluding Taxes)
Employees / personnel of HDC-KoPT	3227	
Locomotives	12	
Tugs	10	

Drawing of Coverage Area and Nomenclature of Zones





### Zones to be monitored through RFID

Sl. No.	Area	Description	Remarks
1	Extended dock boundary	Area at Western side of erstwhile dock boundary	Sub-zoning to be done
2	Empty Gate	Existing CISF Gate at extended dock area	
3	Main Gate	CISF Gate at the entrance to General Cargo Berth	
4	L-1	L-1 Yard	Sub-zoning may be required
5	L-2	L-2 Yard	Sub-zoning may be required
6	L-3	L-3 Yard	Sub-zoning may be required
7	L-4	L-4 Yard	Sub-zoning may be required
8	L-5	L-5 Yard	Sub-zoning may be required
9	L-6	L-6 Yard	Sub-zoning may be required
10	Tata Yard	Tata Yard behind Berth No. 8	
11	SAIL Yard	SAIL Yard behind Berth No. 8	
12	B/8 (North)	Yard at the Northern end of Berth No. 8	
13	New Hardstand	Hardstand opposite to Equipment Shed	
14	North Canopy	Beside Northern Platform of Transit Shed	
15	Western Canopy	Beside Western Platform of Transit Shed IP/ OP Line	
16	Berth No. 8	Berth No. 8	
17	Berth No. 9	Berth No. 9	
18	Transit Shed (North)	Northern Side of Transit Shed (Inside shed)	
19	Transit Shed (South)	Southern Side of Transit Shed (Inside shed)	
20	South Canopy	Southern Platform of Transit Shed and Reefer Points	
21	Berth No. 9(S)	Berth No. 9(S)	
22	Berth No. 10	Berth No. 10	
23	Berth No. 11	Berth No. 11	
24	B/10 Hardstand	Hardstand yard behind Berth No. 10	
25	B/11 Hardstand	Hardstand yard behind Berth No. 11	
26	TT Yard	Transtainer Crane Yard	Sub-zoning may be required
27	New Cargo Shed	New Cargo Shed	
28	CPY N-E	North-East part of CPY	
29	CPY N-W	North-West part of CPY	
30	CPY S-E	South-East part of CPY	
31	CPY S-W	South-West part of CPY	
32	Non-CPY (North)	Northern part of Non-CPY	
33	Non-CPY (South)	Southern part of Non-CPY	
34	Berth No. 12	Berth No. 12	
35	B/12 Hardstand	Hardstand yard behind Berth No. 12	
36	Berth No. 13	Berth No. 13	
37	B/13 Hardstand	Hardstand yard behind Berth No. 13	
38	Transit Shed 2	Transit Shed 2	
39	Finger Jetty Gate	CISF Gate behind Finger Jetty	
40	Finger Jetty Hardstand	Hardstand yard behind Finger Jetty	Sub-zoning may be required
41	Finger Jetty	Berth No. 6 & Berth No. 7	
42	Berth No. 5(N)	Barge handling area beside Berth No. 5	
43	Phosphate Gate	CISF Gate behind Berth No. 5	
44	Berth No. 5	Berth No. 5	
45	Usha Martin Plot	Road bound bareland yard behind Berth No. 5	
46	B/5 Yard	Stack yard behind Berth No. 5	Sub-zoning required
47	Berth No. 4(B)	Berth No. 4(B)	
48	B/4(B) Yard 0	Stack yard behind Berth No. 4(B)	Sub-zoning required
49	B/4(B) Yard 1	Stack yard behind Berth No. 4(B)	Sub-zoning required
50	B/4(B) Yard 2	Stack yard behind Berth No. 4(B)	Sub-zoning required
51	B/4(B) Yard 3	Stack yard behind Berth No. 4(B)	Sub-zoning required
52	B/4(B) Yard 4	Stack yard behind Berth No. 4(B)	Sub-zoning required
53	Berth No. 4(A)	Berth No. 4(A)	
54	B/3 Yard	Stack yard behind Berth No. 3	Sub-zoning required
55	Berth No. 3	Berth No. 3	
56	B/2 Yard 1	Stack yard behind Berth No. 2	Sub-zoning required
57	B/2 Yard 2	Stack yard behind Berth No. 2	Sub-zoning required
58	B/2 Yard 3	Stack yard behind Berth No. 2	Sub-zoning required
59	Berth No. 2	Berth No. 2	
60	Berth No. 4	Berth No. 4	
61	B/4 Yard	Stack yard behind Berth No. 4	Sub-zoning may be required



## Historical information

Month-Year	Equipment-I		Equipment-II		Vehicle		Cart		General Man			Driver Khalasi			Security Personnel			Ship Personnel
	Daily	Annual	Daily	Annual	Daily	Annual												
Jan-11	206	4	8298	4	38736	0	223	1	11876	2270	1537	72094	305	513	226	63	7	1532
Feb-11	195	0	7794	15	34877	1	162	0	10115	2119	774	63876	276	174	13	80	1	1141
Mar-11	3406	112	6991	31	20361	60	200	1	9235	2027	2317	41832	296	127	165	77	7	1542
Apr-11	3021	116	6042	12	21379	2	178	0	10407	1758	1486	48455	513	502	314	68	7	1565
May-11	3680	0	4796	1010	29791	1	177	0	11055	1987	802	63796	254	167	692	48	224	1060
Jun-11	3749	0	5387	11	29786	2	157	1	12302	2084	2424	62529	297	133	337	42	8	1064
Jul-11	4567	7	6239	1	32870	3	188	0	13822	2129	1304	71664	398	659	120	42	4	1026
Aug-11	2301	50	5733	8	19719	2	232	0	12318	2061	813	44737	401	167	35	36	1	1027
Sep-11	3197	635	4965	2	16227	3	181	1	12055	1969	2544	40454	365	141	38	25	16	961
Oct-11	2598	0	5237	7	13358	0	125	2	9261	1857	1239	33851	379	627	37	7	27	1130
Nov-11	1377	0	4684	19	9436	6	115	0	5588	1794	866	23137	321	139	25	0	1	966
Dec-11	2086	7	5503	33	12423	7	135	0	6687	3570	864	30489	377	145	39	1	2	1215
Jan-12	3277	5	4394	9	11639	2	200	0	6302	3575	1251	29927	407	621	24		32	1113
Feb-12	2210	5	5325	20	9512	4	129	0	5178	3438	891	20696	5144	108	16	2	2	966
Mar-12	1978	75	5883	6	10821	1	101	0	6240	3489	859	28672	369	173	17	0	2	1217
Apr-12	3828	130	5567	5	10652	1	128	0	6905	3380	1219	27200	314	597	27	0	30	1272
May-12	4264	18	6472	5	15528	1	139	0	7632	3421	889	42323	350	101	29	0	6	1030
Jun-12	4104	16	5999	1	14839	1	148	1	7638	3416	572	40416	303	435	18	0	0	1077
Jul-12	2216	14	6074	9	17113	1	150	0	10238	3277	1264	43727	345	599	25	0	5	1084
Aug-12	2349	20	4664	6	14061	0	141	0	10169	3251	887	36375	356	97	15	1	0	780
Sep-12	1910	0	5081	8	10764	0	115	0	6670	3283	885	25545	339	149	0	0	5	714
Oct-12	2376	3	4389	9	8716	0	95	0	6174	3230	1087	23624	339	565	0	27	5	0
Nov-12	2963	21	3694	3	7476	0	84	2	5693	3268	632	23392	334	80	2	26	0	648
Dec-12	3245	8	4466	56	13947	0	122	0	7588	1782	528	37095	310	90	0	39	0	931
Jan-13	2817	3	4678	12	12382	0	103	0	24546	1924	1189	35233	414	523	5	34	0	814
Feb-13	2871	13	4961	9	14006	1	100	0	24941	1954	807	33350	436	122	0	35	1	926
Mar-13	1961	101	4195	33	5213	17	132	16	25583	1949	541	30854	424	101	16	47	16	987
Apr-13	3566	20	3554	4	10289	0	88	0	38986	1948	1109	38855	417	526	6	38	0	890
May-13	5158	35	3379	1	16438	0	133	0	26034	1980	644	38113	423	113	0	37	0	697
Jun-13	3917	8	3829	2	10419	6	132	1	11536	2008	591	23867	446	83	0	22	0	1005
Jul-13	3397	10	3011	3	12522	29	104	0	18413	1794	979	25031	330	501	0	0	3	918
Aug-13	3310	8	4374	3	21969	15	101	0	27818	2070	653	41416	520	109	0	0	5	718
Sep-13	4040	0	4475	17	22089	4	138	1	25012	2036	577	36691	541	68	0	0	0	864
Oct-13	3984	0	4000	4	12913	0	136	0	18918	2028	1140	26923	560	493	0	0	25	746
Nov-13	3920	23	4372	4	13105	4	95	0	18372	1990	668	27394	534	102	0	0	4	769
Dec-13	3531	16	4247	56	19306	0	82	1	32570	2076	568	37449	569	91	0	0	0	983
Jan-14	3436	10	3543	2	17679	0	98	1	28467	2120	1100	33671	569	508	0	0	42	887
Feb-14	3382	3	3449	0	14526	0	103	0	22733	2050	535	28141	497	136	0	0	0	826
Mar-14	3119	108	3848	17	15911	4	108	0	23365	2255	378	31643	556	49	0	0	41	1037
Apr-14	2989	0	5317	1	9492	0	107	0	19942	2080	1250	24948	531	495	0	3	2	977
May-14	3614	8	5531	2	10222	0	115	0	16645	2086	805	24333	490	132	0	0	0	921
Jun-14	4804	1	3905	0	9827	2	87	0	14091	2082	424	24759	505	60	0	0	28	813
Jul-14	4357	41	4637	1	10681	9	82	0	16477	2182	1042	24674	512	495	3	0	7	554
Aug-14	4407	11	4846	4	12832	10	71	0	10117	2253	802	30217	591	63	0	0	0	640
Sep-14	3901	22	5191	16	11800	1	92	0	7618	2195	442	27666	586	67	0	0	42	728
Oct-14	3581	14	4196	0	11069	1	66	0	7648	2234	988	26863	564	484	0	2	0	844
Nov-14	3389	1	4431	1	7793	1	103	1	18032	2191	645	31198	579	88	1	0	3	719
Dec-14	4518	40	5409	2	14971	0	61	2	10288	2072	676	35677	448	215	0	0	32	541
Jan-15	3986	11	4605	19	17092	0	64	1	12127	2897	117	37272	673	28	0	0	0	751
Feb-15	4408	5	4611	0	17128	0	70	0	10890	3691	75	31491	1008	53	0	0	0	662
Mar-15	4917	88	5287	0	15812	2	79	0	10263	2729	1236	35021	333	718	0	0	8	789
Apr-15	4346	33	6042	2	16563	2	106	0	13457	2177	899	33631	455	51	0	0	0	798
May-15	3451	2	4696	14	16811	0	119	0	20139	2219	293	32282	283	33	0	0	0	863
Jun-15	3176	23	4134	8	15813	1	106	1	12408	2403	1349	29963	388	786	0	0	0	659
Jul-15	3380	17	5045	53	16733	0	119	0	8024	2253	846	30298	319	88	0	0	0	702
Aug-15	3369	24	3685	12	15673	1	86	0	7287	2186	303	26184	349	49	0	0	0	733
Sep-15	2620	29	4167	6	14468	0	80	2	9047	2096	1358	28089	349	796	0	0	16	516

Nature of RFID Tag	Number	Remarks
Permanent Employees of HDC-KoPT	2290	As on 01.10.2015. Likely to decrease with time
Contractual Employees of HDC-KoPT	142	As on 01.10.2015. Likely to increase to 200 by Dec 2015
Contract Labourers through Labour Supply Contractor	796	As on 01.10.2015
Tugs	10	
Locomotives	12	



**DECLARATION BY THE BIDDER**

1. I / We have carefully examined and fully understood the General Instructions to Bidders, the Commercial terms and Conditions of the Contract, KoPT, HDC' General Conditions of Contract, Scope of Work, Compensation, Period of Contract etc. and all other related documents and clauses in connection with this tender.
2. I / We **accept** all the terms & conditions of the Tender Document (Ad/007/Computer/RFID/2016).
3. I / We have deposited requisite Earnest Money for the tender.
4. I / We have submitted copies of the required documents as mentioned at **Annexure- VI** of the Tender Document.
5. I/We declare that I/We have not been banned or delisted by any Government or Quasi-Government Agency or PSU in India.
6. My local office and Registered office (if any) addresses and contact details are –

Address	Telephone	Fax	E-Mail Address

Date:

-----

Signature of the bidder with office seal

**Witness:-**

Sl. No.	Name	Address	Signature
1			
2			

**FORMAT OF PROFILE OF THE BIDDER**

1.     (a)     Name of the Bidder:  
       (b)     Country of incorporation:  
       (c)     Address of the corporate headquarters and its branch office(s), if any in India:  
       (d)     Date of incorporation and commencement of business:
  
2.     Brief description of the Company including details of its main lines of business and proposed role and responsibilities in connection with implementation of the tender.
  
3.     Details of individual(s) of the tenderer who will serve as the point of contact/ communication with KoPT.
  - (a) Name :
  - (b) Designation :
  - (d) Address :
  - (e) Telephone Number :  
(Land & Mobile)
  - (f) E-Mail Address :
  - (g) Fax Number :
  
4.     Details of Authorized Signatory of the Tenderer:
  - Name :
  - Designation :
  - Address :
  - Telephone No. :  
(Land & Mobile)
  - Email Address :
  - Fax No. :

.....  
Signature of Bidder / Power of Attorney Holders  
Name: .....  
Designation: .....  
Date : .....  
Seal :

Format For Power Of Attorney For Signing Of Tender

(To be executed before Notary Public on a Non-Judicial Stamp Paper of at least Rs 10 )

Dated:\_\_\_\_\_

POWER OF ATTORNEY

To whomsoever it may concern

Mr. \_\_\_\_\_ [Name of the Person], residing at  
\_\_\_\_\_ [Address of the person], acting as  
\_\_\_\_\_ [Designation of the person and name of the firm], and whose  
signature is attested below, is hereby authorized on behalf of  
\_\_\_\_\_ [Name of the Tenderer] to sign the tender  
[(Tender No. ....and (Tender subject- ".....")]] and submit the  
same and is hereby further authorized to provide relevant information/ document and respond to  
the enquiry's etc. as may be required by Kolkata Port Trust (KoPT) in respect of the tender.

And I/ we hereby agree that all acts, deeds and things lawfully done by our said attorney shall be  
construed as acts, deeds and things done by us and I/ we undertake to ratify and confirm all and  
whatsoever that my / our said attorney shall lawfully do or cause to be done for me / us by virtue  
of the power hereby given.

(Attested signature of Mr. \_\_\_\_\_)

For \_\_\_\_\_ (Name of the Tenderer)

\_\_\_\_\_  
( Signature with Office Seal )

Date :-

Name :-

Place:

Designation :-

**Affidavit Format in case the Bidder is not covered under ESI Act or exempted**

On 10/- (Rupees Ten) Non-judicial Stamp Paper

BEFORE THE 1ST CLASS JUDICIAL MAGISTRATE AT

\_\_\_\_\_

**Affidavit**

I \_\_\_\_\_ son of \_\_\_\_\_ aged about \_\_\_\_\_ years, by faith \_\_\_\_\_ by occupation \_\_\_\_\_ residing at \_\_\_\_\_, do hereby solemnly affirm and declare as follows:

1. THAT I am the Proprietor/Partner/Director \_\_\_\_\_ having office at \_\_\_\_\_ and carrying on business on the same name and style.

(In case the above Deponent is an enlisted Successful vendor at Kolkata Port Trust, the same should be mentioned in the affidavit).

2. THAT my aforesaid Firm is exempted from Employees' State Insurance (E.S.I.) Act and the said Firm has no valid E.S.I. Registration.

3. THAT the present affidavit is to be filed before the Kolkata Port Trust as per the clause no. \_\_\_\_\_ of the Tender vide Tender no. \_\_\_\_\_ issued by the Kolkata Port Trust in respect of the work (the work is to be mentioned).

THAT the statements made above are all true to the best of my knowledge and belief.

Deponent

Identified by: .....

**Affidavit Format in case the Bidder is not covered under Provident Fund Act or  
Exempted**

On 10/- (Rupees Ten) Non Judicial Stamp Paper

BEFORE THE 1ST CLASS JUDICIAL MAGISTRATE AT

\_\_\_\_\_

**Affidavit**

I \_\_\_\_\_ son of \_\_\_\_\_ aged about \_\_\_\_\_ years, by faith \_\_\_\_\_ by occupation \_\_\_\_\_, residing at \_\_\_\_\_, do hereby solemnly affirm and declare as follows:

1. THAT I am the Proprietor/Partner/Director \_\_\_\_\_ having office at \_\_\_\_\_ and carrying on business on the same name and style.

(In case the above Deponent is an enlisted Successful vendor at Kolkata Port Trust, the same should be mentioned in the affidavit).

2. THAT my aforesaid Firm is exempted from Provident Fund Act and the said Firm has no valid Provident Fund Registration.

3. THAT the present affidavit is to be filed before the Kolkata Port Trust as per the clause no. \_\_\_\_\_ of the Tender vide Tender no. \_\_\_\_\_ issued by the Kolkata Port Trust in respect of the work (the work is to be mentioned).

THAT the statements made above are all true to the best of my knowledge and belief.

Deponent

Identified by: .....

**FORMAT OF INDEMNITY BOND**

On 100/- (Rupees Hundred) Non-judicial Stamp Paper

**Indemnity Bond**

BY THIS BOND I, Shri/Smt. -----, son/daughter of Shri/Smt. -----  
-----, residing at -----  
-----, by occupation -----, the Partner/Proprietor/Director of the  
Firm -----, having it's office at-----,  
am a tenderer under Kolkata Port Trust (A Statutory Body under the MPT Act, 1993).

2. WHEREAS , the said Kolkata Port Trust had asked every Tenderer, who is not covered under Employees' State Insurance (E.S.I.) Act exempted to furnish an Indemnity Bond in favour of Kolkata Port trust against all damages and accidents to the labourer of the Tenderer/ Successful vendor.

3. NOW THIS BOND OF INDEMNITY WITNESSETH THAT the Tenderer/Successful vendor named herein above shall indemnify the Kolkata Port Trust against all damages and accidents occurring to the labourers of the Tenderer/Successful vendor as demanded by the Kolkata Port Trust and which shall be legal and /or claimed by the Kolkata Port Trust during the execution of the work stated in the Tender No. ----- dated-----.

4. AND the Successful vendor hereunder agrees to indemnify and all times keep indemnified the Kolkata Port Trust and its administrator and representatives and also all such possible claim or demand for damages and accidents.

IN WITNESS WHEREOF I, -----, the Partner/Proprietor/Director of the Firm  
-----, hereto set and seal this the ----- day of-----  
-----.

Draft Proforma of Bank Guarantee ( Performance Bond ) in lieu of cash Security Deposit, to be issued by the Calcutta / Haldia Branch, as the case may be, of any nationalised Bank of India on Non-Judicial Stamp Paper worth Rs. 50/- or as decided by the Engineer / Legal Adviser of the Trustees.

To  
The Board of Trustees  
for the Port of Calcutta,

BANK GUARANTEE NO ..... DATE .....

Name of Issuing Bank .....

Name of Branch .....

Address .....

In consideration of the Board of Trustees of the Port of Calcutta, a body corporate-duly constituted under the Major Port Trusts Act, 1963 (Act 38 of 1963), having agreed to exempt Shri / Messrs ..... a Proprietary / Partnership / Limited / Registered Company, having its Registered Office at ..... (hereinafter referred to as "The Contractor") from cash payment of Security Deposit / payment of Security Deposit through deduction from the Contractors' bills under the terms and conditions of a contract made between the Trustees and the Contractor for ..... (write the name of the work as per Work Order) in terms of the Work Order No. .... dated ..... (hereinafter referred to as "the said contract"), for the due fulfilment by the contractor of all the terms and conditions contained in the said contract, on submission of a Bank Guarantee for Rs. .... (Rupees .....), we, ..... Branch, Calcutta / Haldia, do, on the advice of the contractor, hereby undertake to indemnify and keep indemnified the Trustees to the extent of the said sum of Rs. .... (Rupees ..... ) We, ..... Branch, Calcutta / Haldia, further agree that if a written demand is made by the Trustees through any of its officials for honouring the Bank Guarantee constituted by these presents, We, ..... Branch, Calcutta / Haldia, shall have no right to decline to cash the same for any reason whatsoever and shall cash the same and pay the sum so demanded to the Trustees within a week from the date of such demand by an A/c Payee Banker's Cheque drawn in favour of "Calcutta Port Trust", without any demur. Even if there be any dispute between the contractor and the Trustees, this would be no ground for us, ..... (Name of the Bank), ..... Branch, Calcutta / Haldia, to decline to honour the Bank Guarantee in the manner aforesaid. The very fact that We, ..... Branch, Calcutta / Haldia, decline or fail or neglect to honour the Bank Guarantee in the manner aforesaid shall constitute sufficient reason for the Trustees to enforce the Bank Guarantee unconditionally without any reference, whatsoever, to the contractor.

2. We, ..... Branch, Calcutta / Haldia, further agree that a mere demand by the Trustees at anytime and in the manner aforesaid, is sufficient for us, ..... Branch, Calcutta / Haldia, to pay the amount covered by this Bank Guarantee in full and in the manner aforesaid and within the time aforesaid without reference to the contractor and no protest by the contractor, made either directly or indirectly or through Court, can be valid

ground for us, ..... Branch, Calcutta ..... / Haldia, to decline or fail or neglect to make payment to the Trustees in the manner and within the time aforesaid.

3. We, ..... Branch, Calcutta ..... / Haldia, further agree that the Bank Guarantee herein contained shall remain in full force and effect, during the period that is taken for the due performance of the said contract by the contractor and that it shall continue to be enforceable till all the dues of the Trustees under and / or by virtue of the terms and conditions of the said contract have been fully paid and its claim satisfied and/or discharged in full and/or till the Trustees certify that the terms and conditions of the said contract have been fully and properly observed/ fulfilled by the contractor and accordingly, the Trustees have discharged the Bank Guarantee, subject however, that this guarantee shall remain valid upto and inclusive of ..... day of ..... 20 ..... and subject all so that the provision that the Trustees shall have no right to demand payment against this guarantee after the expiry of 6 (six) calendar months from the expiry of the aforesaid validity period upto ..... or any extension thereof made by us ..... Branch, Calcutta ..... / Haldia, in further extending the said validity period of this Bank Guarantee on Non-Judicial Stamp Paper of appropriate value, as required/determined by the Trustees, only on a written request by the Trustees to the contractor for such extension of validity of this Bank Guarantee.

4. We, ..... Branch, Calcutta ..... / Haldia, further agree that, without our consent and without affecting in any manner our obligations hereunder, the Trustees shall have the fullest liberty to vary from time to time any of the terms and conditions of the said contract to extend the time for full performance of the said contract including fulfilling all obligations under the said contract or to extend the time for full performance of the said contract including fulfilling all obligations under the said contract by the contractor or to postpone for any time or from time to time any of the powers exercisable by the Trustees against the contractor and to forebear or enforce any of terms and conditions relating to the said contract and We, ..... Branch, Calcutta ..... / Haldia, shall not be relieved from our liability by reason of any such variation or extension being granted to the contractor or for any fore-bearance, act or commission on the part of the Trustees or any indulgence by the Trustees to the contractor or by any such matter or thing of whatsoever nature, which under the law relating to sureties would, but for this provision, have effect of so relieving us, ..... Branch, Calcutta ..... / Haldia.

5. We, ..... Branch, Calcutta ..... / Haldia, lastly undertake not to revoke this Bank Guarantee during its currency except with the previous consent of the Trustees in writing.

SIGNATURE .....  
NAME .....  
DESIGNATION .....  
(Duly constituted attorney for and on behalf of)  
BANK .....  
BRANCH .....  
CALCUTTA ..... / HALDIA  
(OFFICIAL SEAL OF THE BANK)



**Minimum Guiding Technical Specifications****Software Specifications**

Sr. No.	Module	Features
	RFID smartcard based Port Access management System should be a comprehensively ISPS compliant system	The system should be off-the-shelf (OTS) and ready to implement in Ports.  ISPS Compliance certified by registered nodal certification agency is mandatory.
	Software should be suitable for heavy duty pass issue.	OEM to have experience of supplying at least 15 lakh RFID tags using the same platform in the last 5 years to any number of clients in any industry.
<b>(A)</b>	<b>Port Officer Authorization Module</b>	
1		Provision to admin access into the complete system by a Port Authority
2		Provision to Audit every pass issued
3		Provision to restrict pass issue permission by Port Supervisor/Scrutinizer
4		Provision to restrict number of passes per Company by a Port Authority
5		Direct access to all software & database by authorized Port Authority
6		Provision to limited access to Port Supervisor/Scrutinizers at the Gates
7		Provision to scan activity of pass issue by each operator at any counter
8		Provision to get summary report of all activities by operators on shift wise, daily, weekly, & monthly basis
9		Provision to log all activities of logged in operators issuing the passes
<b>(B)</b>	<b>Sponsoring Company Registration has</b>	
1		Provision to define company type
2		Provision to register a company under one company type
3		Provision to define category and it rules

Sr. No.	Module	Features
4		Provision to register one or more category under one Company
5		Revision to define validity based on the license date, bank guarantee date, and documents expiry date and categories validity period.
6		Provision to define companies without any basic validity
7		Provision for Pre-renewal
8		Provision for renewal after expiry of registration
9		Provision for extension of validity for Company-Category and Category on the basis of validity  Provision for parameterized, Dynamic definition  Provision to declare defaulter and or blacklist a category and or a company immediately or with future date
10		Provision to declare defaulter and or blacklist all the permits under the category and or Company automatically due to default/blacklist of Company or category
11		Provision to restore the Company and or Category separately or together along with their Permits
12		Provision to cancel the Company/Company- Category as per rules
13		Provision to define Maximum Validity period for the type of permit of any Category in Category Master
14		Provision for not allowing cancellation without cancelling all permits under it or if the company is defaulted or blacklisted
15		Provision for forcible Cancellation of a Company
16		Provision to cancel all the permits under it automatically
17		Provision to declare quota for various types of Permits and provision to increase/decrease quota permanently, daily or for a specific period.
18		Provision to maintain the list of authorized signatories under company-category with Photo and Signature
19		Provision to maintain the list of Director/Partners/Proprietors with their photo and signature
20		Provision to define the Issuing Authority for different

Sr. No.	Module	Features
		types of Permits.
21		Class III Digital Signature based Authentication
(C)	<b>Authenticated User Enrolment and Issuance of permits has</b>	
		Provision to enroll User – Employee biometrics, identification details, photograph.
1		Provision to attach Scanned documents.
2		Provision to generate uniqueness for every User
3		Provision to retrieve information based on Biometrics, User Identification details
4		Provision to verify User credentials like biometrics etc before issuing the Permit
5		Provision to issue User permit till the Company-Category's Validity date, Document Validity date,  Maximum validity period
6		Provision to Generate, Print Permit on Smart Card, Water proof sticker, Paper
7		Provision to link Smart card / RFID tag/ paper pass with Users credentials
8		Provision to renew / issue duplicate permits
9		Provision to blacklist or restore a user permit
10		Provision to record IN / OUT movement of User / vehicle / Employee
11		Provision to issue permits for different span of time like daily, weekly, Monthly, Quarterly, yearly
12		Provision to issue permits to a group or to every member of group individually
13		Provision to limit access of pass holder to specific areas
14		Provision to declare defaulter and or blacklist a user
15		Provision to restore defaulter and or blacklisted user
16		Provision to display Users Photograph on the LCD when moving in or out of the gate
17		Provision to push data of defaulters and or blacklisted user on all the readers
18		Thus controlling access of black listed persons

Sr. No.	Module	Features
19		For out entry Turnstile to be operated on deposit of Daily smart cards
20		Provision for various parameterized reports. User can generate their own MIS
21		Provision for customizable forms for storing user data along with photo identification, finger prints
22		Maintaining unique data of Users from which passes is to be generated quickly
<b>(D) Authenticated Vehicle Enrolment and issuance of Vehicle Permit features</b>		
1		Provision to enrol Vehicle
2		Provision to Link passengers with Vehicle
3		Provision to generate Vehicle permits for different time period like Quarterly / yearly, Daily
4		Provision to renew / issue Duplicate Vehicle permit
5		Provision to change the Owner of the Vehicle
6		Track the IN /OUT movement of Vehicle at gate through RFID tag
7		Provision to limit access of vehicle to specific areas
8		Maintaining unique data of Vehicle from which passes is to be generated quickly
9		RFID based Internal Tracking of Equipment, Container, Vehicle, & Visitors within the Port premises.
<b>(E) Cash Collection and Remittance features</b>		
1		Provision to Define various permit
2		Provision to enter tariff for each definition of Permit.
3		Provision to Change Tariff for each Definition of Permit and should be applicable for a specific period
4		Provision to Collect Cash as per the rules defined
5		Provision for remittances made
6		Provision to collect deposit in advance against each company
7		Provision to collect cash against each permit as per the rules defined by making necessary withdrawal entry (Credit/Debit)
8		Provision for online payment to Port Account Directly
9		Conveniently available Pass Collection Counters including third party such as (ICDs, CFS, eGovernance Centers, Authorized Centers, etc.)

Sr. No.	Module	Features
<b>(F) Blacklisting &amp; Policy Enforcement Module</b>		
1		Provision to blacklist user, vehicle, company
2		Provision to auto-block pass issue to blacklisted entities
3		Provision to raise alert for blacklisted related requests
4		Provision to report suspicious or anomalous activities with severity levels
5		Provision to create rules defining Port Gate Entry Policy
6		Provision to enforce Gate Entry Policy such entry restricted from a specific gates, etc.
7		Provision to restrict individuals & vehicles to specific areas or zones
8		Provision of rules to generate alerts by email, SMS, or Phone Call
<b>(G) User Module Features:</b>		
1		Hierarchy of the users maintained
2		Levels of the users and rights given to the levels could be changed through system
3		Maker Checker facility for the user creation
4		Log of creation of User, User Validity, password Validity, and Password Policy maintained
5		Copy / Paste not allowed in the login / Password Fields
6		Validation in such a way that no compromise by SQL Injection Techniques Password encrypted
7		Last login Date/time stored in the system and displayed on the screen to the user
8		Enforcement of the initial default password and forcing the user to change password after certain No. of days parameterized.
9		After certain no. of attempts the user gets locked and the no. of attempts parameterized
10		Disabling the user automatically after certain period parameterized if the login is not at all used
11		Facility to disable the user manually
12		History of login details to the user of their own login & of all users for administrator / Super User login
<b>(H) RFID Card Management Module</b>		
1		Advance enrolment of the port sponsor companies, users, vehicles, etc.

Sr. No.	Module	Features
2		Pre-personalization and Personalization of cards
3		Printing of cards & stickers
4		Management of Temporary users
5		Provision to Issue Passes from authorized locations outside the Port
6		Remote disabling of cards
7		Alerting on expired card usage attempts Security & data encryption in card or server end
<b>(I)</b>	<b>Comprehensive MIS Reports &amp; Integration Module</b>	
1		Provision for Dashboard to view the current status of traffic at the Port
2		Tracking of each and every individual, vehicle, visitor across Port area
3		Category based reporting of traffic inside as well as at the gates
4		Classification of Users by pass type, usage activities, access zones
5		Classification of Vehicles by pass type, usage activities, access zones
6		Report on Vehicles associated by Drivers & Cleaners
7		Report of pass issued in by day, week, month, year, as well as by gates.
8		Graphical view of all the reports summary
9		Detailed report pass issue activities by Gate, by Period, by Operator
10		Summarized report of pass issue activities by Gate, by Period, by Operator
11		Reports providing anomalous activities at the gate
12		Report providing time spent by each and every man & vehicle
13		Report providing areas visited by individuals & vehicles
14		Report detailing overstay by individuals & vehicles
15		Report detailing additional movement by Individuals &

Sr. No.	Module	Features
		Vehicles beyond a defined threshold
16		Report classifying internal and external vehicle movements
17		Report on pass payment collections and reconciliation
18		Provision to check complete details of vehicle or individual on handheld System
19		Provision to transfer data to Port servers on real-time or scheduled basis
<b>J</b>	<b>Gate Interface Module</b>	
		Gate Barrier Interface Module
1		Flap & Turnstile Interface Module
2		License Plate Capture Camera Integration Module
3		Display Unit Controller
4		AVI Interface Module
5		User Photo Capture Interface Module
6		Container Reader & 3D Capture Interface Modules
7		Handheld Terminal for Mobile Spot Checking as well as speedy movement at the gates
<b>K</b>	<b>Control Room &amp; 24/7 Monitoring</b>	
1		Summarized dashboard
2		Real-time Data updates and Visuals
3		Anomaly & Policy Break Reporting
<b>L</b>	<b>Backup, Archival &amp; Retrieval Management</b>	<ul style="list-style-type: none"> <li>❖ Backup server for record keeping</li> <li>❖ Regular synchronization with front-end server</li> <li>❖ Historical data keeping for audit trail</li> <li>❖ Fallback server</li> <li>❖ Doubles up as load balancing server</li> <li>❖ Distributed Architecture</li> <li>❖ High Availability Master Database</li> <li>❖ Archival &amp; Retrieval System</li> </ul>

Sr. No.	Module	Features
		❖ Backup & DR
<b>M</b>	<b>Policy Framework &amp; Rules Engine</b>	Configurable policy framework and rules engine  Simplified Approval System with Email, SMS, & Mobile alerts to Scrutinizer
<b>N</b>	<b>Integration APIs</b>	<ul style="list-style-type: none"> <li>• 3 level comprehensive APIs to connect to various existing &amp; future integrations</li> <li>• XML &amp; Web service based open interfaces</li> </ul>
<b>0</b>	<b>Equipment &amp; Asset Tracking Module</b>	<ul style="list-style-type: none"> <li>• Provision to get real-time visibility of assets &amp; equipment in the port premises under surveillance</li> <li>• Provision to identify asset or equipment on a 2D or 3D layout</li> <li>• Provision to track assets &amp; equipment over longer distances</li> <li>• Provision to track multiple assets with conflict resolution</li> <li>• Provision to search all, one, or many assets on a single screen</li> <li>• Provision to search by individual attribute or entire set of attribute</li> <li>• Provision to save search results on a CSV, Excel,</li> </ul>
		<p>PDF, Print, or Copy</p> <ul style="list-style-type: none"> <li>• Multi-paging of results</li> <li>• Dashboard of summary of assets &amp; equipment and their status</li> <li>• Provision to add, delete, edit assets &amp; equipment</li> <li>• Provision to add unlimited features to an asset or equipment</li> <li>• Provision for bulk import &amp; export</li> <li>• Provision to assign assets to department, person, role, etc.</li> <li>• Provision for individual user to login and check the status of the assets assigned to them</li> <li>• Provision to request for asset assignment, return, repair, etc.</li> <li>• Provision of Comprehensive asset &amp; equipment lifecycle management</li> </ul>



<b>P</b>	<b>Image Processing</b>	<ul style="list-style-type: none"> <li>• Offline comparison of man, material images captured by cameras</li> <li>• Alerts when images are not consistent</li> <li>• Comparative results and anomaly reports</li> </ul>
----------	-------------------------	--

### Access Controller Specifications

<b>Sr. No</b>	<b>Particular</b>
1	The networked gate controller shall provide access control processing, host functionality and power for a single gate, including reader, lock, gate status, request-to-exit device and auxiliary sounder.
2	The networked gate controller shall accept Wiegand output card readers and card formats up to 128 bits in length.
3	The networked gate controller shall provide a complete, fully featured access control hardware and firmware infrastructure for host-based access control software applications.
4	Receives and processes real-time commands from the host software application while reporting all activity to host configurable across a minimum of 255 activity priorities.
5	The networked gate controller shall communicate with hosted access control software using TCP/IP protocol over Ethernet or Internet.
6	Supports Power Over Ethernet (PoE) enabling cost-effective installation utilizing existing network infrastructures.
7	The networked gate controller shall be capable of deploying AES 256 with symmetrical key encryption for all communications between the controller and host(s) system(s).
8	The networked gate controller shall be capable of supporting custom encryption ciphers implemented using libtomcrypt open source cryptography mechanisms for all communications between the controller and host(s) system(s).
9	The networked gate controller shall support 802.1X authentication.
10	The networked gate controller shall provide full distributed processing of all access control functions. The unit shall provide fully functional off line operation when not actively communicating with the host access control software application; performing all access decisions and event logging. Upon connection with the host access control software application, the networked gate controller or networked controller/reader shall upload all buffered off-line transactions (minimum of 99,999) to the host software.
11	The networked controller shall be capable of supporting cardholder databases of 125,000 cardholders (without database changeover) and 62,500 cardholders (with database changeover).
12	The networked gate controller shall incorporate a 32-bit 200 MHz ARM9 processor running the Linux operating system

13	The networked gate controller shall not be a proprietary product of the manufacturer of the host access control software application, and must have the ability to migrate to an alternative manufacturer's host access control software application by remote reconfiguration or firmware upgrade and without intervention from the original controller manufacturer. A dual partitioning file system enables online firmware downloads.
14	The networked gate controller shall provide diagnostics and configuration operations through connection to a local laptop computer. Installation webpages shall be interfaced using HTTPS and provide abilities to set product security including encryption keys.
15	Flexible Input / Output Linking engine that enables the status of any input to be linked to any output. In addition, any predefined group of outputs can reflect the status of the input in one of the following ways: <ul style="list-style-type: none"> <li>a. Track with the input status.</li> <li>b. Reverse track.</li> <li>c. Latch.</li> <li>d. Reverse latch.</li> <li>e. Latch for a configurable time period.</li> </ul>
16	Utilizes on-board jumpers to select 12 or 24 VDC power to locks and AUX output when powering device over PoE or 24 VDC.
17	The networked gate controller shall provide on-board Flash memory to allow program updates to be downloaded directly via the network. The networked gate controller or network controller/reader shall provide the following minimum memory: <ul style="list-style-type: none"> <li>a. 128 MB on-board Flash memory</li> <li>b. 64 MB RAM</li> </ul>
18	The networked controller input/outputs shall be expandable to a total of 16 inputs and 6 outputs utilizing modular plug-in IO interface devices all operating on a Hi-O CAN bus backbone
19	The networked controller controls a single access and up-to 2 readers for in/out reading. Readers can be either a Hi-O compliant (attached directly to Hi-O CAN bus backbone) reader or Wiegand attached via a Hi-O compliant Wiegand interface module.
20	Provides three implementations of anti-passback and area control, including timed, hard and soft control.
21	Provides locally controlled multi-man feature that includes schedule dependent access for a definable number of groups and multi-man sequences tied in with anti-passback.

	Alarms are triggered when sequencing fails.
22	Supports host lookup on card numbers in cases where cardholder capacity is reached or in high security threat level scenarios where host controls limited access.
23	<p>The networked gate controller shall provide the following certifications:</p> <ul style="list-style-type: none"> <li>a. UL294 Listed Access Control Unit</li> <li>b. UL1076 Recognized Proprietary Burglar Component</li> <li>c. CSA 205</li> <li>d. FCC Class A</li> <li>e. ICES-003 Class A</li> <li>f. CE Mark: ENEN 301 489-3, EN 55022, EN 50130-4, IEC 60950-1</li> <li>g. C-Tick AS/NZS CISPR22</li> <li>h. KCC</li> <li>i. EMC Directive 2004/108/EC</li> <li>j. LVD 2006/95/EC</li> </ul>
24	<p>The networked gate controller shall meet the following physical specifications:</p> <ul style="list-style-type: none"> <li>a. Dimensions: 6.1" W x 4.8" H x 1.5" D (154.9 mm x 121.9 mm x 36.3 mm)</li> <li>b. Weight: 11.3 oz (320 g)</li> <li>c. Cover Material: UL94 Polycarbonate</li> <li>d. Power Requirements DC Input (MAX): <ul style="list-style-type: none"> <li>1. Using PoE input power is 14.4W</li> <li>2. Using +12VDC AUX input power is 18W</li> <li>3. Using +24VDC AUX input power is 36W</li> </ul> </li> <li>e. Temperature: 32° to 122° F (0° to 50° C)</li> <li>f. Humidity: 5% to 95% relative, non-condensing</li> <li>g. Visual Indicators on Ethernet connector: <ul style="list-style-type: none"> <li>1. Network Activity LEDs</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>h. Communication ports and connectors: <ul style="list-style-type: none"> <li>1. RJ-45 connector for Ethernet TCP/IP (10/100baseT)</li> <li>2. Wiegand/Clock-and-Data reader data port</li> <li>3. Total system power output (MAX) <ul style="list-style-type: none"> <li>a. PoE input power: 9.6W</li> <li>b. 12VDC input power: 14.4W</li> <li>c. 24VDC input power: 28.8W</li> </ul> </li> <li>4. Gate position input with programmable End of Line supervisory capability up to 6K Ohm.</li> <li>5.1 Request to exit (REX) input with programmable End of Line supervisory capability up to 6K Ohm.</li> <li>5.2 Non-latching configurable gate lock output relay <ul style="list-style-type: none"> <li>a. Unpowered (Dry) contact rated 2A @ 30VDC</li> <li>b. Powered (Wet) contact rated for up to: <ul style="list-style-type: none"> <li>i. PoE input power: 6.9W (12VDC) or 8.6W (24VDC)</li> <li>ii. 12VDC input power: 8.4W (12VDC)</li> <li>iii. 24VDC input power: 8.4W (12VDC) or 16.8W (24VDC)</li> <li>iv. Note: The overall system power cannot be exceeded.</li> </ul> </li> </ul> </li> <li>7. Non-latching alarm annunciation output relay <ul style="list-style-type: none"> <li>a. Unpowered (Dry) contact rated 2A @ 30VDC</li> <li>b. Powered (Wet) contact rated for up to: <ul style="list-style-type: none"> <li>i. PoE input power: 6.9W (12VDC) or 8.6W (24VDC)</li> <li>ii. 12VDC input power: 8.4W (12VDC)</li> <li>iii. 24VDC input power: 8.4W (12VDC) or 16.8W (24VDC)</li> <li>iv. Note: The overall system power cannot be exceeded.</li> </ul> </li> </ul> </li> <li>8. 12VDC, 24VDC or PoE Power input</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>9. Tamper input (Can have a built-in additional external tamper)</li> <li>10. AC Power Fail input (Can be configured for general purpose use)</li> <li>11. Battery fail input (Can be configured for general purpose use)</li> <li>i. Cable Distances: <ul style="list-style-type: none"> <li>1. TCP/IP: 328 feet (100m) using CAT 5 cable</li> <li>2. Wiegand: 500 feet using 9-conductor stranded, overall shield 22 AWG cable (Alpha 1299C)</li> <li>3. Input circuits: 500 feet using 2-conductor shielded 22AWG cable (Alpha 1292C) or 18AWG cable (Alpha 2421C)</li> <li>4. Output circuits: 500 feet using 2-conductor 22AWG cable (Alpha 1172C) or 18AWG cable (Alpha 1897C)</li> </ul> </li> </ul>
25	The networked gate controller shall be warranted against defects in materials and workmanship for 18 months
26	Network discovery and update tools shall enable the discovery and queued update of multiple controllers on the network.

## Contactless RFID Reader Specifications

Sr. No.	Particular
1	The contactless smart card reader(s) shall be designed to securely read, interpret, and authenticate access control data from 13.56 MHz contactless smart card credentials
2	Customized security protection through support of the device-independent portable credential methodology to provide enhanced security and performance features
3	Unique read selection that enables reading of the Secure Identity Object™ (SIO) and standard technologies
4	Participates in an advanced, bounded and trust-based security system
5	Guaranteed compatibility to read all data formats and ensuring card-to-reader interoperability in multi-location installations and multi-card and reader populations
6	Backwards compatibility with legacy 13.56 MHz contactless smart card access control formats (E.g. 26-bit, 32, 35-bit, 37-bit, 56-bit,etc). Compatibility across the product line shall be assured without the need of special programming
7	The contactless smart card reader shall be Secure Identity Object™ (SIO) enabled. The contactless smart card reader platform shall support the standards-based, device-independent Security Identity Object™ (SIO) portable credential methodology to ensure data authenticity and privacy. The SIO shall be able to reside on any number of identity devices, including iCLASS SE, MIFARE Classic SE, and MIFARE DESFire EV1 SE credentials
8	The contactless smart card reader shall be a certified end-point (TIP Node) within a Trusted Identity Platform™ (TIP) infrastructure. TIP shall provide a scalable, on-demand, secure identity delivery system that validates, registers and provides lifecycle management support for certified trusted end-point contactless smart card readers
9	The contactless smart card reader shall increase security by narrowing the possibility of unwanted configuration changes and denials of service. The contactless smart card reader shall utilize TIP-enabled secure configuration of contactless smart card readers with counters and uniquely diversified configuration cards
10	The contactless smart card reader shall utilize Secure Element Technology™ to protect keys and cryptographic functions to the international standard Evaluation Assurance Level (EAL) 5+.
11	The contactless smart card reader shall be configurable to utilize Velocity Checking to provide breach resistance against electronic attacks that invoke multiple improper authentication attempts
12	The contactless smart card reader shall be configurable to provide multiple hierarchical degrees of key compatibility for accessing the smart card access control data.
13	The contactless smart card reader shall simplify troubleshooting through Anti-passback Notification that the card has already been processed and it

	must be removed from reader field temporarily prior to processing again
14	The contactless smart card reader shall provide enhanced user feedback options through the use of clear and bright tri-colored LEDs configurable to support any three color combinations (RGB - Red, Green, and Blue).
15	The contactless smart card reader shall enable backwards compatibility with legacy 13.56 MHz access control formats (E.g. 26-bit, 32, 35-bit, 37-bit, 56-bit, and others).
16	The contactless smart card reader manufacturer shall provide global, off-the-shelf availability.
17	Contactless smart card reader shall allow the reader firmware to be upgraded in the field without the need to remove the reader from the wall through the use of factory-provided Programming Cards
18	Contactless smart card reader shall allow for secure installation practices through mounting methods utilizing tamper resistant screws
19	<p>Contactless smart card reader shall provide the ability to transmit an alarm signal via and integrated optical tamper switch if an attempt is made to remove the reader from the wall. The tamper switch shall be programmable to provide a selectable action to provide a selectable action compatible with various tamper communication schemes provided by access control panel manufacturers. The selectable action shall include one of the following:</p> <ol style="list-style-type: none"> <li>1. The reader open collector line changes from a high state (5V) to a low state(Ground).</li> <li>2. During a tamper state, the “I’m Alive” message is inverted.</li> </ol>
20	Contactless smart card reader shall provide ability of an on-line “I’m Alive” message so the reader’s functional health can be monitored at all times when paired with a compatible access control panel
21	<p>The contactless smart card reader shall provide customizable reader behaviour options either from the factory, or defined in the field through the use of pre-configured command cards. Reader behaviour programming options shall include:</p> <ol style="list-style-type: none"> <li>1. Audio/Visual Templates for card reads, and attack detection.</li> <li>2. Velocity Check timing and thresholds</li> <li>3. Optical tamper actions</li> <li>4. RF scan delay</li> <li>5. Hold Mode</li> <li>6. Intelligent Power Management</li> <li>7. Key diversifiers</li> <li>8. Key rolling</li> <li>9. CSN output configuration</li> <li>10. Data Model prioritization</li> <li>11. Default LED colour</li> <li>12. Hold mode</li> </ol>
22	<p>Contactless smart card reader shall provide the following programmable audio/visual indication:</p> <ol style="list-style-type: none"> <li>1. An audio beeper shall provide various tone sequences to signify: access granted, access denied, power up, and diagnostics.</li> </ol>

	2. A high-intensity red/green/blue (RGB) light bar shall provide clear visual status. The light bar shall provide uniform distribution of light eliminating individual bright spots
23	<p>Contactless smart card readers shall provide the following enhanced performance features</p> <p>a. The contactless smart card reader shall enable user prioritization of High-frequency/High-frequency credential reads. Technology prioritization shall synchronize a site's credential technology read priority to the access panel configuration while reducing unintended credential reads.</p> <p>b. The contactless smart card reader shall have the ability to provide consistent optimal read range by implementing an auto-tune function that adjusts for manufacturing tolerances to enhance consistency of performance from reader to reader.</p> <p>c. The contactless smart card reader shall be field programmable to provide secure upgrades for migration and extended lifecycle.</p> <p>d. The contactless smart card reader shall be designed as a system to provide optimal read range and read speed for increased access control throughput.</p>
24	<p>Contactless smart card reader shall provide enhanced environmental and sustainability features.</p> <p>a. The contactless smart card reader shall reduce power consumption by as much as 75% through the use of Intelligent Power Management (IPM) technology.</p> <p>b. The contactless smart card reader shall be manufactured with 10% recycled material to provide the potential of LEEDS building credits in new construction projects.</p> <p>c. Contactless smart card reader shall be fully compliant with Restriction of Hazardous Substances directive (RoHS) restricting the use of specific hazardous materials found in electrical and electronic products. The substances banned under RoHS are lead (Pb), mercury (Hg), cadmium (Cd), hexavalent chromium (CrVI), poly brominated biphenyls (PBB) and poly brominated diphenyl ethers (PBDE).</p> <p>d. Contactless smart card reader shall be manufacturers with 10.5% (Pigtail) and 11% (Terminal Strip).</p>
25	<p>Contactless smart card reader shall comply with the following 13.56MHz-related standards to ensure product compatibility and predictability of performance:</p> <p>a. ISO 15693</p> <p>b. ISO 14443A</p> <p>c. ISO 14443B</p>
26	<p>Contactless smart card reader shall be suitable for global deployment by meeting worldwide radio and safety regulatory compliance including:</p> <p>a. UL294 (US)</p> <p>b. cUL (Canada)</p> <p>c. FCC Certification (US)</p> <p>d. IC (Canada)</p> <p>e. CE (EU)</p> <p>f. C-tick (Australia, New Zealand)</p>



	g. SRRC (China) h. MIC (Korea) i. NCC (Taiwan) j. iDA (Singapore)
27	Contactless smart card reader shall provide the following typical contactless read ranges: a. 2.8" (7.1 cm) reading SIO on iCLASS SE Card b. 1.6" (4.1 cm) reading SIO on MIFARE DESFire EV1 SE Card c. 2.6" (6.6 cm) reading SIO on MIFARE Classic SE Card d. 1.5" (3.8 cm) reading SIO on iCLASS SE Tag or Fob e. 1.2" (3.0 cm) reading SIO on MIFARE Classic SE Tag or Fob
28	Operating voltage: 5 – 16 VDC, reverse voltage protected. Linear power supply recommended
29	Current requirements and power consumption:  1. 45 mA (Standard Power Mode) 2. 25 mA (Intelligent Power Management Mode) 3. 75 mA (Peak Current Draw) 4. 0.7 W (Standard Power Mode @ 16VDC) 5. 0.4 W (Intelligent Power Management Mode @ 16VDC)
30	Material: UL94 Polycarbonate
31	Operating temperature: -31 to 150 degrees F (-35 to 65 degrees C)
32	Operating humidity: 5% to 95% relative humidity non-condensing
33	Storage Temperature: -67 to 185 degrees F (-55 to 85 degrees C)
34	Weatherized design suitable to withstand harsh environments with a certified rating of IP55
35	The contactless smart card reader shall provide a lifetime warranty against defects in materials and workmanship

## CONTACTLESS HIGH SECURITY RFID CARD Specifications

	<b>CONTACTLESS HIGH SECURITY SMART CARD</b>
1	The contactless smart card shall function as an access control card, used with access readers to gain entry to controlled portals and to hold identification information specific to the use.
2	The contactless smart card shall be a passive device, with an operating frequency of 13.56 MHz, and shall meet the following ISO/IEC standards: 7810, 7816 and contactless cards (14443 A). Generic command set should be based on ISO/IEC 7816-4.
3	The card shall be available as a single RFID solution designed for interoperability with 13.56 MHz readers or optionally in dual technology in conjunction with a 125 KHz proximity interface.
4	A presentation within the typical maximum read range of 3-4" to the access control reader shall result in an exact reading of the card.
5	The card shall offer a memory size of 8K-Bytes or 16K-Bytes for applications.
6	<p>The contactless smart card shall meet the following physical characteristics:</p> <ul style="list-style-type: none"> <li>a. Dimensions, per ISO/IEC 7810 (ID-1 format): 2.127" x 3.375" x 0.033" (5.40 cm x 8.57 cm x 0.084 cm).</li> <li>b. Weight: 0.20 oz. (5.5 g).</li> <li>c. Material and construction: Composite card materials. Card surface shall be glossy and of a material compatible with direct to card dye-sublimation or thermal transfer printing. Card construction shall meet durability requirements of ISO 7810.</li> <li>d. The card shall be marked with an external ID number, either in inkjet or laser-etched numbering that may match the internal programmed ID number.</li> <li>e. Optionally, the card may contain a magnetic stripe (with support for up to 3 tracks, Hi-Coercivity or Lo-Coercivity).</li> <li>f. Optionally, the card may be printed with custom graphics, may be built to a custom thickness and may contain security and anti-counterfeiting features.</li> </ul>
7	<p>Contactless smart card shall meet the following environmental specifications:</p> <ul style="list-style-type: none"> <li>a. Operating Temperature: -40oF to 158oF (-40oC to 70oC).</li> <li>b. Operating Humidity: 5% to 95% relative humidity non- condensing.</li> </ul>
8	The warranty of contactless smart cards shall be lifetime against defects on material.
9	All cryptographic algorithms, modes of operation, protocols and mechanisms used by the card shall be based on open standards (such as ISO/IEC, NIST, IEEE, EN, ETSI) and not subject to any patents or royalty payments.
10	The smart card shall support ISO/IEC 14443 specifications parts 1-4 (with communication type A) and exposes a random UID. It can be programmed with different card data formats (with variable length) including standards-based and secure Data Object credentials.
11	The card shall be available as a single RFID solution or dual technology in conjunction with a 125 KHz proximity interface.

12	The card shall be loaded with an application that leverages existing standards for maximum interoperability and heightened protection against attacks.
13	Programmable platform: The card shall use a microprocessor to support post-issuance update in the field and support retrieval of protected data formats. The card shall be ready to support future applications.
14	The card shall be programmable with one or more Secure Identity Objects (SIO) for each application.
15	The card shall support secure messaging compliant with ISO/IEC 7816-4:2005, Section 6 (Secure Messaging).
16	All contactless communications shall be secured by a secure messaging established after mutual authentication between the card and the off-card application. Each secure session relies on diversified AES keys that are setup at the start of each session. Keys are AES-128 bit. The secure messaging is based on European Standard EN14890-1 as well as ISO/IEC 7816-4.
17	For security risk remediation and protect efficiently against common attacks, the security level of the card including its cryptographic stack/key size shall be upgradable through an application update.
18	The card shall support efficient privacy protection to ensure that personally identifiable information or cards identifiers (such as contactless UID, key diversifier) are not accessible & cannot be retrieved by unauthorized parties. To prevent sequence replay or cloning, transmitted secrets or previously transmitted identifiers are not revealed in the clear to the off card application.
19	The card shall cover use cases combining physical and logical access supporting OTP – One Time Password – generation functionality based on OATH algorithm.
20	The card shall support multiple applications as part of the available memory. Each application can be loaded with different data set and memory size.
21	The card shall support adding or removing applications after the card has been issued, with full support for data integrity and consistency and confidentiality of any secrets such as authentication keys contained in the applications. The application management commands shall be based on ISO/IEC 7816-13:2007.
22	The card shall include multi-application support for on-card database application with a firewalled architecture (to ensure data separation between applications). To increase return on investment, the default application can be updated to support other services without card replacement.
23	The card application (command/response set) shall be based on ISO/ IEC 7816-4 (no proprietary command is accepted to ensure maximum interoperability).
24	The card memory shall guarantee a data retention of 20 years; Card data integrity and consistency shall be preserved at all time during the life span of the card.
25	<b>Communication:</b> The card shall be fully compliant with the ISO/IEC Standard "Identification cards / Contactless Integrated Circuit Cards / Proximity card" (ISO/IEC 14443 Parts 1 to 4). The compliance with the requirements of the ISO/IEC 14443 shall be tested against the standard test procedures as specified in ISO/IEC 10373-6:2011 including those specified in Annex G.
26	All commands and responses defined by the card shall be compliant with the syntax of command-response pairs as defined in ISO/IEC 7816-4:2005, Section 5.1 (Command-response pairs).

27	<b>Data Organization</b> The organization of all data on the card shall be based on ISO/IEC 7816-4:2005, Sections 5.2 (Data Objects) and 5.3 (Structures for applications and data). The encoding of data shall be BER TLV, compliant with ISO/IEC 7816-4:2005 Section 5.2.2 (BER-TLV data objects)
28	The card shall ensure that all operations available by the card command set can be interrupted at any time without any impact on the integrity and consistency of the card data. This mechanism must be fully implemented in the card and shall not require any special functionality from the reader or terminal.
29	<b>Security architecture</b> The card shall support authentication methods compliant with ISO/IEC 7816-4:2005, Section 7.5 (Basic Security Handling). The actual authentication protocol shall be one of the standard authentication protocols defined in ISO/IEC 24727-3:2008 Annex A. The card shall be fully compliant with ISO/IEC 11770-2.
30	The card shall fully align with NIST recommendations: Solution has to implement NIST approved mode of operations and cryptographic recommendations from NSA Suite B.
31	Card key diversification shall rely on approved method from NIST SP800-108.
32	The card shall protect the privacy of the holder of the card. As minimum privacy measures, the card shall:
33	Not reveal any static value which is either unique for a single card or can be considered unique in a typical population of cards in a given system, without a prior authentication (proxy tracking)
34	Prevent any profiling of the card holder without the knowledge of secrets specific to a card
35	<b>Application management</b> The selection of applications shall be based on a standards based name space, so that the application names can be globally unique and managed by multiple independent entities. The top of the name hierarchy shall be managed by an independent international standards body (such as ISO or ITU-T) and the name structure shall allow delegation of name management at multiple levels of hierarchy.

### Automatic Gate/Boom Barrier specifications:

S.No.	Item	Description
1	Application	Outdoor
2	IP Rating	54
3	Housing	<b>Barrier Housing Unit:</b> Powder Coated <b>Boom:</b> Powder Coated White RAL 9010 with Red reflective strips.
4	Housing Dimension	Modular
5	Housing Material Of Construction	All Aluminum Housing with Base frame in SS-304 for high protection against corrosion.
6	Protection	All Housing and internal parts will be rust & corrosion free metals or alloys of high strength with suitable Epoxy coating as applicable.
7	Housing Dimension (W X D X H)	300mm X 245mm X 920mm
8	Boom Specifications	The Booms shall be extruded aluminum with octagonal profile (straight and articulated) 100mm. X 55mm. X 1.6 mm. shall be the structure of the profile. The Octagonal Profile shall offer stability against winds & better view when compared to Round & Rectangular profiles.
9	Intelligence	The barrier shall use a Blockable <b>DC High Torque</b> Drive in combination with CAN bus communication standard interfaced Controller. It shall offer LCD Display & Graphic User Interphase for easy control setting. Possibility for integration via standard user interphases. In built Loop Detectors
10	Motor	24 V DC Motor
11	Compliance & Safety	<ul style="list-style-type: none"> <li>• Compliance to CE.</li> </ul> <b>Adherence to Safety Requirements of the</b> <ul style="list-style-type: none"> <li>• EMC Directive 2004/108/EC,</li> <li>• Low Voltage Directive 2006/95/EC and</li> <li>• The basic requirements of the Machinery Directive 2006/42/EC</li> </ul>
12	Power Supply	230+/- 10% VAC, 50 Hz.
13	Maximum Power Consumption	110 Watts during startup and 25 Watts at peak operation
14	Opening & Closing Time	4Secs. for 3.5 – 6 meter Boom Barrier, 1.3 Sec for upto 3.5 meter Boom Barrier
15	Safety	S/W for Detection of Presence of Vehicle in Loop with in-built loop detector or in the path of Infrared Safety Sensors available. Loops or Sensors to be used to prevent barriers from closing on the vehicle.
16	Duty Cycle	100%
17	Integration	Shall function in integration with Smart cards, proximity reader based access control systems etc

18	Performance Requirement	MCBF- 10 Million Cycles MTBF- 50,000 Hours MTTR- 30 Minutes
19	Certification	UL Listed

### Flap Barrier Specifications:

S.No	Item	Description
1	Application	Indoor
2	Drive Technology	The Combination of a Brush-less DC Motor with in-built resolver shall make it a Drive with no wear & tear components. Additionally the absence of limit Switches & Slip Clutches shall provide trouble free operation w/o the need for constant maintenance.
3	Gate/Barrier Controller	Micro Processor Based <u>Motor Controller</u> shall have in-built Speed control and Dynamic Braking Features. Micro Processor Based <u>Barrier Controller</u> with Logic for Motor, Safety Sensors and Lane Indicators.
4	Throughput	25 to 30 persons per minute (excluding card validation time)
5	Operation	Bi-directional
6	Housing Dimension	<b>Regular Lane</b> : L 1300mm x W 250mm x H 1035mm <b>Wide Lane</b> : L 1300mm x W 280mm x H 1035mm with <u>Telescopic Flap</u>
7	Lane Width	<b>Regular Lane</b> : 520mm <b>Wide Lane</b> : 900mm
8	Flaps	<b>Regular Lane</b> : Soft Wing with metal reinforcement/Acrylic Flaps <b>Wide Lane</b> : Telescopic Soft Wing with metal reinforcement
9	Power Supply	230+/- 10% VAC, 50 Hz.
10	Finish	Mild Steel Powder Coated in Structured Finish / Stainless Steel finished to Grade 4 also known as Satin Finish.
11	Protection	All Housing and internal parts will be rust & corrosion free metals or alloys of high strength or with suitable epoxy coating
12	Power-Off / Emergency	Fail Safe Mode - Flaps shall Automatically Open during Power Failure. Also can be configured for Flaps to remain closed during power failure.
13	Safety	Soft flaps & the use of Brush-less DC motor for very quick reversibility and enhanced pedestrian safety
14	Duty Cycle	100%

15	Ingress Protection	IP 32
16	Braking	Dynamic Braking for smooth resting of flaps.
17	<b>MCBF</b> –Mean Cycle Between Failures	10 Million Cycles, Certification to be provided by the OEM
18	Integration	Shall function in integration with Smart cards, proximity reader based access control systems, Bio-metric systems etc.

#### License Plate Capturing Camera Specifications:

Sr. No.	Parameter	Particular
1	Pre-built ANPR/LPR system	ANPR camera, Controller, ANPR Software
2	Camera Resolution (H × V pixels)	1280 × 720
3	Sensor	Color, Progressive scan CCD 1/3"
4	Max frame rate (at full resolution)	30 frames/sec
5	Filter Switchable:	All pass / IR cut above 850 nm
6	Video output format	JPEG, MJPEG stream, H264
7	Exposure Control	Global shutter, software adjustable 1/100 s – 1/30000 s
8	Communication interface	100 Mbit/sec Ethernet
9	Communication protocol	ARP, ICMP, TCP/IP, DHCP, NTP, FTP, HTTP, SMTP, RTP
10	JPEG compression	Adjustable between 10 % – 80 %
11	Light sensor	Configurable day/night mode switching
12	Internal Processor	1.6 GHz Intel Atom + N2600
13	Internal memory	1 GB DDR3 + 32 GB flash storage
14	Lens type	5.2 – 58.8 mm with high precision motorized positioning
15	Iris, Focus, Zoom	Automatic motorized, programmable focus, iris, zoom
16	Recommended range for ANPR	3 m – 20 m (10 feet – 65 feet)
17	Illumination Type	High power IR LED, regulated
18	IR wavelength	850 nm
19	Intensity	3 preconfigured modes (low, medium, high)
20	Flash time	Software adjustable, up to 950 μs

21	Input voltage	24 V – 28 V AC
22	Basic power consumption	14 W
23	Power consumption with heating	33 W
24	IP rating	IP 67
25	Housing, Shield Color	Aluminum, default color RAL 9007 / Optional custom
26	Startup temperature	Over -25°C (-13°F)
27	Operating temperature	-35 °C – 55 °C (-31 °F – 131 °F)*
28	I/O ports	Upto Isolated In/Out, RS232
29	Weight (without bracket)	5 kg (11 lbs)
30	Weight (bracket)	0.6 kg (1.32 lbs)
31	Software Operating system	Linux 64 bit
32	Software	Automatic recognition of vehicle license plates. A number plate recognition software for various intelligent traffic systems, security and any access control environments.
33	Neural network controller	Available Neural Controllers
34	Input	Still image from file or memory in any image format ( BMP   PNG   JPEG   JPEG2K   RAW ) Live analog video input (PAL or NTSC) Live digital camera input
35	Output	OCR data License plate number in ASCII/UNICODE text Position of the plate Confidence level in percentage Confidence levels for each characters List of further suggestions for each character Individual result for each plate on an image Color of plate (optional) Country ID (optional) Location of each plate on one image Trigger Can be integrated with any trigger device (recommended when recognizing from live image stream) Software motion detection module is included



**LED Display Specifications:**

Sr. No.	Parameter	Particular
1	Type	LED
2	Display Resolution	1366x768
3	Connectivity	1 x HDMI & 1 x USB
4	Screen Size	80 cm (32)
5	Refresh Rate	50Hz-100Hz

**Smart Card Printer Specifications**

Sr. No.	Parameter	Particular
1	Printing specifications	Single- or dual-sided printing
2	Standard features	100 card covered feeder (30 mil) <ul style="list-style-type: none"><li>• 45 card capacity output hopper (30 mil)</li><li>• 16-character LCD operator control display</li><li>• 300 dpi (11.8 dots/mm) print resolution</li></ul>
3	Communications Interfaces	USB V2.0
4	Optional Features	Built-in 10/100 Ethernet connectivity
5	Operating range	90-132VAC and 190-264VAC
6	Operating Temperature	60° F to 86° F (15° C to 30° C)
7	Storage Temperature	23° F to 131° F (-5° C to 55° C)
8	Auto-switching	single-phase AC power
9	Frequency range	47-63 Hz
10	Environmental Specifications	Printer should withstand high level of humidity and salty conditions
	Print speed	180 cards per hour

### Label Printer Specifications

Sr. No.	Parameter	Particular
1	Speed (Mono/Colour)	Up to 24 ppm in A4 (25 ppm in Letter)
2	First Print Out Time (Mono/Colour)	Less than 17 sec (From Ready Mode)
3	Print Size	A4 / Letter / Legal / Oficio / Folio / JIS B5 / ISO B5 / Executive / A5 / Statement / A6 / Index Card Stock / Postcard / Envelope Monarch / Envelope No-10 / Envelope DL / Envelope C5 / Envelope C6 / Envelope No 9 / Custom
4	Print Type	Plain Paper / Thin Paper / Thick Paper / Cardstock / Thicker Paper / Hole Punched / Transparency / Pre-Printed / LetterHead / Recycled / Archive / Bond / Label / Envelope / Cotton / Coloured / Glossy
5	Memory / Storage	256 MB (Max 512 MB)
6	Monthly Duty Cycle	60,000 Images
7	Interface	High-Speed USB 2.0, Ethernet 10/100/1000 Base-TX High-Speed USB 2.0

### Database Specifications:

Sr. No.	Particular	
1	Highly performance reliable database with uptime	
2	High availability with redundancy & clustering	
3	Should support existing system & IT security rules and processes	
4	Should also support OS security services	
5	Database replication & migration should be real-time without affecting the operations	
6	The database should be highly scalable and should sustain incremental & peak loads over the operation period	
7	Minimum 300 concurrent connections support	
8	Performance should not degrade with significant incremental data each day	
9	Should be able to support both Windows &	

Sr. No.	Particular	
	Linux	
10	Should support audit trail and policy compliance of sensitive data	
11	Should support periodic & occasion backup and restore without having to hold the operations	
12	Both incremental & full back up to be supported	
13	Should have inbuilt alert mechanism to warn potential issues	
14	Crash recover mechanisms to be supported.	
15	Should be able to distribute data onto physical storage devices for record keeping	
16	Should support offline db setup and quick search for record keeping	
17	Relational Database Management System	

#### Gate Server Specifications:

Sr. No.	Parameter	Particular
1	Description	Continuous Availability Server solution with built-in Hot pluggable redundant modular components - Single Socket 4 core or higher
2	Processor	Intel® Xeon® processor E5-2620v2, 2.1 GHz, 15 MB Cache (per processor), Intel Hyper-Threading technology. Processors should be hot pluggable and should have redundancy.
3	Memory	32 GB memory. Should be redundant, Hot Pluggable and expandable to 64 GB
4	Drive Bays	8 * 2.5" SAS Drive Bay Hot pluggable with complete redundancy
5	Hard drives	2 * 1.2 TB 10K RPM SAS Disks. Should be redundant and Should support 200GB SSD for future expansion.
6	Optical Drive	DVD-RW
7	Expansion slots	Built in 2 * PCI-Express - should be redundant, Hot Pluggable

Sr. No.	Parameter	Particular
8	Graphics	One VGA port
9	Network	Usable 2 X 10/100/1000 Ethernet Ports. Both ports should be redundant and hot
10	I/O ports & Connectors	Pluggable. 1 * Active Service Network Modem, 1 * 10/100 Management Port 4 USB Port, 2 * 9 Pin Serial port
11	Input device	USB or PS/2 keyboard and mouse
12	Power supply	Hot plug and redundant power supply (230V @50Hz) unit.
13	Power	230 V @ 50Hz, Indian power cords to be supplied
14	Operating system	Microsoft Windows 2008 or Latest, VMWare 5.x or latest (Should be able to install in the same machine quoted). Pre-installed from OEM.
15	Software	<ul style="list-style-type: none"> <li>• System management software to monitor the system health at local console and over network.</li> <li>• Fault Detection and Isolation. Software feature should include capability of Callhome and order for spares on-line</li> <li>• The Software should offer Proactive availability management</li> </ul>
16	Support Services	<ul style="list-style-type: none"> <li>• Direct problem call logging with Manufacturer</li> <li>• Less than 4 business hours 8/5, Hardware Support Response directly from Manufacturer</li> <li>• Advance Part exchange</li> <li>• 24/7 Proactive ASN System Monitoring support Services directly from Manufacturer</li> </ul>
17	Mandatory Server Solution	<ul style="list-style-type: none"> <li>• Full data redundancy to be provided using proven technology (For both Disk Data and memory data)</li> <li>• The Server should have hardened drivers for OS and protect the system from transient</li> </ul>

Sr. No.	Parameter	Particular
		<p>errors</p> <ul style="list-style-type: none"> <li>• The solution offered should have Zero fail over time</li> <li>• The Server should have the capability to Remote Network Service and should be quoted with necessary Network modem</li> <li>• The server should offer minimum 99.999%</li> <li>• Should be able to able to install Microsoft Windows, Red Hat Linux, VMware on the same machine quoted / supplied</li> <li>• Server should mandatorily be able to connect to all leading external Storage seamlessly like IBM, HP, EMC, Netapp, Hitachi</li> </ul>
18	General	<ul style="list-style-type: none"> <li>• Scope includes supply &amp; installation</li> <li>• Give compliance statement for the above specifications</li> <li>• Bidder should attach the OEM technical literature of the proposed model</li> <li>• The bid should explain in detail how the OEM's proposed system achieves uptime and how it prevents down time of the Server in-spite of a component failure</li> <li>• The bid should explain in detail how the features mentioned above are made available in the proposed system</li> <li>• Bidder should furnish all necessary part codes including Service components from OEM's (Part Codes should be from OEM)</li> </ul>

### Server Specifications

Sr. No.	Parameter	Particular
1	Description	Continuous Availability Server solution with built-in Hot pluggable redundant modular components –Dual core socket each with 8 core or higher
2	Processor	Intel® Xeon® processor E5-2620v2, 2.1 GHz, 15 MB Cache (per processor), Intel Hyper-Threading technology. Processors should be hot pluggable and should have redundancy.
3	Memory	128 GB memory. Should be redundant, Hot Pluggable and expandable to 256 GB or higher excluding

Sr. No.	Parameter	Particular
		redundancy
4	Drive Bays	8 * 2.5" SAS Drive Bay Hot pluggable with complete redundancy
5	Hard drives	2 * 1.2 TB 10K RPM SAS Disks. Should be redundant and Should support 200GB SSD for future expansion.
6	Optical Drive	DVD-RW
7	Expansion slots	Built in 2 * PCI-Express - should be redundant, Hot Pluggable
8	Graphics	One VGA port
9	Network	Usable 2 X 10/100/1000 Ethernet Ports. Both ports should be redundant and hot
10	I/O ports & Connectors	Pluggable. 1 * Active Service Network Modem, 1 * 10/100 Management Port 4 USB Port, 2 * 9 Pin Serial port
11	Input device	USB or PS/2 keyboard and mouse
12	Power supply	Hot plug and redundant power supply (230V @50Hz) unit.
13	Power	230 V @ 50Hz, Indian power cords to be supplied
14	Operating system	Microsoft Windows 2008 or Latest, VMWare 5.x or latest (Should be able to install in the same machine quoted). Pre-installed from OEM.
15	Software	<ul style="list-style-type: none"> <li>• System management software to monitor the system health at local console and over network.</li> <li>• Fault Detection and Isolation. Software feature should include capability of Call home and order for spares on-line</li> <li>• The Software should offer Proactive availability management</li> </ul>
16	Support Services	<ul style="list-style-type: none"> <li>• Direct problem call logging with Manufacturer</li> <li>• Less than 4 business hours 8/5, Hardware Support Response directly from Manufacturer</li> <li>• Advance Part exchange</li> <li>• 24/7 Proactive ASN System Monitoring support</li> </ul>

Sr. No.	Parameter	Particular
		Services directly from Manufacturer
17	Mandatory Server Solution	<ul style="list-style-type: none"> <li>• Full data redundancy to be provided using proven technology (For both Disk Data and memory data)</li> <li>• The Server should have hardened drivers for OS and protect the system from transient errors</li> <li>• The solution offered should have Zero fail over time</li> <li>• The Server should have the capability to Remote Network Service and should be quoted with necessary Network modem</li> <li>• The server should offer minimum 99.999%</li> <li>• Should be able to able to install Microsoft Windows, Red Hat Linux, VMware on the same machine quoted / supplied</li> <li>• Server should mandatorily be able to connect to all leading external Storage seamlessly like IBM, HP, EMC, Netapp, Hitachi</li> </ul>
18	General	<ul style="list-style-type: none"> <li>• Scope includes supply &amp; installation</li> <li>• Give compliance statement for the above specifications</li> <li>• Bidder should attach the OEM technical literature of the proposed model</li> <li>• The bid should explain in detail how the OEM's proposed system achieves uptime and how it prevents down time of the</li> <li>• Server in-spite of a component failure</li> <li>• The bid should explain in detail how the features mentioned above are made available in the proposed system</li> <li>• Bidder should furnish all necessary part codes including Service components from OEM's (Part Codes should be from OEM)</li> </ul>

#### Digital web / camera Specifications

Sr. No.	Parameter	Particular
1	Camera type	Camera shall be Fixed color IR Bullet IP Camera
2	Image sensors	1 / 2.8 “ mm CMOS
3	Resolution	2 Megapixel-60 fps in 1920 x 1080

Sr. No.	Parameter	Particular
4	Lens type	3-9mm power zoom lens,F1.2
5	Day/night	Day//Night Mechanical cut filter
6	Light	Light:0.05 lux color and 0 lux with IR
7	IR distance	Built-in IR Light up to 30m
8	Video compression	H.264 (High Profile supported) / MJPEG
9	WDR	100dB
10	Card slot	MicroSDup to 32 GB
11	Audio	2-way audio with microphone input
12	Alarm	Alarm Input and alarm output
13	Power	POE / 12 V DC
14	Mounting	Suitable for Pole and Wall mounting
15	<b>Makes</b>	<b>Axis/Pelco/LG</b>

#### **Incident Capture Camera Specifications**

<b>Sr. No.</b>	<b>Parameter</b>	<b>Particular</b>
1	Camera Type	Charge Coupled Device (CCD)
2	Capturing	Color camera Image & Video
3	Lens	Fixed focal or varifocal Auto iris lenses
4	Vision Capabilities	Day & Night Vision
5	Lux	Min. 1.8Lux (Image & Video)
6	Surge & lightning protection	Required
7	Image compensation capability to ignore stray lighting / vehicle lighting	Required
8	Snapshot Capturing	Required
9	Camera Mounting	Pole/Wall/etc.
10	Camera Location	Direct sunlight and stray lighting is negated
11	Camera Protection	Resistant to high winds/salty/moisture/dust. IP-65
12	Automatic adjustment of brightness	Required



### Specifications of Industrial PC

1	Processor	Intel Core i5-3500 or Higher, 3.3 GHz, 6 MB L3 Cache
2	Graphics	Integrated HD Graphics
3	Memory	4 GB 1333 MHz DDR3 RAM with 16 GB Expandability.
4	Hard Disk Drive	1 TB 7200 rpm Serial ATA HDD.
5	Monitor	47 cm (18.5 inch) TFT/LED Digital Color Monitor TCO-05 Certified.
6	Keyboard	104 keys or better
7	Mouse	Optical Scroll Mouse
8	Ports	6 USB Ports (with at least 2 in front, minimum 2 USB 3.0), 1 Serial audio port for microphone and headphone in front.
9	DVD Drive	DVD R/W
10	Networking Facility	10/100/1000 on board integrated Network Port
11	Operating System	Windows 8 Professional (64 bit) preloaded with Certificate of Authenticity.
12	Warranty	Five years comprehensive onsite warranty

### Digital Signature Specifications

Sr. No.	Parameter	Particular
1	Pen Tablet to capture signatures & drawings to insert into documents & applications	
2	USB interface	
3	Cordless digital Stylus pen with pen-tip and two barrel buttons	
4	Dimensions: 305.5mm X 268.4mm X 10.5mm	
5	Minimum Work Area: 8X6 inches	
6	OS compatibility	
7	Suitable for port weather conditions	

### Label Specifications

Sr. No.	Parameter	Particular
1	Label	FASSON PP TOP WHITE C3-BG40WH
2	Dimensions:	Size of the card shall be equivalent to any credit card/Visa ISO- 7810 STANDARD (APPROX. 85 X 54 X 1.8 MM)
3	Print options	Barcode, Text, & Image printable

### RFID Transceiver Specifications

Sr. No.	Parameter	Particular
1	Read Range	13 meters
2	Antenna	Integrated, Built-In
3	Protocol	ISO18000-6C, EPC UHF Class 1 Gen 2. with optional Dense Reader Mode (Class 3 Gen 2 compliant)
4	Frequency Range	865-867 MHz
5	Polarization	Circular Polarization Antenna, choice of LHCP or RHCP
6	S203 Axial Ratio	Less than 0.5 - 1.0 dB
7	External Control	2 x GPO and 2 x GPI
8	Supports True DRM	Required
9	Operating Temp:	-20°C to 60°C (-4°F to 131°F)
10	Storage Temp:	-40°C to 85°C (-40°F to 185°F)

11	Humidity:	98% Non-condensing
12	Environment Protection	IP68 with all Weather and MIL-STD-810 Ruggedized
13	Shock	MIL-STD-810F Method 516.5 Procedure V, 75g, 6ms, 2 shocks per axis
14	Vibration	MIL-STD-810F Method 514.5 Category 24
15	Mechanical Impact Resistance	Free falling ball impacting test at 1 meter in height with weight of ball at 500 grams loads
16	Connectivity	Ethernet
17	Power Supply	DC supply (12 V, 2.5 A), or use POE+ (IEEE802.3at)
18	Weight	Max. 2 Kg
19	Physical Characteristics (LxWxH)	Max. 300 x 300 x 75 mm

### Handheld Transceiver Specifications

Sr. No.	Parameter	Particular
1	Read Range	8 meters
2	Read Rate	400 tags / second
3	Protocol	ISO18000-6C, EPC UHF Class 1 Gen 2 with optional Dense Reader Mode (Class 3 Gen 2 compliant)
4	Tag Information	All banks, any sizes; RSSI value
5	Frequency Range	865-867 MHz
6	Barcode Scanner	1D and 2D: Codabar, CodablockA and F, Code 11, Code 39, Code 93/93i, code 128/ISBT 128/UCC EAN 128/EAN.UCC composite, Industrial and Standard 2 of 5, Interleaved 2 of 5, Aztec, Data Matrix, (and all other Matrix type barcodes), MSI, PDF417/MicroPDF417, MacroPDF417 (unbuffered mode), Plessey, RSS, Telepen, TLC39, UPC/EAN/ISBN
7	Antenna Polarization	Option of vertically linear polarized, horizontally linear polarized or circular polarized
8	Operating Temp	-20°C to 50°C (-4°F to 122°F)
9	Storage Temp	-40°C to 75°C (-40°F to 167°F)
10	Humidity	5% to 95% Non-condensing
11	Ruggedized Designs	Drop test 1.5 meters on 6 sides; IP65
12	User Interface – Input	Full QWERTY keyboard, Touch Screen, Trigger Button
13	User Interface – Output	3.5 inch monochrome LCD, 320 x 240 pixels, LED x 2, Buzzer
14	Connectivity	Inbuilt Wi-Fi (802.11 b/g), USB, GPRS, RTLS

15	External Memory	SD Card, Standard SD and SDHC
16	Processor	400 MHz
17	Memory	128 MByte Flash, 64 MByte RAM
18	Battery Life	1.5 hours turbo read, 20 hours standby, field replaceable battery
19	Weight	Maximum 1 Kg
20	Physical Characteristics (LxWxH)	Max. 197 x122 x 223 mm

**Combo Gen2 UHF BAP + HF Tag**

Sr. No.	Parameter	Particular
1	EPC Gen2 UHF BAP tag and HF tag	Combined in one single ID card
2	Mode of Operation	Battery Assisted Passive
3	Direction	Omni-directional tags
4	Usage	Worn as a badge or carried in pockets, purses, briefcases, and billfolds.
5	Data Storage	Direct on Tag
6	Data Protection	Lockable data memory
7	Gen 2 UHF Read Range – Free Space	20 meters (60 feet)
8	Gen 2 UHF Read Range – Human Body	5 meters (16 feet)
9	HF Read Range	2.5
10	Standards	EPC BAP UHF: ISO 18000-6, EPC Class 3 Gen 2 HF: ISO 14443B, ISO 15693
11	UHF Memory	EPC BAP UHF: 96-bit EPC ID, 64-bit TID, 720-bit User Memory
12	HF Memory	2K-bit (256 Byte) / 16K-bit (2K Byte) / 32K-bit (4K Byte) user memory
13	Operating Temperature	-20°C to 60°C (-4°F to 140°F)
14	Operating Frequency	Global 860 to 960 MHz
15	Environment Protection	IP68
16	Dimensions	ID card standard size, 85 x 54 x 2.3 mm
17	Form factor	Direct printable card

Sr. No.	Parameter	Particular
18	Optional Features	Four color printing with optional hole punch.

#### Permanent Vehicle Tags

Sr. No	Parameter	Particular
1	Tag Design	Tamper-evident design as required by NHAI/MoRTH
2	Tag Certification	Automotive Research Association of India (ARAI)
3	Substrate	Translucent polyester with artwork and antenna printed on the same substrate. No multiple substrate layers glued together and no internal cuts.
4	Artwork	For windshield project's unique optional personalized graphic design printed with 3colors on the substrate.
5	Variable information	Variable information such as barcode or text is printed directly on the same substrate of the tag. Barcode can be of different formats.
6	Passive RFID Operation	RFID passive type
7	Flexibility	Flexible and Thin.
8	Protocol	ISO / IEC 18000-6C
9	Data	Up to 640 kbps data transfer rate. 32 Bit Access and 32 Bit Kill Passwords.
10	Sensibility	-14dBm in the UHF frequency band
11	Storage Temperature	-40°C to +100°C
12	ESD Voltage Immunity	+/- 3kV
13	Transferable	The tag should be nontransferable, ensuring that it cannot be removed and transferred to a different vehicle. The tag should stop working after it is removed from the vehicle and should leave evidence of detachment in both the tag and the windshield.
14	Security	The tag should include security micro text printing and the use of reflective pigments that change color under black light.
15	Data Protection	Password authentication to data.
16	Durability	Durability of at least five years from the delivery of materials and proper installation according to the installation instructions under normal environmental conditions.
17	IR and UV protection	Ultraviolet (UV) and infrared (IR) protection of the chip on both sides of the tag
18	Operating Frequency	865-867MHz
19	Memory	Minimum total memory chip 800-bits. Unique 64 bit

		Tag Identifier.
20	EEPROM	EEPROM write cycles to 100,000 cycles. EEPROM data retention of 5 years.
21	Operating Temperature	-40°C to +85°C
22	Relative Humidity	100% condensing

### UHF Container Tag

Sr. No.	Parameter	Particular
1	Container Tag	Long read range & high durability
2	Frequency	Passive UHF
3	Metal Interference	Suitable on, off, or near metal surfaces
4	Design	Rugged for long term use in out gate& industrial environments
5	Form Factor	Small & Compact
6	Protocol	EPC Class 1 Gen2
7	Frequency Range	860-940 (MHz)
8	Read Range with a Fixed Reader	12 meters
9	Read Range with Handheld reader	4 meters
10	Material Compatibility	Optimized for Metal
11	IC Type (chip)	Impinj Monza 4QT or Alien Higgs 3
12	Memory	EPC - 96bit, User - 512bits, TID - 64bits
13	Encasement	ABS Rigid Plastic
14	Operating Temperature	-40 ° to +85 °C
15	Long term Max Temperature exposure - (days, weeks, years)	+85 °C
16	Short term Max Temperature exposure - (minutes, hours)	+105 °C
17	Halt Thermal Cycling (20 ° to +85 °C Exposure Time)	250 Cycles
18	IP Rating	IP68
19	Shock and Vibration	MIL STD 810-F
20	Impact	10kg from 1m
	Attachment	Mechanical (std),Adhesive/Magnetic,Cable Tie
21	Certifications	RoHS, CE, ATEX/IECEEx, US&Canada (C1D1/D2)
22	Manufacturer Warranty	3 years
23	Size	Max. 110 x 25 x 12.85(mm)
24	Weight (g)	Max. 26

### UPS Specifications

Sr. No.	Parameter	Particular
1	Design	Online UPS
2	Full Load Power Supply Time	Min. 4 Hrs
3	Operating at input voltages	210/380Volts $\pm 10\%$ and 50 Hz $\pm 2.5$ Hz.
4	During intermittent interruption cycle	Continuously supplying power

## RFID Reader and Writer Specifications

S.No	Parameter	Particulars
1	Reader	USB-5EC
2	Development Kit	USB-5EC-DEVKIT
3	RFID Protocol Support	EPCglobal Gen 2 (ISO 18000-6C) with Anti-Collision and DRM
4	Antenna	Internal linear polarized antenna with peak Gain 1 dBi from 860–960 MHz
5	RF Power Output	Separate read and write levels (into the antenna) are command-adjustable from 10 dBm to 23 dBm (200mW), +/- 1.0 dBm accuracy
6	Frequency	Pre-configured for the following regions: FCC 902-928 MHz (Americas) ETSI 865.6-867.6 MHz, 869.85 MHz (EU) KCC 917-920.8 MHz (Korea) TRAI 865-867 MHz (India) ACMA 920-926 MHz (Australia) SRRC-MII 920-925 MHz (P. R. China) 'Open' (Customizable) 860-960 MHz
7	Physical	USB mini-B connector, with 2 foot (61 cm) cable terminated in A-type plug
8	Signaling	Asynchronous serial interface with 3.3/5V logic levels; baud rates from 9600 to 921,600 bps
9	I/O	Two I/O command controlled LEDs and two I/O command queried switches
10	Protocol	Command-response protocol protected by length field and 16-bit CRC
11	Dimensions (not including stand)	97 mm L x 61 mm W x 25 mm H (3.8 in L x 2.4 in W x 1.0 in H)
12	Regulatory	FCC 47 CFR Ch.1 Part 15 Industrie Canada RSS-21 0 ETSI EN 302 208 v1.4.1
13	Safety	IEC 60950-1 (ed.2) US-17650-UL
14	DC Power Required	DC Voltage: 5 VDC (Powered by USB interface) DC Power: 2.7 W (540 mA ) max Supplied interface cable terminates in two type-A plugs: one for power and signal, the second for additional power if needed
15	Idle Power Consumption	1.7 W max at idle (Power management modes can be used to reduce this to as little as 0.1 W)
16	Operating Temp.	Operating Temp. -20C to +60C
17	Storage Temp.	Storage Temp. -40C to +85C Architecture
18	User-accessible Flash	
	Memory	16 kB
19	Tag Buffer	200 Tags
20	Tag Read Rate	Up to 200 tags/second
21	Max Read Distance	Up to 3 ft (0.91 m) depending on tag sensitivity and orientation



## Wired Networking Specifications

Sr. No.	Parameter	Particular
1	General	<p>The switch should have 16 Gigabit Ports, and 4 Ports of GE for downlink and should be able to support 8 GE PoE/PoE+ Ports</p> <p>Each switch should have 4 combo (one SFP and one Copper ports with one port active at a time) uplink Gigabit ports in addition to downlink ports.</p> <p>Each switch should have Line Rate forwarding Rate for all ports</p> <p>The switch should have atleast 16000 Unicast MAC addresses and 1000 IGMP Multicast Groups</p> <p>Each switch should support atleast 1000 VLAN's and 4096 Vlan ID's</p> <p>Switch should have Redundant DC input voltage with operating range: nominal 9.6 to 60VDC</p> <p>Switch should have atleast 512MB DRAM and 128MB Flash Memory</p>
2	Layer 2	<p>The switch should support following Ethernet Standards : 802.3, 802.3x (flow control), 802.3ad (LACP), 802.1p, 802.1q</p> <p>The switch should support loop avoidance mechanism like 802.1d (spanning-tree), 802.1s (MSTP), 802.1w(RSTP), PVST or PVST+</p> <p>The switch should support Unidirectional Link Detection Mechanism to detect the failures of uplink port.</p> <p>The switch should support Per port enabling/disabling of unknown unicast/ multicast flooding</p> <p>The switch should support Layer 2 Multicast Features like IGMPv1, v2 and v3</p> <p>The switch should REP or equivalent as ring convergence mechanism.</p>
3	IPv6	<p>The switch hardware should be capable of supporting IPv6</p> <p>The switch should support following host based IPv6 features but not limited to IPv6 Addressing, IPv6 Option Processing, Fragmentation, ICMPv6</p> <p>The switch should support IPv6 applications like Ping, Traceroute, VTY, SSH, TFTP, SNMP</p> <p>The switch should support HTTP and HTTP (s) over IPv6</p> <p>The switch should support IPv6 Stateless Auto Config</p> <p>The switch should support IPv6 based Access Control Lists</p> <p>The switch should support SNMP over IPv6 and Syslog over IPv6</p>
4	Security	<p>The switch should have Port Security Mechanism with MAC Aging, Trunk Port Security and Port Security for Voice Vlan</p> <p>The switch should support 802.1x, 802.1x Guest Vlan, 802.1x Mac-Auth-Bypass Features</p> <p>The switch should support Secure Shell (SSH), TACAS+, RADIUS Server/Client</p> <p>The switch should support MAC Address Notification</p>

Sr. No.	Parameter	Particular
		<p>The switch should support BPDU Guard, Port Security.</p> <p>The switch should support DHCP Snooping, Dynamic ARP Inspection and IP Source Guard Mechanisms</p> <p>The switch should have Time Based ACL to control different policies at different times</p> <p>The switch should support Private VLAN's</p>
5	QoS	<p>The switch should support Ingress Policing and Ingress Rate Limiting of packets</p> <p>The Switch should support 802.1p Port Priority Mechanisms</p> <p>The switch should have Shaped Round Robin and Weighted Tail Drops mechanisms</p> <p>The switch should support DSCP Mapping and DSCP Filtering mechanisms.</p> <p>The switch should also support Auto Qos</p>
6	Multicast	<p>The switch should support IGMPv1 and IGMPv2 Filtering</p> <p>The switch should support IGMP v1,v2 and v3 Snooping</p> <p>The switch should have IGMP Snooping Timer and configurable IGMP Leave timer</p> <p>The switch should support Multicast Vlan Registration.</p>
7	Utility	<p>The switch should support for GOOSE Messaging</p> <p>The switch should support SCADA protocol Classification Support</p> <p>The switch should have Utility specific Smart Port across/Templates</p> <p>The switch should have MODBUS TCP/IP</p> <p>The switch should support Dying Gasp Message support for Loss of Power</p> <p>The switch should have On Board Failure Logging and Generic online Diagnostics</p> <p>The switch should support BFD</p>
8	Industrial Ethernet	<p>Switch should have Swappable Flash memory which is ideal for quick and easy switch replacement.</p> <p>The switch should support IEEE 1588 PTP v2 a precision timing protocol with nanosecond-level precision for high-performance applications</p> <p>The switch should support CIP interface and CIP Time Sync functionality</p> <p>The switch should support CIP Password Encryption as additional security measure</p> <p>The switch should support Profinetv2 and ODVA industrial Ethernet/IP</p> <p>The switch should have Industrial Automation Smart ports</p> <p>The switch should support Layer 2 NAT Functionality</p> <p>The switch should conform to various industrial standards like EN 61000-6-1 Light Industrial; EN 61000-6-2 Industrial; EN 61000-6-4 Industrial; EN 61326 Industrial Control ; EN 61131-2 Programmable Controllers</p> <p>The switch should support Parallel Redundancy Protocol</p>

Sr. No.	Parameter	Particular
9	Layer 3	<p>The switch should support Static Routing</p> <p>The switch should support Inter Vlan Routing</p> <p>The switch should support Routing Protocols like RIPv1, RIPv2, OSPF, EIGRP, IS-IS and BGP 4</p> <p>The switch should support Policy Based Routing</p> <p>The switch should support multicast features like PIM Sparse mode(PIM-SM), Dense Mode(PIM-DM), Sparse-Dense Mode</p> <p>The switch should support DHCP with DHCP option 82 for data insertion and pass through</p> <p>The switch should support HSRP or equivalent features</p> <p>The switch should support RIPng, OSPFv3, EIGRP for IPv6, HSRPv6</p>
10	Ruggedization	<p>The switch should be IP30</p> <p>The Switch should sustain the Operating Temperature from -40degree Celsius upto 75 degrees Celsius using a Fan Based Enclosure</p> <p>Switch should conform to following Safety Standards like UL/CSA 60950-1; EN 60950-1; ANSI/ISA 12.12.01; CSA C22.2 No 213; IEC 60079-0, -15 IECEx test report; EN 60079-0, -15 ATEX certification (Class I Zone 2)</p> <p>The switch should be Shock Proof, Vibration Proof and Noise Immunity</p> <p>The switch should have Storage Temperature of -40 to 85 degree Celsius</p> <p>The switch should sustain Relative Humidity from 5% to 90% Non-Condensing</p> <p>The switch should comply to various Electromagnetic Emissions and Immunity standards not limited to the following :</p> <p>FCC 47 CFR Part 15 Class A; EN 55022A Class A ; VCCI Class A ; AS/NZS CISPR 22 Class A ; CISPR 11 Class A ; CISPR 22 Class A; ICES 003 Class A; CNS13438 Class A</p> <p>EN55024 ; CISPR 24; AS/NZS CISPR 24; KN24 ; EN 61000-4-2 Electro Static Discharge ; EN 61000-4-3 Radiated RF ; EN 61000-4-4 Electromagnetic Fast Transients; EN 61000-4-5 Surge; EN 61000-4-6 Conducted RF ; EN 61000-4-8 Power Frequency Magnetic Field ; EN 61000-4-9 Pulse Magnetic Field ; EN 61000-4-11 AC Power Voltage; EN 61000-4-18 Damped Oscillatory Wave; EN-61000-4-29 DC Voltage Dips</p>
11	Managability	<p>The switch should have CLI as well as Web Based GUI for management</p> <p>The switch should support Network Time Protocol</p> <p>The switch should support Configuration Rollback</p> <p>The switch should have USB console Port</p> <p>The switch should be DIN-RAIL Mountable</p> <p>Switch should have the option to apply a default global or interface-level macro with a recommended configuration, allowing the user to</p>

Sr. No.	Parameter	Particular
		easily set up the switch in a configuration optimized for the specific application
		Switch Should have atleast 2 Alarm Inputs which can be used to alert external systems, ,and , one alarm output relay

### Wireless Networking Specifications

Sr. No.	Parameter	Particular
1	General	<p>The switch should have 8 Fast Ethernet Ports and 2 Ports of 10/100/1000Mbps downlink port and 4 numbers of 10/100 PoE/PoE+ Ports</p> <p>Each switch should have 2 combo (one SFP and one Copper ports with one port active at a time) uplink Gigabit ports in addition to downlink ports.</p> <p>Switch should have forwarding rate of 6.5Mpps</p> <p>The switch should be modular in nature, and allow adding more ports in future</p> <p>The switch should have atleast 8000 Unicast MAC addresses and upto 1000 IGMP groups</p> <p>Each switch should support atleast 255/1000 VLAN's and 4096 Vlan ID's</p> <p>Switch should have atleast 128MB DRAM and 64 MB Flash Memory</p> <p>Switch should have Redundant DC input voltage</p>
2	Layer 2	<p>The switch should support following Ethernet Standards : 802.3, 802.3x (flow control), 802.3ad (LACP), 802.1p, 802.1q</p> <p>The switch should support loop avoidance mechanism like 802.1d (spanning-tree), 802.1s (MSTP), 802.1w(RSTP), PVST or PVST+</p> <p>The switch should support Unidirectional Link Detection Mechanism to detect the failures of uplink port.</p> <p>The switch should support Per port enabling/disabling of unknown unicast/ multicast flooding</p> <p>The switch should support Layer 2 Multicast Features like IGMPv1, v2 and v3</p> <p>The switch should support REP or equivalent as ring convergence mechanism.</p>
3	IPv6	<p>The switch hardware should be capable of supporting IPv6</p> <p>The switch should support following host based IPv6 features but not limited to IPv6 Addressing, IPv6 Option Processing, Fragmentation, ICMPv6</p> <p>The switch should support IPv6 applications like Ping, Traceroute, VTY, SSH, TFTP, SNMP</p> <p>The switch should support HTTP and HTTP (s) over IPv6</p> <p>The switch should support IPv6 Stateless Auto Config</p>

Sr. No.	Parameter	Particular
		<p>The switch should support IPv6 based Access Control Lists</p> <p>The switch should support SNMP over IPv6 and Syslog over IPv6</p>
4	Security	<p>The switch should have Port Security Mechanism with MAC Aging, Trunk Port Security and Port Security for Voice Vlan</p> <p>The switch should support 802.1x, 802.1x Guest Vlan, 802.1x Mac-Auth-Bypass Features</p> <p>The switch should support Secure Shell (SSH), TACAS+, RADIUS Server/Client</p> <p>The switch should support MAC Address Notification</p> <p>The switch should support BPDU Guard, Port Security.</p> <p>The switch should support DHCP Snooping, Dynamic ARP Inspection and IP Source Guard Mechanisms</p> <p>The switch should have Time Based ACL to control different policies at different times</p> <p>The switch should support Private VLAN's</p>
5	QoS	<p>The switch should support Ingress Policing and Ingress Rate Limiting of packets</p> <p>The Switch should support 802.1p Port Priority Mechanisms</p> <p>The switch should have Shaped Round Robin and Weighted Tail Drops mechanisms</p> <p>The switch should support DSCP Mapping and DSCP Filtering mechanisms.</p> <p>The switch should also support Auto Qos</p>
6	Multicast	<p>The switch should support IGMPv1 and IGMPv2 Filtering</p> <p>The switch should support IGMP v1,v2 and v3 Snooping</p> <p>The switch should have IGMP Snooping Timer and configurable IGMP Leave timer</p> <p>The switch should support Multicast Vlan Registration.</p>
7	Industrial Ethernet	<p>Switch should have Swappable Flash memory which is ideal for quick and easy switch replacement.</p> <p>The switch should support IEEE 1588 PTP v2 a precision timing protocol with nanosecond-level precision for high-performance applications</p> <p>The switch should support CIP interface and CIP Time Sync functionality</p> <p>The switch should support CIP Password Encryption as additional security measure</p> <p>The switch should support Profinetv2 and ODVA industrial Ethernet/IP</p> <p>The switch should have Industrial Automation Smartports</p> <p>The switch should have ABB Industrial IT certification</p> <p>The switch should support ODVA Industrial EtherNet/IP support</p>
8	Layer 3	<p>The switch should support Static Routing</p> <p>The switch should support Inter Vlan Routing</p> <p>The switch should support Routing Protocols like RIPv1, RIPv2, OSPF, EIGRP, IS-IS and BGP 4</p>

Sr. No.	Parameter	Particular
		<p>The switch should support Policy Based Routing</p> <p>The switch should support multicast features like PIM</p> <p>The switch should support DHCP with DHCP option 82 for data insertion and pass through</p> <p>The switch should support HSRP or equivalent features</p> <p>The switch should support RIPng, OSPFv3, EIGRP for IPv6, HSRPv6</p>
9	Ruggedization	<p>The switch should be IP20/IP 30 ( with accessory)</p> <p>The Switch should sustain the Operating Temperature from -40 degree Celsius upto 75 degrees Celsius using a Fan Based Enclosure</p> <p>Switch should conform to following Safety Standards like UL 60950-1; CSA C22.2 No. 60950-1 ; TUV/GS to EN 60950-1</p> <p>The switch should be Shock and Vibration Proof</p> <p>The switch should have Storage Temperature of -40 to 85 degree Celsius</p> <p>The switch should sustain Relative Humidity from 5% to 95% Non-Condensing</p> <p>The switch should comply to various Electromagnetic Emissions and Immunity standards not limited to the following :</p> <p>FCC Part 15 Class A • EN 55022 • CISPR 22 • CISPR11 • VCCI Class A • AS/NZS 3548 Class A • CNS 13438 Class A • KN 22 Class A</p> <p>EN 55024 • AS/NZS CISPR 24 • KN 24 • IEC/EN 61000-4-2 (Electro Static Discharge) • IEC/EN 61000-4-3 (Radiated Immunity) • IEC/EN 61000-4-4 (Fast Transients) • IEC/EN 61000-4-5 (Surge) • IEC/EN 61000-4-6 (Conducted Immunity)• IEC/EN 61000-4-8 (Power Frequency Magnetic Field Immunity) • IEC/EN 61000-4-9 (Pulse Magnetic Field Immunity) • IEC/EN 61000-4-10 (Oscillatory Magnetic Field Immunity) • IEC/EN 61000-4-11 (AC power Voltage Immunity) • IEC/EN 61000-4-16 (Low Frequency Conducted CM Disturbances) • IEC/EN 61000-4-17 (Ripple on DC Input Power) • IEC/EN 61000-4-18 (Damped Oscillatory Wave) • IEC/EN 61000-4-29 (Voltage Dips Immunity, DC power) • IEEE C37.90 (Surge) • IEEE C37.90.1 (Fast Transients) • IEEE C37.90.2 (Radiated Immunity) • IEEE C37.90.3 (Electro Static Discharge)</p> <p>"• UL/CSA</p> <p>• CE (Europe)"</p>
10	Manageability	<p>The switch should have CLI as well as Web Based GUI for management</p> <p>The switch should support Network Time Protocol</p> <p>The switch should support Configuration Rollback</p> <p>The switch should have RJ 45 console Port</p> <p>The switch should be DIN-RAIL Mountable, Wall or 19" inch rack mountable</p> <p>Switch Should have Alarm Relay contacts which can be used to alert external systems</p> <p>Switch should have the option to apply a default global or interface-</p>

Sr. No.	Parameter	Particular
		level macro with a recommended configuration, allowing the user to easily set up the switch in a configuration optimized for the specific application

### **Digital Signature Specifications**

Sr. No.	Parameter	Particular
1	Standalone Kiosk with sturdy Touchscreen Terminal	
2	CPU & Memory suitable for Windows 8 PC requirement specifications	
3	RFID card scanner integrated	
4	Receipt/Acknowledgement Printer Enclosed	
5	UPS & Fans	
6	Stainless steel body with sleek 4th Gen look,	
7	Sturdy, Robust, & All Weather, Fully Protected	



## Annexure - XVIII

### SERVICE LEVEL AGREEMENT PARAMETERS

#	Key Performance Indicator (KPI)	Minimum Guaranteed Performance	
1	Pass Generation Time (PGT):	Vehicle	<60 Sec
		Individual	<75 Sec
2	Average No: of passes per minute at any Counter	Vehicle	>1
		Individual	>1
3	Pass Verification Time (PVT) at the reader	Individual & Vehicle	< 2 sec
4	Annual System Down Tim	< 1%	
5	System Availability	>99%	
6	Pass Generation Failures	Not more than one a day	
7	No: of Verification failures in a month	Not more than five hours	
8	System Parameters		
	A Min Load Factor	100,000 pass issuance per month within the prescribed time limits	
	B Average Load Factor	200,000 pass issuance per month within the time limits	
	C Peak Load Factor	10,00,0000 pass issuance per month within the time limits	
9	Report Requests		
	A Avg. Turnaround time for Real time Report Requests	Within 1 hour of the request of data/report.	
	B Avg. Turnaround time for Standard Report Requests	Within 24 hours of the request for data/report.	
	C Avg. Turnaround time for Custom Report Requests	Within a week of request for data/report	