

मध्य रेल
Central Railway



प्रधान मुख्य वाणिज्य प्रबंधक का
कार्यालय, मुंबई
Office of the Principal Chief
Commercial Manager,
Mumbai

No.C/562/GT/Parcel Scanner

Date: 12.02.2026

Sr. DCM Mumbai, Pune, Solapur, Bhusawal, Nagpur

Sub: Specifications for procurement of X-ray Parcel Inspection
system(Scanner)

With reference to the above subject, please find enclosed herewith
Specifications for procurement of X-ray Parcel Inspection system
(Scanner) for installation at Parcel depots.

Divisions are advised to process for procurement of the same
accordingly.

This has the approval of CCM(FS).

Encl: As stated

(T. Sushma)
Dy. CS & AO

For Chief Commercial Manager (FS)

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Annexure

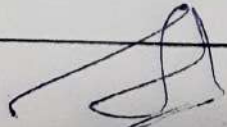
X-RAY BAGGAGE PARCEL INSPECTION SYSTEM DUAL VIEW (Scanner)

Sr	Technical Specifications
1	Minimum Tunnel Size - 100 cm W (width) X 100 cm H (Height) or better
2	Conveyor belt speed should be between 0.18 and 0.3 meter per second Conveyor movement bidirectional
3	All machines should operate on 230 VAC, 50 Hz power supply and should be able to withstand voltage fluctuation in the range of 170 V to 260V. Single phase, 3 to 5 Amp.
4	Conveyor capacity-200 kg or more. Conveyor Belt Height: Approx 350 mm from ground level
5	Through put should be 400 bags per hour or more
6	Sensor-1000 diodes, L-shaped detector (folded array type), in case of defective diode arrays, scanning should be disabled and error message should be displayed on the screen.
7	X-Ray Voltage- maximum 160 KV to 185 KV
8	X-Ray Source/Generator- It should be capable to operate smoothly for a period of at least six years.
9	Duty cycle-100%
10	The X-ray beam divergence should be such that the complete image at maximum size of bag is displayed without corner cuts.
11	The radiation level should not exceed accepted health standard (0.1m R/Hr at a distance of 5 CM from external housing). Relevant certificate from AERB is mandatory.
12	The operating temperature should be 0°C to 40°C. Bidder should upload NABL/Government accredited laboratory test certificate
13	Storage Temperature: 0°C to 50°C. Bidder should upload NABL/Government accredited laboratory test certificate
14	Humidity: 90% non-condensing. Bidder should upload NABL/Government accredited laboratory test certificate
15	Resolution: The machine should be able to display single un-insulated tinned copper wire of 42-SWG or 38-AWG. All penetration and resolution condition should be met without pressing any functional key and should be online.
16	Penetration should be 35 mm thickness of steel or more.
17	Continuous Electronics Zoom facility should be available to magnify the chosen area of an image eight times (8X) or more. Image features shall be keyboard controllable.
18	Video display-22" or better LED Monitor SVGA High resolution, low radiation, flicker free, resolution at least 1920*1080, 32 bit color real time processing.
19	The machine should have features of multi-energy x-Ray imaging facility where materials of different atomic number will be displayed in different colours to distinguish between organic and inorganic materials. With this method to distinguish high density organic materials including explosives machine should have variable colour or materials stripping to facilitate the operator to monitor images of organic materials for closer scrutiny. All suspicious items-(explosive, high density, material narcotics should be displayed in one mode and that should be on line.
20	Radiation safety:-The machine must comply with requirements of health and safety regulation with regard to mechanical electrical and radiation hazards. Before installation of the machine, the supplier/manufacturer should furnish relevant certificate from Atomic Energy Regulatory Board of India regarding radiation safety. The company manufacturing the equipment should have ISO certification for manufacturing and servicing of x-ray screening machines. The same should be uploaded at the time of bid.
21	Film safety:- Guaranteed safety for high speed films upto ISO 1600. The machine should be film safe; in other words, photographic films and perishables must not be damaged due to X-ray examination.
22	Machine should be properly sealed from all the sides for pest proof. Dust proof cover is to be provided for covering when system is not in use.

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23	Facility for variable contrast must be incorporated to allow enhancement of lighter and darker portions of the image.
24	The machine should be so designed that software enhancement can be easily implemented to take care of new techniques in image processing and pattern recognition.
25	Full diagnostic built in test facility. All models should have software controlled diagnosis report facility and system should give printout if printer is connected.
26	All software features of machine should be online and password protected.
27	Machine should be capable for recalling 15 or more previous image.
28	It should have the capability of archiving 3000 or more images with date & time stamp.
29	Control desk with security housing and locking provision should be available. The operator's personal identification number can be entered through keyboard along with generation of log.
30	Facility of image enhancement should be available.
31	All models should have online recording facility and image can be recorded in CD R/W or and USB and should be able to view images so recorded on stand-alone PC.
32	Lead impregnated safety screens should be available at either ends of the tunnel. This should be covered by relevant AERB certificate. Idle rollers 1-2 mts to be provided at either ends of the tunnel to facilitate placing of baggage at input and output.
33	All software features should be controlled from key board and mouse of machine. Keyboard function should be user friendly. To enable/disable the software features, system should not be rebooted.
34	If the machine fails to penetrate a particular item then an alarm video and audio both should be generated to notify the operator.
35	The threat image projection (TIP) system software to be incorporated in all X-Ray BIS operation as per detail given in Annexure-I
36	The X-Ray baggage system should be integrated with an IP based surveillance bullet camera with min. 5 mega pixels. The entry and exit Cameras are fixed into the x-ray machine. The AI alarms should be linked with the relevant camera feed and shown on the separate monitor which is mounted in control desk. In addition OEM to provide 360 degree fish eye camera to cover whole machine (including operator) and video recording should be saved to the system.
37	Copy of all software including X-Ray Software with recovery CD must be provided.
38	Operating staff has to be provided free training for at least 7 days.
39	Operating & service manual shall be provided with each machine.
40	Operator console table to be provided for the machine
41	Other Features:- a) Edge & variable edge enhancement. b) Inverse Video c) Set up time not more than 10 minutes. d) Pseudo color e) Date & Time display.
42	Minimum Computer configuration 1. CPU: Should be able to deliver the output to meet the specifications mentioned as above. 2. Hard Disk Drive: 1 TB 7200 rpm serial SATA HDD/SSD. 3. Mouse: Optical 4. Ports: 6 USB Ports (with at least 2 in Front), 1 Serial Port, 1 Parallel port, 1 PS/2 Keyboard and 1PS2 Mouse Port, audio ports for microphone and headphone in front. 5. CD-R/RW Drive: DVD Writer. 6. Networking facility: 10/100/1000 on board integrated Network Port with remote booting facility remote system installation, remote wake up, out of band management using any standard management software.
43	UPS: - 3KVA or better online with back-up time of ½ hour to whole system.


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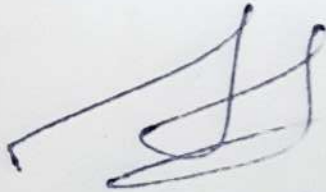
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TIPS FEATURE		Annexure-I
THREAT IMAGE PROJECTION		
1	Tip software facility shall be incorporated in the offered X-Ray machine to assist supervisors in testing the operator alertness and training X-ray screeners to improve their ability in identifying specific threat object. The system will create a threat object and the same will be superimposed on the monitor screen while a bag is being screened. To acknowledge that the operator has seen the false object, operator must press the control panel key that will cause the computer generated threat object to disappear from x-rayed bag image on the VDU screen. Each operator's action shall be recorded in the hard disk of the computer for the auditing purpose by the supervisor or other authorized person.	
2	AI Based Threat Detection of various contraband items i.e. knives, guns, scissors, box cutters, firecrackers, battery, bottled liquid, ammunition, Mobile phone and Electronics items etc. The AI highlight threats alert name that should be shown in white space above the bag with proper tagging and not inside the bag. Bag view should not be disturbed or overlapped with AI label/tag.	
DESIGN OF THE SYSTEM		
3	TIP software should be compatible with other x-ray technologies such as automatic reject unit. Dual X-ray screen technologies, automatic treat recognition system etc. All x-ray image functions must be available at the same time along with the TIP.	
IMAGE LIBRARY		
4	The image library should have an image library containing at least 100 explosives devices, 100knives and 100 firearms in various sizes, shapes, locations and orientation. However, the system shall have facility to expand the library to incorporate additional images by user without assistance of the manufacture.	
5	The image library should contain image of threats at different orientations both plan and end on orientation should be used. Although these will be assigned different file names and reference, it must be possible to cross-reference these as the same threat. All threat image Projection image must be realistic, representative and non-distinguishable from real threat items.	
TIME INTERVAL		
6	Programming facility shall be available to project threat images in different intervals. The time period for threat image as well as image mix in percentage shall be user programmable e.g. software shall select 40% images of explosive devices, 35% of fire arms & 25% knives or random etc.	
7	Once the screener has responded to identify the computer generated threat image, it should remain on the screen for a predefined user programmatic feedback message shall be visible to the screener.	
SYSTEM ADMINISTRATION		
8	The threat image projection facility shall have detail of user database such as Department name, screener name, Organization, User ID Number, level of access such screener, administrator, Maintenance & Password etc.	
9	Access to start up menu should be restricted only to the authorized individuals. A log- in procedure by means of Password" or "Security Key" could achieve restricted access to each of the comment. The log-in procedure should not take longer than 20 seconds. The system should have facility to bypass the TIP facility, if programmed so by the system administrator. It is to be ensured that the TIP software shall not be hindrance to normal functioning of X-ray machines.	
10	When the operator logs-in or long- out message should be displayed on X-ray BIS VDU Screen to confirm that he / she has been correctly logged-in or logged-out.	
FEED BACK REPORT		
11	The threat image projection should be capable of giving feedback " HIT, MISS or FALSE ALARM" message. No message will be presented if a screener correctly passed as clear bag.	
12	A "HIT" message to be presented when a screener has correctly identified a Threat image Projection Image. A "MISS" message shall be presented when screener fails to identify the TIP image. A False Alarm" message shall be given when screener incorrectly indicate TIP image when in fact no threat image projection is present. The feedback should clearly indicate in	

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	screen that a TIP object has been correctly identified/ tip object has been missed/that a TIP object has been missed/no TIP object was present. Information should be recorded in the database.
13	Different color coding shall be used for feedback to the Screener, It is recommended that color code "Red for MISS" Green for "HIT" and Yellow to False Alarm or interrupt" be used
14	The system shall automatically prepare the daily log of events for each shift and for each Screener performance. TIP log shall include particulars of Name of Screener, Time & date of threat image, whether threat image was successfully identified or missed etc.
15	The report on Threat Image Projection system may have date and time (From- to) as per requirement. Screener particulars, and decision/outcome i. e. MISS, HIT or False Alarm in percentage as well in absolute numbers, numbers of bags screened, categories such as explosives devices knife or weapon etc.
16	As a standard practice, daily/weekly/monthly report shall be retrieved. Report shall be for any given time and period, as per command.
TECHNICAL SPECIFICATION	
17	All data should be stored on the system for a minimum of four months after it has been down loaded. No individual, regardless of access rights to the Threat Image Projection components would delete or amend any of threat image Projection data or time i. e. Threat Image Projection data on the actual X-ray machine will be read only file.


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Terms and conditions

For X-Ray Baggage Inspection System-AI based Dual View (Scanner), to be installed at Parcel offices

Sr.	Additional specification/requirement	Value
1	RAM/HARD DISK	Min. 8 GB RAM/ 1 TB HARD DISK
2	FILM SAFETY	ISO 3200 Film Safety. ILFORD DELTA 3200 photographic films safety certificate needs to be submitted from BARC/ AERB along with tender documents
3	Penetration	35 mm (steel) or more
4	Image Archive	Up to 5,00,000 images to be stored and should be enabled for transferring to USB Disk and converting to JPEG format.
5	Warranty should be 03 years and 5 years CAMC respectively	Mandatory
6	Installation of X Ray Baggage Scanner Machine is a part of Vendor scope	Mandatory
7	All above specific values are Mandatory for Bid	Mandatory, non-confirming specification, Bids will be rejected.
8	The bidder should be OEM and should have necessary NOC from AERB for X-ray source.	Mandatory
9	Scanner specification should be as per MHA L/No.-W-42011(494)/QRs/CISF/Tech/ 2008/MHA-Prov-1-1422 Dt- 08.09.2016 & RB L/No.-2016/Sec(Spl)/6/8 dt.-06.03.2019	Mandatory
10	Vendor has to visit at Parcel location for installation of baggage scanner machine and make a survey report.	Mandatory

Other conditions:

- 11 The bidder should have existence as a firm for a minimum period of 3 years for supply of X-Ray Baggage Scanners in India. Certificate of Incorporation/Registration Certificate along with all supporting document of the firm to be submitted.
- 12 The bidder should furnish the following:
 - (a) List of spare parts covered under warranty,
 - (b) List of spare parts covered under comprehensive breakdown and not covered under warranty.
 - (c) The tender shall be invited with rates obtaining 03 years warranty period and 05 years CAMC Period. Payment shall be made for three years warranty period on successful Commissioning of equipment and payment for 05 years CAMC period shall be made on yearly basis.
 - (d) The Railway reserves the right to visit and inspect the equipment at the factory site before production of the total quantity by the contractor.
- 13 The bidder should provide contact details for 24x7 Customer Support Centre for complaint registering.
- 14 Firm must attach valid license certificate issued by AERB for X-ray Baggage/ Parcel/ Cargo Scanner.
- 15 The bidder must have supplied the X ray Baggage or Parcel or Cargo Scanners to this Railway or another Zonal Rail ways/Production Units, Metro Railways, Airports and other Government Organizations. Documentary evidence (such as R/Notes, RITES Inspection Certificate, completion records etc.) must be furnished along with the offer evidencing the execution of such purchase orders. The tenderer with satisfactory past

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3578034/2026/076 SRDCM/SUR/CR performance of supplier above for supply of the same or similar item for 01 no. against a single contract during the last five years prior to and excluding tender opening date may be considered for placement of bulk and regular order subject to compliance of conditions.

- 16 The bidder shall submit undertaking that they not been banned by Govt. of India agency.



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