

पनवेल महागनरपालिका

विभाग : माहिती व तंत्रज्ञान विभाग

अंदाजपत्रक बनविणेकामी दरपत्रक

दि: २५/११/२०२५

पनवेल महानगरपालिका क्रिकेट अकॅडमी येथे सुरक्षेच्या दृष्टीने सुरक्षा यंत्रणा बसविणेबाबत बाजारभाव मागविणे गरजेचे आहे. सदर कामाचे अंदाजपत्रक बनविणे कामी दरपत्रक मागविणेत येत आहेत.

अ.क्र	कामाचे नाव	मुदत
१	पनवेल महानगरपालिका क्रिकेट अकॅडमी येथे सुरक्षेच्या दृष्टीने सुरक्षा यंत्रणा बसविणेबाबत.	२६ /११/२०२५ ते ०२ /१२/२०२५

तपशील खालीलप्रमाणे :

Fixed Bullet Camera

Sr.No.	Parameters	Specifications
1	Image Sensor	2 MP Bullet camera 1/2.8" Progressive Scan, CMOS Sensor or Better
2	Supported resolutions	1920 x 1080, 720p, D1, (VGA), 2CIF, CIF
3	Video Compression	H.264, H.265, MJPEG or Higher
4	Video Standard	PAL/NTSC
5	Number of Streaming profiles support	Profile 1: 1920x1080p(2MP) @30fps (H.265/ H.264) Profile 2: D1 @30fps (H.265/H.264) Profile 3: 1080p/720p/D1/2CIF/CIF @5fps (MJPEG) or 720p/D1/2CIF/CIF@15fps(H.264/H.265) Profile 4: 720p/D1/2CIF/CIF @ 30 fps (H.265/H.264/MJPEG)
6	Bitrate	128kbps-8Mbps or Better
7	Adaptive streaming	Should Support
8	Unicasting/ Multicasting	Support of Unicasting and Multicasting shall be provided
9	Shutter speed	1/15s-1/100000s or Better
10	Minimum Illumination	Colour - 0.01 Lux @(F1.2 AGC ON) Black & white - 0 Lux or Better
11	Signal to Noise Ratio (SNR)	70dB or better
12	Lens focal length	2.8mm Lens HFOV - 106.9°, VFOV - 56.9°, DFOV - 127.9°
13	Built In IR irradiance upto	Min 50mtrs

14	Day/Night Camera Switching	Should Support
15	Network Failure recording	In case of Network failure, the Camera shall start recording on NAS or SD Card, which can be retrieved back when the network connectivity restores (ANR)
16	Edge Storage	512 GB Onboard storage or better
17	Network Connectivity	10Base-T/100BaseTX Ethernet (RJ-45)
18	Supported Network Protocols	TCP/IP, UDP, HTTP, HTTPS, DHCP, DNS, DynDNS, DDNS, RTP, RTCP, RTSP, PPPOE, SMTP, NTP, SNMP, FTP, TLS/SSL, SFTP, ICMP, IGMPv2 & v3, ARP, 802.1x, IPv4, IPv6, QoS Layer 3, DSCP, CIFS, SSH, UPnP, Bonjour
19	Data Encryption	All data, including sensitive data, is encrypted with AES and RSA
20	IP Address Filtering	Should Support
21	HTTPs Streaming	Should Support
22	Edge Data Encryption	Should Support
23	Network Authentication	802.1x Network authentication
24	Video Content Analytics (VCA)	Detection: Motion Detection, View Tamper Detection, Trip/No Trip Detection, Object Intrusion/ Zone Intrusion IP Conflict, Network Disconnect, Storage Full, Alarm In Alert: IP conflict, Network disconnect, storage full, time triggered, Manual Trigger.
25	Back light Compensation (BLC)	Should Support
26	Wide Dynamic Range	120 dB or Better
27	Image Enhancement	Saturation, Contrast, Sharpness, Brightness, Auto Exposure, Gamma , White balance, Intelligent Defog
28	Noise Reduction	2 DNR, 3 DNR
29	Power	POE (802.3af/at), 12 V 2A or Better
30	Operating Temperature	~30°C- +60°C or better
31	Operating Humidity	95% or less
32	Ingress Protection	IP67
33	Impact protection	IK10
34	MAC Address	The MAC address of the camera shall be registered in the name of the OEM, and it must be registered in India.
35	ONVIF Compliance	S,G & T The IP Camera make and model shall appear on the ONVIF Conformant products List

36	Regulatory Approvals/ Certifications To be attach	FCC, BIS, CE , RoHs,NDAA,NEMA4x, Cyber Security Certified by STQC to meet the essential requirement issued by MeitY
37	IP camera & NVR	Should be same Make
38	Plug and Play	The IPCAM shall get connected to the destined NVR/VMS when plugged in the network with adding from NVR or VMS

2MP IR PTZ Camera

Sr No.	Parameters	Specifications
1	Resolution	2 MP (1920 x 1080)
2	Sensor Type and Size	1/2.8" SONY - CMOS 2MP Progressive Scan
3	Minimum Illumination	Color: 0.5Lux, B/W: 0.05Lux
4	Focal Length	4.4 mm - 169.4 mm
5	Focus Range	3m to infinity
6	Field of View (FOV)	HFOV: 65.66°-1.92°, VFOV: 39.43°-1.06°, DFOV: 72.78°-2.24°
7	Focus	Motorized Varifocal
8	Aperture	F 1.6 - F4.9
9	IR Details	IR Range : Up to 250m or better IR LED Wavelength: 850nm IR Switching: Auto/ Manual
10	Pan	Pan Range: 360°, Pan Speed:1°/s to 240°/sec
11	Tilt Range	Tilt Range: -15° to 90° (auto-flip), Tilt Speed: 1°/s to 200°/s
12	Presets	300
13	Patrol	8 patrols, 32 presets each
14	Pattern	4 pattern scans, 10+ min each
15	Power Off Memory	Yes
16	Audio IN & OUT	1-1
17	Audio and Codec	Audio Streaming: Two way Audio Audio Compression: G.726, G.711 a-law/u-law
18	Alarm In & Out	2-2
19	SD Card	Up to 512GB
20	No. of Stream Profiles	4

21	Stream Profiles	Four streams support Profile 1:- 1080p(2MP)/720p/D1/VGA/2CIF/CIF/QCIF upto @60 fps(H.265/H.264) Profile 2:- D1/VGA upto @30fps(H.265/H.264) Profile 3: 1080p(2MP)/720p/D1/VGA @8fps (MJPEG) or D1/VGA@15fps(H.264/H.265) Profile 4:1080p(2MP)/720p/D1/VGA @ 30 fps (H.265/H.264/MJPEG)
22	Available Resolutions	1920x1080, 720p, D1, VGA, 2CIF, CIF
23	Max Resolution	1920 x 1080
24	Bitrate	128kbps - 16Mbps
25	Bitrate Type	CBR, VBR
26	Video Compression	Four streams support Profile 1:- 1080p(2MP)/720p/D1/VGA/2CIF/CIF/QCIF upto @60 fps(H.265/H.264) Profile 2:- D1/VGA upto @30fps(H.265/H.264) Profile 3: 1080p(2MP)/720p/D1/VGA @8fps (MJPEG) or D1/VGA@15fps(H.264/H.265) Profile 4:1080p(2MP)/720p/D1/VGA @ 30 fps (H.265/H.264/MJPEG)
27	Frame Rate	1-60fps
28	Shutter Speed	1/15s - 1/100000s
29	Optical Zoom	38x or better
30	Digital Zoom	16x
31	Adaptive Streaming	Yes
32	ONVIF Profiles	S, G, and T
33	Edge Recording	Yes
34	Alarm Recording	Pre and Post
35	Motion Recording	Yes
36	Time Triggered	Yes
37	Video Parameters	Snapshot, BLC, HLC, AWB, AGC, Day/Night, Dynamic FPS
38	Privacy Masks	8
39	WDR	True WDR (120dB)
40	SNR	70dB or Better
41	Image Enhancement	Saturation, Contrast, Sharpness, Brightness, Auto Exposure, Smart IR, HVS-Forensics
42	DNR	2D & 3D
43	Video Analytics	Motion Detection, View Tamper Detection, Trip/No Trip Detection, Object Intrusion/ Zone Intrusion,Loitering,Missing/ Abandoned Object,Audio Exception,IP Conflict,Network Disconnect,Storage Full,Time Triggered,Alarm In,Object Counting
44	Alert	IP Conflict Alert, Network Disconnect Alert, Storage Full Alert
45	Upload Image/Clip	SD, NAS, SFTP

46	Notifications	E-mail, SMS, TCP
47	Supported Protocols	TCP/IP, UDP, HTTP, HTTPS, DHCP, DNS, DynDNS, DDNS, RTP, RTCP, RTSP, PPPOE, SMTP, NTP, SNMP, FTP, TLS/SSL, SFTP, ICMP, IGMPv2 & v3, ARP, 802.1x, IPv4, IPv6, QoS Layer 3, DSCP, CIFS, SSH, UPnP, Bonjour
48	Secure Boot	Yes
49	Signed Firmware	Yes
50	Data Encryption	AES256
51	IP Filtering	Yes
52	HTTPs Streaming	TLS 1.2
53	Edge Data Encryption	Yes
54	Network Authentication	802.1x
55	Secure Firmware Upgrade	Yes
56	Anti-roll back Firmware	Yes
57	Web Login Protection	Yes
58	Debug Interface Protection	Yes
59	Power Supply	24VDC 2.5A, AC
60	POE+ Support	Yes
61	Power Consumption	Max 25W
62	Operating Humidity	<90%
63	Operating Temperature	Operating : -30°C to 60°C Storage: -30°C to 70°C
64	Communication Interface	1x Ethernet RJ-45
65	Storage Options	NAS, SD Card
66	Regulatory Approvals/ Certifications To be attach	FCC, BIS, CE , RoHS, NDAA, NEMA4x, Cyber Security Certified by STQC to meet the essential requirement issued by MeitY

2MP Dome Camera

Sr.No.	Parameters	Specifications
1	Image Sensor	2 MP Dome camera 1/2.8" Progressive Scan, CMOS Sensor or Better
2	Supported resolutions	1920 x 1080, 720p, D1, (VGA), 2CIF, CIF
3	Video Compression	H.264, H.265, MJPEG or Higher
4	Video Standard	PAL/NTSC

5	Number of Streaming profiles support	Profile 1: 1920x1080p(2MP) @30fps (H.265/ H.264) Profile 2: D1 @30fps (H.265/H.264) Profile 3: 1080p/720p/D1/2CIF/CIF @5fps (MJPEG) or 720p/D1/2CIF/CIF@15fps(H.264/H.265) Profile 4: 720p/D1/2CIF/CIF @ 30 fps (H.265/H.264/MJPEG)
6	Bitrate	128kbps-8Mbps or Better
7	Adaptive streaming	Should Support
8	Unicasting/ Multicasting	Support of Unicasting and Multicasting shall be provided
9	Shutter speed	1/15s-1/100000s or Better
10	Minimum Illumination	Colour - 0.01 Lux @(F1.2 AGC ON) Black & white - 0 Lux or Better
11	Signal to Noise Ratio (SNR)	70dB or better
12	Lens focal length	2.8mm Lens HFOV - 106.9°, VFOV - 56.9°, DFOV - 127.9°
13	Built In IR irradiance upto	Min 50mtrs
14	Day/Night Camera Switching	Should Support
15	Network Failure recording	In case of Network failure, the Camera shall start recording on NAS or SD Card, which can be retrieved back when the network connectivity restores (ANR)
16	Edge Storage	512 GB Onboard storage or better
17	Network Connectivity	10Base-T/100BaseTX Ethernet (RJ-45)
18	Supported Network Protocols	TCP/IP, UDP, HTTP, HTTPS, DHCP, DNS, DynDNS, DDNS, RTP, RTCP, RTSP, PPPOE, SMTP, NTP, SNMP, FTP, TLS/SSL, SFTP, ICMP, IGMPv2 & v3, ARP, 802.1x, IPv4, IPv6, QoS Layer 3, DSCP, CIFS, SSH, UPnP, Bonjour
19	Data Encryption	All data, including sensitive data, is encrypted with AES and RSA
20	IP Address Filtering	Should Support
21	HTTPs Streaming	Should Support
22	Edge Data Encryption	Should Support
23	Network Authentication	802.1x Network authentication

24	Video Content Analytics (VCA)	Detection: Motion Detection, View Tamper Detection, Trip/No Trip Detection, Object Intrusion/ Zone Intrusion IP Conflict, Network Disconnect, Storage Full, Alarm In Alert: IP conflict, Network disconnect, storage full, time triggered, Manual Trigger.
25	Back light Compensation (BLC)	Should Support
26	Wide Dynamic Range	120 dB or Better
27	Image Enhancement	Saturation, Contrast, Sharpness, Brightness, Auto Exposure, Gamma, White balance, Intelligent Defog
28	Noise Reduction	2 DNR, 3 DNR
29	Power	POE (802.3af/at), 12 V 2A or Better
30	Operating Temperature	~30°C- +60°C or better
31	Operating Humidity	95% or less
32	Ingress Protection	IP67
33	Impact protection	IK10
34	MAC Address	The MAC address of the camera shall be registered in the name of the OEM, and it must be registered in India.
35	ONVIF Compliance	S,G & T, The IPCamera make and model shall appear on the ONVIF Conformant products List
36	Regulatory Approvals/ Certifications To be attach	FCC, BIS, CE, RoHS, NDAA, NEMA4x, Cyber Security Certified by STQC to meet the essential requirement issued by MeitY
37	IP camera & NVR	Should be same Make
38	Plug and Play	The IPCAM shall get connected to the destined NVR/VMS when plugged in the network with adding from NVR or VMS

32-Ch NVR

Sr. NO	Parameters	Specifications
1	SYSTEM	
2	Control Mode	Desktop Client, Mobile Client, and Local client (Through HDMI)
3	OS	Embedded Linux
4	Processor	ARM cortex- Quad Core or better
5	VIDEO AND AUDIO	
6	Video-Input	32 IP channels
7	Video Output	HDMI (2.0) – 1 Port (Main)
8	Video Compression	H.265/H.264/ Motion JPEG
9	Audio input	Minimum 1 Channel, RCA Port
10	Audio Output	Minimum 1 Channel, RCA Port
11	Audio Compression	G.711u
12	Two-way Audio	Required
13	DISPLAY	
14	Recording Resolution	12MP, 8MP, 5MP, 4MP, 3MP, 2MP, 720p, D1, CIF
15	Decoding Resolution (on local display)	Up to 4K or better
16	Split (Through LAN/HDMI)	1x1, 2x2, 3x3, 4x4, 1+5, 1+7, 3+4, 2+8, 1+12, 1@+12, 1+9, 4+9, 2+12, 5x5, 6x6, 8x8 and Sequential
17	Digital Zoom	Both Live view and Playback
18	OSD	Channel Number, Name, Bitrate, video loss
19	Snapshot Format	JPEG
20	Recording type	Continuous, Scheduled, Manual, Alarm
21	Bandwidth Optimization	Yes
22	PLAYBACK AND BACKUP	
23	Synchronous Playback	4 channels @ 1080P (via Desktop client), 16 channels @ 1080P (via HDMI)
24	Search Mode	Date & Time, Camera, Recording Type, Recording Drive
25	Playback Modes	Fast Forward, Slow Forward, Slow Reverse, Fast Reverse at Different Speed Control, Next-Previous Frame
26	Backup	Manual Backup & Scheduled Backup
27	Configuration Backup	Required
28	Remote Operations	Monitor, PTZ Control, Playback, System Setting, File Download, Log Information, Upgrade
29	VIDEO DETECTION AND ALARMS	
30	Camera events	Motion Detection, Recording Start, Recording Fail, Camera offline, Camera online
31	System events	Manual Trigger, On Boot Alarm, Storage Alert, Disk Volume Full, Disk Fault, Scheduled Backup Fail
32	Actions	Recording on Selected Channel, Upload Images on FTP/Email server, Email Notification with Snapshot, TCP Notification, Recall PTZ Preset Position, Turn On/Off Alarm Outputs, Buzzer Notification, SMS Notification

33	DEVICE STATUS	
34	Camera status, Manual recording, Scheduled recording, Alarm recording, Adaptive recording	Required
35	FPS and GOP count	Required
36	Motion detection, View tampering, Tripwire, Object intrusion, Missing Object, Suspicious Object, Loitering Detection, Audio Exception, Object Counting	Required
37	CPU usage display	Required
38	CPU temperature display	Required
39	Thermal shutdown	Required
40	STORAGE	
41	SATA Interface	4 SATA III (18TB per port) or better
42	NAS	2 NAS (CIFS, NFS)
43	RAID	RAID-0, RAID-1, RAID-5, RAID-10
44	Recording Retention	Camera-wise, HDD usage % wise, Day wise
45	NETWORK	
46	Incoming Bandwidth	512 Mbps or better
47	Outgoing Bandwidth	512 Mbps or better
48	Maximum User	128 Programmable
49	Simultaneous login	Minimum 9
50	Network Protocols	TCP/IP, DHCP, PPPOE, DNS, DynDNS, FTP, SMTP, NTP, RTP/RTSP, CIFS/NFS
51	INTERFACES	
52	Audio Input	1 Channel, RCA Port (1V RMS)
53	Audio Output	1 Channel, RCA Port (0.5V RMS)
54	Alarm Input	2 Ports (Max. load resistance: 4.7 K Ω)
55	Alarm Output	1 Port (Max load power: <50VA, Max load current: <1A)
56	Network Interface	2 Ports x Ethernet (RJ-45) 10/100/1000Mbps
57	USB	Minimum 3 ports (2 x USB 2.0, 1x USB 3.0)
58	Number of SATA Interface	4 Ports (SATA III)
59	HDD size	18 TB HDD support (with 6Gb/s speed) or better
60	HDMI	HDMI (2.0) – 1 Port (Main)
61	Reset Switch (Network, User account, and General settings)	Required
62	Buzzer	Required
63	CERTIFICATION	
64	Regulatory Approvals/ Certifications	FCC (FCC Part 15 Subpart B Class A), ROHS, BIS, CE,EN/IEC
65	ELECTRICAL AND MECHANICAL	
66	Operating temperature	0°C to +50°C (32°F to 122°F)
67	Humidity range	5% to 95% RH Non-Condensing
68	Chassis	19" inch Rackmount
69	Power input	SMPS (100-240-volt AC)
70	Power consumption (without Harddisk)	< 10W
71	SOFTWARE SPECIFICATIONS	

72	It Should be Possible to configure, playback & live streaming of cameras added to other NVR from the main NVR without the need of any server/workstation.
73	The system should be capable of integrating with IP cameras of any brand which supports ONVIF 2.0 & above or ONVIF S profile.
74	it should be possible to define a different number of Retention days for individual cameras.
75	NVR should have a configuration wizard for quick configurations.
76	NVR should show the estimated number of storage days.
77	The device must be capable of taking Snapshot with integrated Access control and time attendance system of the same brand in case of user allow/denied events.
78	Digital Zoom during live view.
79	The system should be able to take a Snapshot during live view/ playback in JPEG format.
80	The Device Must Provide Configuration Backup.
81	It Should Have its Own Free DNS Server.
82	Video pop-up for both Desktop and Local clients.
83	3 User Access Levels (Default): Admin, Viewer, and Operator
84	10,000 Events Log
85	NVR Should Be Capable of Exporting Files in Native and AVI File Format to FTP and USB.
86	NVR should have IP Address Filtering to Enhance Security.
87	System Admin Should Be Capable of Programming PTZ Tour.
88	Dual Stream Option Should Be Available for Simultaneous Recording and Transmission of Video on The Network Depending on The Bandwidth.
89	The system should support Daylight Saving Time (DST).
90	The Device Should Be Designed, Developed, and Manufactured in India.
91	MOBILE CLIENT (Required Internet connectivity in buyer scope)
92	Mobile application should be Provided by The Vendor Free of Cost with the NVR.
93	It should be possible to see the playback from a mobile client.
94	The Mobile client Should Have 4 x 4 Layout for Display cameras.
95	The Mobile client Should Have Digital Zoom functionality.
96	The Mobile client Should Be Able to Control PTZ Cameras.
97	The Mobile client Software Should Support Up To 50 NVRs.
98	Software Should Have Feature to Configure Camera as Favourite Channels.
99	Mobile Viewer Application Should Function on Android and IOS Based Phones.
100	Mobile Viewer Application Should Support Calling from Mobile App Feature Where a Mobile Number Can be Added Per Camera in the Device and The User Can Directly Call a Concerned Person by Just One Click on Camera View from Mobile(without any SIM card in NVR)

Face Recognition, Card & Password based Reader cum controller

Sr No.	Minimum Specifications
1	Biometric Reader should support authentication like Face Recognition, Contactless Card, PIN for providing multi factor authentication by reading the Face, Card, PIN & combinations. The proposed device should have ability to support biometric and non-biometric authentication modes like Card & PIN also.

2	Biometric Reader device should be intelligent enough to prevent the kind of security breach by determining whether a face in a video stream is "live" or a photograph.
3	Device should be able to support the "Walk through Type" where device can read the user's face from a distance from 0.5 meter to 3 meters and authentication distance should be configurable in the device menu.
4	Device should support 256-bit encrypted algorithm to protect important information such as personal info transmitted, Support TLS standard security communication protocols.
5	Device should support the easy Face enrollment method by enrolling from Terminal / capturing the image through smart phone.
6	Device should be manufactured using the latest and most accurate state of the art Face Recognition Technology like reading Live Face only, Auto Push and shall support high speed processing.
7	Device should support ANDROID Operating System (OS) with min. 1GHz Quad Core Processor or better for fast processing and along with min 16GB Flash ROM and 2 GB RAM or better.
8	Display should have min 5" Color LCD with enhanced touch sensitivity and shall be capturing & displaying USER's picture on main screen after authentication for valid / Invalid logs both along with other credentials like Name/ User ID, Time etc.
9	Device should be able to store up to 20,000 Faces /500,000 card user /5,00,000 PIN & shall not be dependent on any server for storage of Face/Card/PIN & hence storage capacity shall not be divided between terminal & server.
10	Device should be able to store up to 1,00,00,000 transaction logs along with min. 20,000 picture logs.
11	Device should have inbuilt capability to grant access to users via key for easy authentication.
12	Device should be able to upload/transfer punch information of employees on real time basis to the server/controller. There should be no batch process required.
13	Device should be able to perform in 1:1 & 1: N authentication modes. It should support 1:20,000 face authentication in 1:1 & 1: N mode.
14	Device should support Mask / No Mask detection feature. It should be configurable in the menu with various options like Restricted / Guided / Mandatory etc
15	Device should support multi-Face detection feature. It should be able to detect min 2 users face at the same time for face recognition, although feature should not be mandatory & configurable in menu.
16	Device should be compatible with Thermal Module / Camera for body temperature scanning & should display the body temperature on screen in F/ °C along with threshold limit.
17	Device should have in built controller provision for door control and also provide the Wiegand IN/OUT & RS 485 output and should be compatible with any 3rd party controller to transfer user information for Authentication.

18	Device should have min 2MP camera to capture the picture of authorized or unauthorized users & shall be transferring the same to server on real time basis w/o any delay unless network is down. It should support 0 lux to 25000 lux for extreme dark environments to outdoor lighting conditions. The authentication must be possible in Irregular Lighting Recognition 5 ~ 15,000 Lux.
19	Device Should support Anti Pass back feature & shall be configurable user wise.
20	Device should support Duress Password option. In case of emergency, system should send Duress PIN Alarm to Server.
21	Device Should support Blacklist & Expiry Employee configuration. It should send an alert to software if a blacklist & Expire employee punch.
22	The access permission should be less than 1 second & enrollment process shall not take more than 30 seconds for Face.
23	0.0001% FAR / 0.1% FRR in Ideal Conditions
24	Device should communicate with central server using TCP/IP protocol over Ethernet or Internet, 10/100 Mbps auto sensing Ethernet with DHCP, IPv4, GPRS (Optional).
25	Device card reader shall be capable of reading the various card technologies like EM / Mifare / HID / Desfire etc. The protocol of data from the reader shall be secured open format and non-proprietary.
26	Device should support Multiple card reading format (Standard / Decimal / Hexa-Decimal / Hexa-6 Digit etc.)
27	It shall be capable to provide a unique tone and / or tonal sequence for various status conditions such as access granted / denied.
28	It should be possible to configure, manage and diagnose multiple geographically dispersed readers from a central desktop application without custom programming.
29	Device should have full functionality in off-line mode. It should be able to send all events once connectivity is re-established (employees must be able to punch- in/out for shift or break off line).
30	System should give warning alarm in case of tampering with machine.
31	Software / Firmware updates should be possible through network/communication Port. To be provided free of cost during operational period.
32	In the event of reader communication failure / tempering, it shall be capable of being detected by the server and appropriate alarms shall be generated at workstations / server. Fault of one reader should not affect the operations of other readers in the network.
33	Device should be able to display Private message against a verified user that has been defined in the software against the specific user. Should be capable of displaying global messages for all users and multimedia features like advertising, notices or wishing Birthdays etc.
34	Device should have built-in RTC Calendar. Should be able to sync the clock with the server.

35	Shall have ETL Certified external power supply required for internal operations. Should be able to control & provide power to EM locks & other related accessories also.
36	Device Should Support Power Saving Mode.
37	The device must be capable of supporting Storage Temperature range from -10 °C~150 °C and operating temperature range from -20 to 60°C.
38	The Device should be Dust & weatherproof. It should be IP65 Rated.
39	The device should support humidity < 90%
40	CE / FCC/ BIS/ROHS/WPC

X-RAY Baggage Scanner

Sr.No	SPECIFICATION
1	Tunnel Size – minimum 60 cm W (width) x 40 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 fluctuations in the range of 170 V to 260 V. single Phase, 3 to 5 Amp.
4	Conveyor Capacity – 160 kg or more.
5	Through put should be 200 bags per hour or more.
6	Sensors>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 160KV
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 5CM from external housing). Relevant certificate from AERB.

12	The operating temperature should be 0 deg C to 40 deg C.
13	Storage temperature 0 degree C to 50-degree C.
14	Humidity- 90% non-condensing
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 Electronic 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 -18.5" or better LCD Monitor SVGA High resolution, low radiation, flicker free, resolution at least 1280 x 1024, 24 bit colour 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 (Explosives, High density, material narcotics) should be displayed in one mode and that should be on line.
20	Radiation The machine must comply with requirement of health and safety regulations with regard to mechanical electrical and radiation hazards. Before installation of the machine, the supplier/manufacturer should furnish relevant certificate from the 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. Safety:
21	Film – Safety Guaranteed safety for high-speed films up to ISO1600. The machines should be film safe. In other words photographic films 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.
23	Facility for variable contrast must be incorporated to allow enhancement of lighter and darker portion of the image.
24	The machine should be so designed that software enhancement can be easily implemented to take care of new technique 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 images.
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 personal identification number can be entered the keyboard along with generation of log.
30	Facility of image enhancement should be available.
31	All models should have online recording facility and images 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 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 of machine only. 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 Annexure-I
36	Copy of all software including X-Ray Software with recovery CD must be provided.
37	Operational Training – Operating staff has to be provided free training.
38	Operating & service manual shall be provided with each machine
39	Other Features a) Edge & variable edge enhancement. b) Inverse Video c) Set up time not more than 10 minutes. d) Pseudo colour e) Date & Time display.

40	Minimum Computer Configuration :- 1. CPU: Should be able to deliver the output to meet the specifications mentioned above. 2. Hard Disk Drive: 500 GB 7200 rpm serial ATA HDD or better. 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 1 PS2 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.
41	UPS: - 3 KVA or better online with back-up time of 1/2 hour to whole system.
	Annexure-I-TIP Feature
	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 action shall be recorded in the hard disc of the computer for the auditing purpose by the supervisor or other authorized person.
	Design of the system:
2	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
3	The image library should have an image library containing at least 100 explosives devices, 100 knives and 100 firearms in various sizes, shapes, locations and orientations. However, the system shall have facility to expand the library to incorporate additional images by user without assistance of the manufacture.
4	The image library should contain images of threats at different orientations both plan and end on orientation should be used. Although these will be assigned different file names and references, it must be possible to cross-reference these as the same threat. All threat image Projection images must be realistic, representative and non distinguishable from real threat items.
	Time Interval

5	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 device, 35% of fire arms & 25% knives or random etc.
6	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
7	The threat image projection facility shall have details of user data-base such as Department name, screener name, Organization, User ID Number, level of access such screener, administrator, Maintenance & Password etc.
8	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 by pass the TIP facility, if programmed so by the All data should be stored on the system for a minimum of two 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.system administrator. It is to be ensured that the TIP software shall not be hindrance to normal functioning of X-ray machines.
9	When the operator logs-in or logs-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
10	The treat 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.
11	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 a 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.
12	Different colour coding shall be used for feedback to the Screener. It is recommended that colour code "Red for MISS" Green for "HIT" and Yellow to False Alarm or interrupt" be used.
13	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, weather threat image was successfully identified or missed etc.

14	The report on Threat Image Projection system may have date and time (From - to) as per requirement. Screener particulars and decision/out come 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.
15	As a standard practice, daily/weekly/monthly report shall be retrieved Report shall be for any given time and period, as per command.
16	All data should be stored on the system for a minimum of two 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.
Sr.No.	TECHNICAL SPECIFICATION
1	Tunnel Size – minimum 60 cm W (width) x 40 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 fluctuations in the range of 170 V to 260 V. single Phase, 3 to 5 Amp.
4	Conveyor Capacity – 160 kg or more.
5	Through put should be 200 bags per hour or more.
6	Sensors>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 160KV
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 5CM from external housing). Relevant certificate from AERB.
12	The operating temperature should be 0 deg C to 40 deg C.
13	Storage temperature 0 degree C to 50 degree C.
14	Humidity- 90% non-condensing
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 Electronic 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 -18.5" or better LCD Monitor SVGA High resolution, low radiation, flicker free, resolution at least 1280 x 1024, 24 bit colour 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 (Explosives, High density, material narcotics) should be displayed in one mode and that should be on line.
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41	UPS: - 3 KVA or better online with back-up time of 1/2 hour to whole system.

	TIP Feature
	Threat Image Projection
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Multi Zone Door Frame Metal Detector Specification

SL. No.	Technical Specification
1.	DETECTION i) The system should be capable of detecting ferrous non-ferrous and alloy metals concealed in the body of a person when passed through the archway ii) Uniform detection from top to bottom is required iii) Should be able to detect multiple metal objects of various weight size and shapes in all the zones simultaneously from head to toe
2.	PASSAGE DIMENSION Height – Min 200 cm Breadth – Min 72 cm Width – Min 57 cm
3.	SPEED OF PASSAGE Performance of the DFMD should be independent of the speed of person passing through. This is particularly important as a person's foot may swing through the archway without touching the ground or may come to rest on the ground between the archway pillars
4.	WEIGHT – 95 Kg Max.
5.	POWER SUPPLY 100-260 VAC 50-60Hz 12-24 SMPS
6.	ALARM INDICATION i) There should be acoustic and optical alarm with alphanumeric display height on person bar display (Metal locator). ii) There should be a provision for suitable setting for adjustment of volume of the audible alarm to overcome the ambient noise present in the vicinity.
7.	Key Pad & LCD Console: 16 (Hex) Password Protected Membrane Keypad for WTMD Console: LCD (4 line * 40 Characters) (Min. Viewing area 140.45 mm* 30.00mm) alpha-Numeric display with Blue backlit for detector parameters viewing and setting.
8.	SENSITIVITY DFMD should have multi-zone capability with uniform sensitivity in all zones

9.	ZONES: - Not less than 8 (eight) real horizontal detection zones covering full height of the Equipment
10.	CALIBRATION: - DFMD shall have inbuilt feature of both manual and automatic calibration
11.	SECURITY: - i) There should be provision to secure the access to the control unit by a password protected alpha numeric keypad ii) DFMD should reset itself within 3 sec after alarm condition iii) Unit should have traffic counter (IN and OUT). The equipment should work in bidirectional mode
12.	OTHER FEATURES: - i) High discrimination between small masses and personal metallic objects ii) Automatic synchronization for DFMDs located close to each other up to a distance of one feet side by side iii) The OEM should have ISO 9001 or better certification.
13.	STATIC METAL COMPENSATION: - DFMD installed closed to fixed sheet or pieces of metal which form part of the building or its fittings. The DFMD should compensate for the presence of such metal and its performance should not be degraded by the presence of metal as stated above
14.	HEALTH AND SAFETY: -i) Magnetic field should be harmless to magnetic media electronic devices and should be film safe (Supplier shall submit test certificates from national /international accredited lab) ii) Operation of DFMD shall not be affected by infrared ultraviolet electromagnetic or RF radiation. Offered equipment shall comply with CE or equivalent safety/ immunity standard (Supplier shall submit test certificates from national / international accredited lab) iii) DFMD should be harmless to pacemaker and pregnant woman (Supplier shall submit test certificates from national / international accredited lab as per ICNIRP guidelines & have international certification)

15.	INTERFERENCE REJECTION:- i) Interference which is mains-borne" or radiated by an external source should not cause the DFMD to raise the alarm spuriously. It should be possible to use equipment such as radio portable telephone walkie-talkie sets X-ray monitors etc. at a distance of one Mtr from the archway without causing spurious alarms. ii) Moving metal beyond 1 Mtr from DFMD should not affect performance of the DFMD. It should be possible to move metallic items like trolleys metallic gate opening/ closing one Mtr away from the DFMD without the generation of false alarm
16.	OPERATING TEMP:- DFMD shall work satisfactory without any deterioration in performance within the temperature range -20 degrees to (+)55 degrees RH up to 90% non-condensing.
17.	CAMERA:- DFMD should have in-built camera of 2 MP (Mega Pixel) OR better at the entry side to capture the video of the incoming people with detection data and video should be recorded in the Hard Disk.
18.	Parameter Display and recording for Audit/ trail. All the Detector Parameters like Sensitivity, Threshold, Metal Level and IN-OUT count is being displayed at a time with the video feed (Text on Video Overlay) in the LED monitor for analysis of the event. Integration in such a manner that the detection data (Sensitivity, Threshold, Metal level (percentage)and zone number with threshold crossed) should be synchronized with the video as an audit trail.
19.	Monitor: LED 18.5 Inches
20.	DATA storage: Inbuilt 1TB HDD recording for 25 days (Approx)
21.	Recording OS: Linux
22.	Recording Mode: Stand Alone DVR (4 channel)
23.	ACCESSORIES TO PROVIDE:- Operating manual for the user

HANDHELD METAL DETECTOR SPECIFICATION

S.No.	Parameter	Specification
1	Dimensions	Length: Maximum 500mm Probe width: Maximum 120mm Body width: Maximum 65mm
2	Weight	Maximum 500gms
3	Battery	Rechargeable with NIMH 9 Volts Battery minimum (150 mAh) , should run minimum 40 hrs on single charge
4	Battery Protection	To be provided against damage due to reverse polarity
5	Alarm	Single LED based Audio, Vibration and Visual indication for i) Switch ON ii) Metal Detection iii) Low battery Indication
6	Operation	3-way push-button operation: On/ Off/ Momentary
7	Construction	Should be rugged and impact resistant molded casing
8	Scan Rate	Minimum 3" to 24"/Sec
9	Detection	The HHMD shall be based on the pulse induction/ very low frequency technology for higher level of control & accuracy. Should be able to detect ferrous and Non-Ferrous metals. -Pistol.22 at Min 6" -Cartridge.22 at Min 2" -Razor blade at Min 1"
10	Temperature	HHMD shall work satisfactorily under Operating temperature: (-) 20°C to (+)55°C.
11	Certification and Compliance	The equipment shall conform to International & National standards/regulations for safety & EMC requirements. (Supported by test certificates from NABL accredited lab. The OEM should have ISO 9001 or better certification.

अटी व शर्ती :-

- सिलबंद दरपत्रके दि. ०२/१२/२०२५ रोजी दुपारी ३:०० वाजेपर्यंत पनवेल महानगरपालिकेच्या माहिती व तंत्रज्ञान विभागात स्वीकारण्यात येतील.
- अटी व शर्ती युक्त दारापत्रकांचा विचार केला जाणार नाही.
- प्राप्त दारापत्रकातील १ अथवा सर्व दरपत्रक कोणतेही कारण न देता मंजूर अथवा नामंजूर करण्याचा हक्क पनवेल महानगरपालिकेने राखून ठेवला आहे.
- या कामासंबंधीचा सविस्तर तपशील माहिती व तंत्रज्ञान विभागात उपलब्ध आहे.
- या कामाबाबतचे दर हे ३ वर्ष वॉरंटी सहीत सादर करावेत.

आवश्यक कागदपत्रे:

PAN Card

GST

Company Registration Certificate

जा.क्र.- पमपा/मातंवि/२१२५/प्र.क्र. ०९/४२८/२०२५

दिनांक :- २५ /११ /२०२५

Signed by Swarup Manik

Kharage

Date: 25-11-2025 11:23:13

उप आयुक्त (मातंवि)

पनवेल महानगरपालिका