GOVERNMENT OF INDIA
(Ministry of Home Affairs)
Communication & IT Directorate
CENTRAL RESERVE POLICE FORCE
EAST BLOCK-7, SEC-1, R.K. PURAM, NEW DELHI-110066
(Tele/Fax No-011-26107493, Email-Id: comncell@crpf.gov.in)

No. B.V-7-C/2025-26-C(3DLS)-Q Dated, the 23 May'2025

Subject: - REQUEST FOR COMMENTS OF STAKEHOLDERS /OEM/FIRMS ON DRAFT QRS & TDS OF "3D LASER SCANNING AND IMAGING SYSTEM".

1. The Draft QRs/TDs of "**3D LASER SCANNING AND IMAGING SYSTEM (3DLS)**" is attached as **Appendix 'A'**. The OEMs/Vendors are requested to forward information of the product, which they can offer and also forward correct specifications of their system against each parameter. Only complied or not complied remarks will not be accepted. The firms are also requested to furnish the following details:-
   - Whether you are OEM/Vendor?
   - If vendor details of OEM.
   - Authorization certificate from OEM.

2. The required information/details may please be forwarded at the following addresses by 07 June'**2025**.

   Communication Directorate, CRPF
   East Block-7, Sec-1, R.K. Puram, New Delhi-110066
   Email: comncell@crpf.gov.in

3. An early response is requested.

{Ujjwal Kumar Singh, AC (QRs)}
For DIG (Equipment)
Communication & IT Branch
Directorate General, C R P F

QRs/TDs Of 3D Laser Scanning and Imaging System.

S/No	Specifications	Trial Directives
1	System must provide automatic 3D Scanning with 360 degree horizontal by 300 degree or better vertical field of view.	Firm will submit OEM Certificate.
2	Ranging Accuracy 3mm or better at 10 mtr with user selectable resolution settings.	Firm will submit OEM Certificate.
3	**Option-1:-** (a) System must capture objects at minimum range of 0.65 mtr or lesser and upto 70 mtr or better from axis of scanner (Radial Range). (b) System must support 165 Mega pixels or better panoramic image full dome capture with HDR Image option for up to 5X exposure. (c) Data Acquisition rate must be minimum 5,00,000 points per second or better. **Option-2:-** **(a) System must capture objects at minimum range of 0.65 mtr or lesser and between range of 100 mtr to 200 mtr from axis of scanner (Radial Range).** **(b) System must support 165 Mega pixels or better panoramic image full dome capture with HDR Image option for up to 5X exposure.'** **(c) Data Acquisition rate must be minimum 5,00,000 points per second or better.** **Option-3:-** (a) System must capture objects at minimum range of 0.65 mtr to 300mtr or better from axis of scanner (Radial Range). (b) System must support 165 Mega pixels or better panoramic image full dome capture with HDR Image option for up to 5X exposure. (c) Data Acquisition rate must be minimum 10,00,000 points per second or better at 300 meter (As per user requirement).	BOO will check practically. For (b) & (c), Firm will submit OEM certificate.
4	**System must use Waveform Digitization Technology for better results and provide encrypted security (Digital Hashing) to all raw scans in scanner.**	**Firm will submit OEM certificate.**
5	System must support at least IP54 rating for dust and water protection.	Firm will submit certificate of any Govt Lab, NABL or ILAC accredited Laboratory.

6	System must provide onsite registration, real time viewing & navigation of image and point cloud data.	BOO will check practically
7	**System must operate on portable single battery with minimum 4 hrs of operation per battery or better and also provide spare battery with suitable battery charger.**	**BOO will check practically**
8	System have scan time roughly 5 minutes per position that should include 165 Mega pixels or better panoramic image full dome capture with HDR Image option for up to 5X exposure.	BOO will check practically
9	System must support universal external memory like standard SDXC card, MicroSD card of standard 3.0 pendrive or better.	Firm will submit OEM certificate
10	System must provide data manipulation, visualization/Viewing and modelling capabilities such as creation of 2D/3D drawing and creation of CAD objects and VR viewing capabilities using VR headset VR view/ 3D goggle.	BOO will check practically
11	System must support data registration, computation, Security planning, analysis and modelling, web publication, animation and 3D modelling and VR viewing	BOO will check practically
12	System must allow publication of point cloud into web-based format for online collaboration, support Hyperlink, measurement, and markup inside web browser. System should be simple to use and install and should not require server installation.	BOO will check practically
13	System must come with centralized storage for high speed point cloud rendering with administrative privileges which allow a user to grant access to a particular project.	BOO will check practically
14	**System must be Portable and easy to deploy preferably not more than 6kg ± 10% with battery.**	**BOO will check practically**
15	Capture instrument should support remote operation through Wi-Fi or better wireless connectivity between laptop/ tablet/ Mobile and instrument.	BOO will check practically.
16	The scanner shall be supplied with a light weight carbon Fibre Tripod, capable of handling 18kg of payload weight.	BOO will check practically.
17	The transportation box of the eqpt (with all accessories) should be waterproof with IP 65 or better.	Firm will submit certificate of any Govt Lab, NABL or ILAC accredited Laboratory.
18	Software system must be able to handle unlimited size of point cloud database.	BOO will check practically
19	**Software system must be client server based to allow a single storage of and dissemination of point cloud data.**	**BOO will check practically**
20	System must provide sophisticated crash & post event reconstruction tools.	Firm will submit OEM certificate.
21	System must provide minimum three registration methods and algorithms that can be used independently or in conjunction, namely: - (a)Cloud-to-cloud matching. (b) Known targets (c) Automatic Visual Registration Tools.	BOO will check practically & Firm will also submit OEM certificate.

22	System must provide Audit Logs for Evidence Integrity.	BOO will check practically
23	**System must be compatible with Major point cloud handling and publishing software's and should be able to conduct two-way communications.**	**BOO will check practically.**
24	System must provide the ability to register and superimpose internal images automatically and external images on scanned data for photo-realistic presentation.	BOO will check practically.
25	Provide various scene investigation tools like Bullet Trajectory, camera planner, Security Ring, Security Halo, Animation for reconstruction, Point Cloud overlay on images for measurement and analysis, view point analysis, wizard for creating finished diagrams, sketching mode.	BOO will check practically.
26	Should support extraction of 2D drawings from 3D models and scanned data.	BOO will check practically.
27	**Should have direct import of each format (2D/3D) i.e XYZ, E57, LAS, LAZ, LS, PTS, PTX, DXF, FBX, OBJ, ASC, FWS, ISPROJ, TXT, DXF & DWG format.**	**BOO will check practically & Firm will also submit OEM certificate.**
28	**Should have direct export of each format (2D/3D) i.e ASC, LAS, OBJ export each format i.e XYZ' IGES, LAS, LAZ, POD, BSF, DXF, RCP, PTS, E57, DXF, DWG, PLY & XML format.**	**BOO will check practically & Firm will also submit OEM certificate.**
29	Must provide 3D limit box to reduce point density.	BOO will check practically.
30	Must provide automatic manual point density control.	BOO will check practically.
31	Must provide cloud to cloud registration capabilities.	BOO will check practically.
32	Must support Dynamic level of detail management, displaying different levels of scanned data & 3D model for fast visualization.	BOO will check practically.
33	Take measurement on scanned data, 3D models; slope distances; volumes and surface areas	BOO will check practically.
34	Must support visualization on mobile/tablet in both mode - online and offline.	BOO will check practically.
35	Must have internal Height Sensor, GPS, GLONASS with inbuilt Compass to provide scan orientation and must support integration with Industrial GIS Platforms.	BOO will check practically & Firm will also submit OEM certificate.
36	Must support integration with 3 D modelling software like sketch up Pro, AutoCAD, Autodesk, Maya, 3DS Max, Blender, Modo, Archi CAD Solidworks, BricsCAD, V-Ray, etc.	BOO will check practically & Firm will also submit OEM certificate.
37	Must support visualization with or without server.	BOO will check practically & Firm will also submit OEM certificate.
38	**Operating temperature for equipment** **-20^{o}C to + 55^{o}C**	**Firm will submit certificate of any Govt Lab or NABL or ILAC accredited Laboratory.**

39	Must be able to create a web share of the captured/ Processed Data to be reviewed at any remote location on any normal configuration of Laptop online and offline without any software installation.	BOO will check practically.
40	Laser Class-1 must comply IEC 60825-1:2014	Firm will submit certificate of any Govt Lab or NABL or ILAC accredited Laboratory.
41	Laser used to scan should be human safe.	Firm will submit certificate of any Govt Lab or NABL or ILAC accredited Laboratory.
42	**Point cloud processing software should support all formats of standard point cloud data outputs like E57, PTS and XyZ.**	**BOO will check practically.**
43	Application should support registration of multiple captures/ scans/images automatically	BOO will check practically.
44	Service / Support of the equipment should be provided on PAN India basis.	Firm will submit OEM certificate.
45	Training: The bidder shall arrange to provide Onsite training for Anti - Terrorism, WIP Security Planning, Indoor and outdoor Crime scene scanning and shall essentially conduct a workshop for the same. (As per user Requirement) Firm will provide operating and technical manual.	Firm will submit under taking certificate.
46	OEM Should essentially have a local office in India.	Firm will submit OEM certificate.
47	Warranty-03 Years or More.	Firm will submit OEM certificate.
48	After sale support- Minimum 05 Years after warranty.	Firm will submit OEM certificate.
49	Laptop/Portable Computing Device for data processing must have following specs:- (a) SSD – 2TB or better (b) Processor – i9 with 10 core or better. (c) RAM – 64GB or better (d) OS – Window 11 or latest version (e) Graphic Card – In built Nvidia's RTX 4090 or better (f) MS Office – Office latest version (g) NAS – 200 TB with redundancy and security feature and data management facility. (h) Computing device should be compatible with 3D Laser Scanning device.	BOO will check practically.
50	**The system should be able to stitch all the images to create a panoramic image of building within stipulated time.**	**BOO will check practically.**
51	**<u>Data Storage</u>: Inbuilt storage minimum 256 GB and expendable up to 1 TB.**	**BOO will check practically.**