



DIRECTORATE GENERAL, CRPF
EAST BLOCK-7, SECTOR-1, R.K PURAM, NEW DELHI-66
e-mail : digeqpt@crpf.gov.in Tele No. 011-26109038



No. B.V-7/2025-26-C(IT-Infra)-QR Cell

Dated, the 30 Jan'2026

To

1. The DsG: AR, BSF, CISF, ITBP, NSG, SSB and BPR&D
2. Director, DCPW

Subject: QRs/TDs OF "IT INFRASTRUCTURE EQUIPMENT" REGARDING.

I am directed to refer to the subject mentioned above and to say that the QRs/TDs of "IT Infrastructure Equipment" have been approved by the DG CRPF after due deliberations as per recommendations of CAPFs Sub-Group of Technical Experts and Experts from DCPW & BPR&D. In aforesaid QRs/TDs total 15 Items are as under: -

S.N.	Name of Equipment
1	Layer 2 Switch 24 Ports Non PoE
2	Layer 2 Access Switch 24 Ports PoE+
3	Layer 2 Access Switch 48 Ports
4	Layer 3 Access Switch 24 Ports
5	Layer 3 Core Switch 24 Ports
6	Layer 3 Access Switch 48 Ports
7	HCI Servers (Hyper convergent Infrastructure)
8	Rack Server
9	Storage Server
10	Unified Storage System and Normal Storage
11	Blade Server and Chassis for Blade Server
12	IP based CCTV System (Camera and CCTV Storage)
13	Network Video Management Software
14	Web Application Firewall (WAF)
15	NGFW (Next Generation Firewall) & Universal Threat Management (UTM)

2. QRs/TDs of "**IT Infrastructure Equipment**" forwarded earlier vide letter No. B.V-7/2021-22-C (IT-QRs) dated 02/05/2022 stand rescinded.

This is for favour of information and further needful action please.

Encl:-As above

J 30/12/2026
 (Megh Raj)
DIG (Equipment)
Communication & IT Branch
Directorate General C R P F

No. B.V-7/2025-26-C(IT-Infra)-QR Cell

Dated, the 30 Jan'2026

Copy to:-

1. Mr. Deepak Kumar, Technical Director, North block, MHA (e-mail ID: deepakg@gov.in) with request to upload the QRs/TDs of "IT Infrastructure Equipment" on MHA website and QRs/TDs of "IT Infrastructure Equipment" forwarded earlier vide letter No. B.V-7/2021-22-C (IT-QRs) dated 02/05/2022 stand rescinded please.

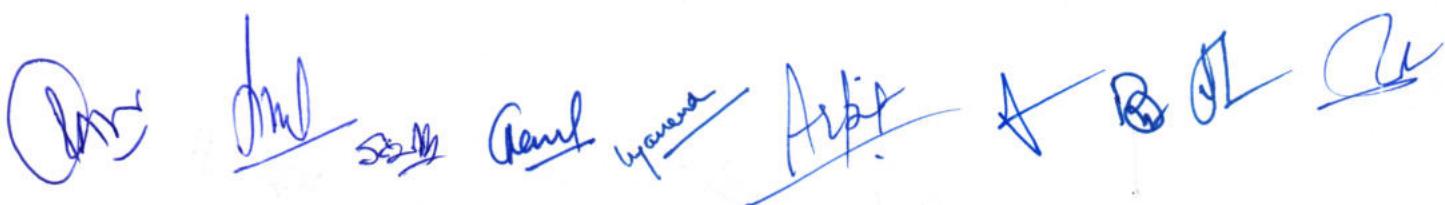
Encl:-As above

J 30/12/2026
 (Megh Raj)
DIG (Equipment)
Communication & IT Branch
Directorate General C R P F

QRs/TDs of Layer 2 Switch 24 Ports Non PoE

Specifications:

Slno.	Specifications	Value	Trial Directives
1	Type of Switch	Managed	Verification with OEM Tech Brochure and Console Software
2	Technology	Non PoE	Practically Check-up and verification with OEM Tech Brochure
3	Number of 1G Copper Ports	24	
4	Number of 10G Copper Ports	As per User requirement	
5	No. of 1 G SFP Port (Uplink)	As per User requirement	
6	(Populated with SFP+ / 10G BASE-T ports module of OEM as per user requirement) (Uplink)	4	
7	Multi-Gigabit Support	As per User requirement	
8	Redundant Power supply (from day one)	Supported	
9	Console Port	Available	Verification with OEM Tech Brochure and Console Software
10	Switching Capacity -Non-Blocking (Gbps)	Min 128	
11	Throughput (MPPS)	Min 95	
12	Operating System	Available	
13	Dedicated Stacking Port/Slot (from day one)	As per User requirement	
14	Basic Layer-3 Protocol	Static, RIPng/OSPFv3, OSPF, VRRP v2/v3, ECMP, IGMP v1/v2/v3, MLD v1/v2	


 A series of handwritten signatures in blue ink, including "Dinesh", "S. M. Amin", "Yashas", "Arpit", "R. D.", and "A."

Slno.	Specifications	Value	Trial Directives
15	Security Feature	uRPF/IP source guard, Port Security, 16K MAC, SSL, SSH, broadcast, unicast and multicast storm control, ARP, 802.1x, ARP Spoofing Prevention, IPv6 DHCPv6 Guard//Equivalent feature, ARP Spoofing Prevention	Verification with OEM Tech Brochure
16	Management Protocol	Web interface- user (HTTP/HTTPS), CLI, SNMP v1/v2/v3, TFTP, Syslog, DHCP Server, RMONv1/ v2, WebUI, LLDP/ LLDP-MED, RMON / Streaming Telemetry	Verification with OEM Tech Brochure
17	QoS	QoS: 802.1Qbb Priority-based Flow, 802.1p CoS DSCP, WRR / SRR/WTD/WRED scheduling, Packet buffer minimum 1.5	Verification with OEM Tech Brochure
18	Operating Temperature Range (Degree C)	0°C to 45°C As per User requirement	Verification with OEM Tech Brochure
19	Operating Humidity (RH) (%)	90% or better	Verification with OEM Tech Brochure
20	IPv6 Ready from day one and <u>dually</u> certified	Yes	Verification with OEM Tech Brochure
21	On Site OEM Warranty	1 / 3 / 5 Year (As per User Requirement)	Verification with OEM Tech Brochure

[Handwritten signatures and initials follow, including 'WY', 'Shubh', 'Gauri', 'Manu', 'Arpit', 'R', 'P', 'C', and 'Y' in blue ink.]

Slno.	Specifications	Value	Trial Directives
22	Layer 2 encryption 802.1ae - Macsec-128 (Optional)	Switch should have IEEE 802.1AE - MACSec 128 Support on all Switch ports	Verification with OEM Tech Brochure

SI/Exe Prashant Attri
(CISF)

AC-II Latit Kumar
(NSG)

Insp/Tele Sree Kumar R
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Arpit Chaudhary, AC (IT)
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Satyarth Sharma, JAD
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Vijay Kumar, IG (Comm & IT)
(CRPF)

Zaki Ahmad, IPS, SDG (ADM)
CRPF

Approved/Not Approved

Gyanendra Pratap Singh, IPS
DG, CRPF

QRs/TDs of Layer 2 Access Switch 24 Ports (PoE+)

Specifications:

Slno.	Specifications	Value	Trial Directives
1	Type of Switch	Managed / Web Managed	Verification with OEM Tech Brochure and Console Software
2	Technology	PoE+	Practically Checkup and verification with OEM Tech Brochure
3	Number of 1G Copper Ports	24	
4	Number of 10G Copper Ports	As per User requirement	
5	No. of 1 G SFP Port (Uplink)	As per User requirement	
6	(Populated with SFP+ / 10G BASE-T ports module of OEM (as per user requirement) (Uplink)	4	
7	Multi-Gigabit Support	As per User requirement	
8	Redundant Power supply (from day one)	As per User requirement	
9	Console Port	Available	Verification with OEM Tech Brochure and Console Software
10	Switching Capacity -Non-Blocking (Gbps)	Min 128 or more	
11	Throughput (MPPS)	Min 95 or more	
12	Operating System	Available	
13	Dedicated Stacking Port/Slot (from day one)	As per User requirement	
14	Stacking Bandwidth (Gbps)	As per User requirement	
15	Basic Layer-3 Protocol	Static, RIPng/OSPFv3, OSPF, VRRP v2/v3, ECMP, IGMP v1/v2/v3, MLD v1/v2	

Mr. [Signature] *Sh. [Signature]* *Asst. Manager [Signature]* *Arpit [Signature]* *A [Signature]* *B [Signature]* *C [Signature]*

Slno.	Specifications	Value	Trial Directives
16	Security Feature	SSH, SSL, IEEE 802.1X Web-based authentication, STP BPDU Guard and Root Guard DHCP Snooping IP Source Guard, IP/MAC/port binding, RADIUS/TACACS+ Port security Storm control ACLs.	Verification with OEM Tech Brochure
17	Management Protocol	Web user interface- (HTTP/HTTPS) SNMP versions 1, 2c, and 3 with support for traps, and SNMP v3), RMON / Streaming Telemetry	Verification with OEM Tech Brochure
18	QoS	8 hardware queues Strict priority and Weighted Round-Robin (WRR) Port based; 802.1p VLAN priority based IPv4/ v6 IP precedence/ ToS/ DSCP based DiffServ; classification and remarking ACLs, Packet Buffer minimum 1.5	Verification with OEM Tech Brochure
19	Operating Temperature Range (Degree C)	0°C to 45°C As per User requirement	Verification with OEM Tech Brochure
20	Operating Humidity (RH %)	90% or better	Verification with OEM Tech Brochure
21	IPv6 Ready from day one and duly certified	Yes	Verification with OEM Tech Brochure

Slno.	Specifications	Value	Trial Directives
22	PoE Power Budget (Watt)	Min 370	Verification with OEM Tech Brochure
23	On Site OEM Warranty	1 / 3 / 5 Year (As per User Requirement)	Verification with OEM Tech Brochure
24	Layer 2 encryption 802.1ae - Macsec-128 (Optional)	Switch should have IEEE 802.1AE - MACSec 128 Support on all Switch ports	Verification with OEM Tech Brochure

SI/Exe Prashant Attri
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AC-II Lalit Kumar
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Zaki Ahmad, IPS, SDG (ADM)
CRPF

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Gyanendra Pratap Singh, IPS
DG, CRPF

QRs/TDs of Layer 2 Access Switch 48 Ports

Specifications:

Slno.	Specifications	Value	Trial Directives
1	Type of Switch	Managed	Verification with OEM Tech Brochure and Console Software
2	Technology	Non PoE	Practically Check-up and verification with OEM Tech Brochure
3	Number of 1G Copper Ports	48	
4	Number of 10G Copper Ports	As per User requirement	
5	No. of 1 G SFP Port (Uplink)	As per User requirement	
6	(Populated with SFP+ / 10G BASE-T ports module of OEM as per user requirement) (Uplink)	4	
7	Multi-Gigabit Support	As per User requirement	
8	Redundant Power supply (from day one)	Yes	
9	Console Port	Available	Verification with OEM Tech Brochure and Console Software
10	Switching Capacity -Non-Blocking (Gbps)	Min 176	
11	Throughput (MPPS)	Min 130	
12	Operating System	Available	
13	Dedicated Stacking /MLAG Port /Slot (from day one)	As per User requirement	
14	Stacking Bandwidth (Gbps)	As per User requirement	
15	Basic Layer-3 Protocol	Wire speed routing of IPv4 packet Up to 8K static routes and up to 256 IP interfaces Wire speed routing of IPv6 packets, DHCP Relay Static, OSPF, Routed Access, VRRP v2/v3, ECMP, IGMP v1/v2/v3	

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Slno.	Specifications	Value	Trial Directives
16	Security Feature	SSH, SSL, IEEE 802.1X, Web-based authentication, STP BPDU Guard and Root Guard, DHCP Snooping, IP Source Guard, IP/MAC/port binding, RADIUS/TACACS+, Port security, Storm control, ACLs.	Verification with OEM Tech Brochure
17	Management Protocol	Web user interface-(HTTP/HTTPS), SNMP versions 1, 2c, and 3 with support for traps, and SNMP v3 User-based Security Model (USM), RMON / Streaming Telemetry	Verification with OEM Tech Brochure
18	QoS	8 hardware queues, Strict priority and Weighted Round-Robin (WRR), Port based; 802.1p VLAN priority based; IPv4/v6 IP precedence/ ToS/DSCP based; DiffServ; classification and remarking ACLs	Verification with OEM Tech Brochure
19	Operating Temperature Range (Degree C)	0°C to 45°C (As per User Requirement)	Verification with OEM Tech Brochure
20	Operating Humidity (RH)(%)	90% or Better	Verification with OEM Tech Brochure
21	IPv6 Ready from day one and duly certified	Yes	Verification with OEM Tech Brochure

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Shyamal Saha Amal Kumar Agarwal Asit BB JK

Slno.	Specifications	Value	Trial Directives
22	On Site OEM Warranty	1 / 3 / 5 Year (As per User Requirement)	Verification with OEM Tech Brochure
23	Layer 2 encryption 802.1ae - Macsec-128 (Optional)	Switch should have IEEE 802.1AE - MACSec 128 Support on all Switch ports	Verification with OEM Tech Brochure

SI/Exe Prashant Attri
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CRPF

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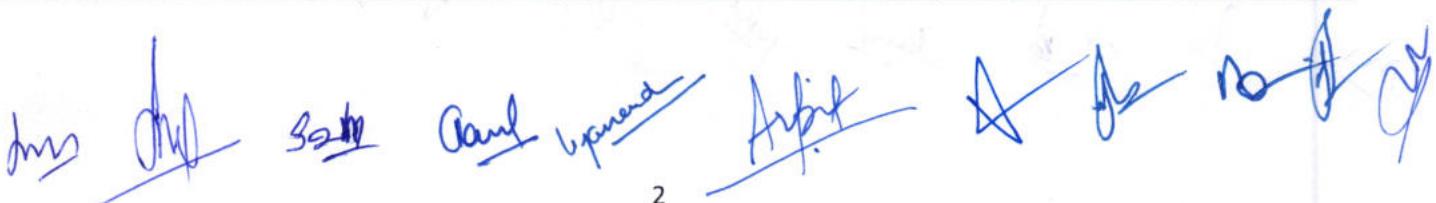
Gyanendra Pratap Singh, IPS
DG, CRPF

QRs/TDs of Layer 3 Access Switch 24 Ports

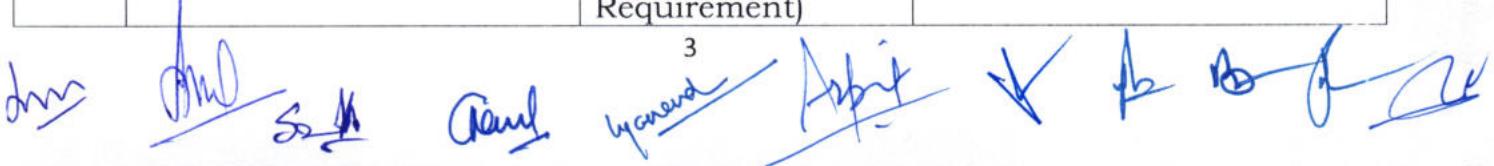
Specifications:

Slno.	Specifications	Value	Trial Directives
1	Maximum Number of Access /Downlink Ports	24	Verification with OEM Tech Brochure and Console Software
2	Type of Switch	Non PoE	Practically Check-up and verification with OEM Tech Brochure
3	Number of 10/100/1000 Base-T Ports	24	
4	Number of Multi-Gigabit Ports	As per User Requirement	
5	Number of 1 G Base T Ports (Uplink)	As per User Requirement	
6	Number of 1 G SFP / Base X Port (Uplink)	As per User Requirement	
7	Number of 10 G Base T Port (Uplink)	As per User Requirement	
8	Populated with SFP+ / 10G BASE-T ports module of OEM (as per user requirement) (Uplink)	4	
9	Number of 40 G QSFP+ Port (Uplink)	As per User Requirement	
10	Number of 100 G QSFP Port (Uplink)	As per User Requirement	
11	Management Port (RJ 45/RS 232/USB)	Yes	
12	RAM (MB)	Min 4096	Verification with OEM Tech Brochure and Console Software
13	Flash Memory (MB)	Min 2048	
14	9K MTU Supported (Minimum)	Yes	
15	Console Port	Yes	
16	Redundant Power supply	Yes	
17	Redundant Power Supply Type (Optional)	Internal	

Slno.	Specifications	Value	Trial Directives
18	Redundant Power Supply (Hot Swappable) (Optional)	Yes	Verification with OEM Tech Brochure and Console Software
19	Redundant Fan	Yes	Verification with OEM Tech Brochure and Console Software
20	Redundant Fan (Hot Swappable) (Optional)	Yes	Verification with OEM Tech Brochure and Console Software
21	Number of Open slots for additional Interface Card (Optional)	1	Verification with OEM Tech Brochure and Console Software
22	Operating System	Yes	Verification with OEM Tech Brochure and Console Software
23	Stacking Port/Slot/Ports /MLAG	Yes	Verification with OEM Tech Brochure and Console Software
24	Stacking Bandwidth (Gbps) (Optional)	Min 80	Verification with OEM Tech Brochure and Console Software
25	Switching Capacity / Forwarding Bandwidth (Non-Blocking / Line Rate /Wired Speed) 2x (Numbers of access ports + Number of Uplink Ports) (Gbps)	Min 128	Verification with OEM Tech Brochure and Console Software
26	Throughput / Forwarding Performance (MPPS)	Min 95.232	Verification with OEM Tech Brochure and Console Software
27	Layer 2 Protocols	802.1Q VLAN, LAG	Verification with OEM Tech Brochure and Console Software
28	Number of VLAN Supported	Min 512	Verification with OEM Tech Brochure and Console Software
29	Number of VLAN IDs Supported	Min 4000	Verification with OEM Tech Brochure and Console Software
30	Number of IPV4 Routes	Min 8000	Verification with OEM Tech Brochure and Console Software
31	Number of IPV6 Routes	Min 4000	Verification with OEM Tech Brochure and Console Software


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Slno.	Specifications	Value	Trial Directives
32	Number of Mac Address Supported (k)	Min 8K	Verification with OEM Tech Brochure and Console Software
33	Basic Layer-3 Protocol from day 1	Static Routing, BGP, OSPFv2, OSPFv3 / RIPng	Verification with OEM Tech Brochure and Console Software
34	Advance Layer-3 Protocol from day 1	OSPFv2, OSPFv3, PBR, BGP, BGP 4/IS-IS, PIM-SM, PIM-SSM	Verification with OEM Tech Brochure and Console Software
35	Premium Layer-3 Protocol from day 1	BGP-EVPN/IS-IS, PIM-SM, PIM-SSM, VRF Lite	Verification with OEM Tech Brochure and Console Software
36	Security Feature	RA Guard/ Equivalent Feature, DHCP Snooping, ACL, 802.1x, RADIUS/ TACACS, Port Security, BPDU Guard, VRF Lite, IGMP snooping	Verification with OEM Tech Brochure and Console Software
37	Management Protocol	GUI, CLI, Telnet/SSH v2, TFTP, SNMPv1, SNMPv2/ V2C, SNMPv3, NTP	Verification with OEM Tech Brochure and Console Software
38	QoS	802.1p, SP, Queues per port, WRED/ WTD, Shaping, Policing / Rate Limiting, Packet buffer min 1.5	Verification with OEM Tech Brochure and Console Software
39	Dimension / Form Factor (RU)	1	Verification with OEM Tech Brochure and Console Software
40	Certification	NDcPP/EAL2 / IEC 62443-4-1 / FIPS or Indian equivalent STD / MTCTE TEC ER	Verification with OEM Tech Brochure and Certification
41	MTBF (Year)	7	Verification with OEM Tech Brochure
42	Operating Temperature (Degree C)	0°C to 45°C (± 5) (As per User Requirement)	Verification with OEM Tech Brochure and Certification


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Slno.	Specifications	Value	Trial Directives
43	Minimum Operating Humidity (%RH)	90% or Better	Verification with OEM Tech Brochure and Certification
44	IPv6 Ready from day 1	Yes	Verification with OEM Tech Brochure and Certification
45	On Site OEM Warranty (Year)	1 / 3 / 5 Years (As per User Requirement)	Verification with OEM Tech Brochure and Certification

SI/Exe Prashant Attri
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Zaki Ahmad, IPS, SDG (ADM)
CRPF

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Gyanendra Pratap Singh, IPS
DG, CRPF

QRs/TDs of Layer 3 Core Switch 24 Ports

Specifications:

Slno.	Specifications	Value	Trial Directives
1	Type of Core Switch	Chassis Based/ Modular/Fixed Form	Verification with OEM Tech Brochure and Console Software
2	No. of Interface Slots	As per User Requirement	Verification with OEM Tech Brochure and Console Software
3	No. of MPU/SUP/Fabric Slots (with redundancy)	As per User Requirement	
4	No. of Power supply (with redundancy)	2	
5	No. of FAN Tray/Module	2	
6	(Populated with SFP+ of OEM)	24	Practically Check-up and verification with OEM Tech Brochure
7	No. of 1000 base-T Ports	As per User Requirement	
8	Support for 40G QSFP+ Port	As per User Requirement	
9	Number of 40G Q SFP+ Port	As per User Requirement	
10	Support for 100G QSFP+ Port	As per User Requirement	
11	Number of 100 G QSFP+ Port	As per User Requirement	
12	Console Port	Available	Verification with OEM Tech Brochure and Console Software
13	Modular OS	Available	Verification with OEM Tech Brochure
14	Support for virtual Chassis	As per User Requirement	Verification with OEM Tech Brochure
15	Switching Capacity (Gbps)	Min 2000	Verification with OEM Tech Brochure
16	Throughput (MPPS)	Min 1000	Verification with OEM Tech Brochure
17	Advance Layer-3 Protocol	BGP6, VXLAN, OSPF	Verification with OEM Tech Brochure
18	Security Feature	DARP/Equivalent, CoPP, RAGua/ Equivalent	Verification with OEM Tech Brochure
19	Management Protocol	SSHv2, RADIUS / POAP	Verification with OEM Tech Brochure
20	QoS	ECN, SCHEDULNG, PIM-SSM	Verification with OEM Tech Brochure
21	Dimension/ Form Factor (RU)	1	Practically Check-up and verification with OEM Tech Brochure

[Handwritten signatures and initials are present below the table]

Slno.	Specifications	Value	Trial Directives
22	RAM	4 GB	Verification with OEM Tech Brochure and Software Console
23	FLASH	4 GB	Verification with OEM Tech Brochure and Software Console
24	MAC Table	150k or more	Verification with OEM Tech Brochure and Software Console
25	Operating (Degree C) Temperature	0°C to 40°C	Verification with OEM Tech Brochure and Software Console
26	Operating (RH)(%) Humidity	90% or Better	Verification with OEM Tech Brochure and Software Console
27	IPv6 Ready	Yes	Verification with OEM Tech Brochure and Software Console
28	On Site OEM Warranty (Year)	1 / 3 / 5 Years (As per User Requirement)	Verification with OEM Tech Brochure

SI/Exe Prashant Attri
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AC-II Lalit Kumar
(NSG)

Insp/Tele Sree Kumar R
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Approved/Not Approved

Gyanendra Pratap Singh, IPS
DG, CRPF

QRs/TDs of Layer 3 Access Switch 48 Ports

Slno.	Specifications	Value	Trial Directives
1	Maximum Number of Access /Downlink Ports	48	Practically Check-up and verification with OEM Tech Brochure
2	Type of Switch	Non PoE	Practically Check-up and verification with OEM Tech Brochure
3	Number of 10/100/1000 Base-T Ports	48	
4	Number of Multi-Gigabit Ports	As per User Requirement	
5	Number of 1 G Base T Ports (Uplink)	As per User Requirement	
6	Number of 1 G SFP / Base X Port (Uplink)	As per User Requirement	
7	Number of 10 G Base T Port (Uplink)	As per User Requirement	
8	Number of 10 G SFP+ Port (Uplink)	Min 4	
9	Number of 40 G QSFP+ Port (Uplink)	As per User Requirement	
10	Number of 100 G QSFP Port (Uplink)	As per User Requirement	
11	Management Port (RJ 45/RS 232/USB)	Yes	
12	RAM (MB)	Min 4096	Verification with OEM Tech Brochure and Console Software
13	Flash Memory (MB)	Min 4096	Verification with OEM Tech Brochure and Console Software
14	9K MTU Supported (Minimum)	Yes	Verification with OEM Tech Brochure and Console Software Verification with OEM Tech Brochure and Console Software
15	Console Port	Yes	Verification with OEM Tech Brochure and Console Software
16	Redundant Power supply	Yes	Verification with OEM Tech Brochure

Slno.	Specifications	Value	Trial Directives
17	Redundant Power Supply Type (Optional)	Internal	Verification with OEM Tech Brochure
18	Redundant Power Supply (Hot Swappable) (Optional)	Yes	Verification with OEM Tech Brochure
19	Redundant Fan	Yes	Verification with OEM Tech Brochure
20	Redundant Fan (Hot Swappable) (Optional)	Yes	Verification with OEM Tech Brochure
21	Number of Open slots for additional Interface Card (Optional)	As per User Requirement	Verification with OEM Tech Brochure
22	Operating System	Yes	Verification with OEM Tech Brochure and Console Software
23	Stacking /MLAG Port/Slot/Ports	Yes	Verification with OEM Tech Brochure
24	Stacking Bandwidth (Gbps) (Optional)	Min 80	Verification with OEM Tech Brochure
25	Switching Capacity / Forwarding Bandwidth (Non-Blocking / Line Rate /Wired Speed) 2x (Numbers of access ports + Number of Uplink Ports) (Gbps)	Min 176	Verification with OEM Tech Brochure
26	Through put / Forwarding Performance (MPPS)	Min 130	Verification with OEM Tech Brochure
27	Layer 2 Protocols	802.1Q VLAN	Verification with OEM Tech Brochure
28	Number of VLAN Supported	Min 1024	Verification with OEM Tech Brochure
29	Number of VLAN IDs Supported	Min 4000	Verification with OEM Tech Brochure
30	Number of IPV4 Routes	Min 8000	Verification with OEM Tech Brochure
31	Number of IPV6 Routes	Min 4000	Verification with OEM Tech Brochure
32	Number of Mac Address Supported (k)	Min 8K	Verification with OEM Tech Brochure
33	Basic Layer-3 Protocol from day 1	RIPv1/v2, RIPng/ OSPF	Verification with OEM Tech Brochure

Mr.

John Smith

Yuvendra Singh

Abhishek

Chetan

Slno.	Specifications	Value	Trial Directives
34	Advance Layer-3 Protocol from day 1	OSPFv2, PBR, PIM-SSM, BGP4, IS-IS	Verification with OEM Tech Brochure
35	Premium Layer-3 Protocol from day 1	BGP, BGP4, IS-IS, IS-ISv6, PIM-SM, PIM-SSM, VRF Lite	Verification with OEM Tech Brochure
36	Security Feature	DHCP Snooping, 802.1x, RADIUS/TACACS	Verification with OEM Tech Brochure
37	Management Protocol	WEB/GUI (HTTP/HTTPPs), CLI, Telnet, SSH v2, TFTP, SNMPv1, SNMPv2/V2C, SNMPv3, NTP	Verification with OEM Tech Brochure
38	QoS	802.1p, SP, Queues per port, Shaping, Policing / Rate Limiting, Strict Priority Queueing or Low Latency Queueing, packet buffer min 1.5	Verification with OEM Tech Brochure
39	Dimension / Form Factor (RU)	1	Verification with OEM Tech Brochure
40	Certification	NDcPP/EAL2 / IEC 62443-4-1 / FIPS or Indian equivalent STD /MTCTE TEC ER	Verification with OEM Tech Brochure and Certification
41	Mean Time Between Failure MTBF (Year)	7	Verification with OEM Tech Brochure
42	Operating Temperature (Degree C)	0°C to 45°C (± 5) (As per user requirement)	Verification with OEM Tech Brochure
43	Operating Humidity (%RH)	90% or Better	Verification with OEM Tech Brochure
44	IPv6 Ready from day 1	Yes	Verification with OEM Tech Brochure

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Slno.	Specifications	Value	Trial Directives
45	On Site OEM Warranty (Year)	1 / 3 / 5 Years (As per User Requirement)	Verification with OEM Tech Brochure

SI/Exe Prashant Attri
(CISF)

AC-II Lalit Kumar
(NSG)

Insp/Tele Sree Kumar R
(ITBP)

Arpit Chaudhary, AC (IT)
(BSF)

Satyarth Sharma, JAD
(DCPW)

Munesh Kumar, AC(IT)
(SSB)

Gyanendra Kumar Giri
AC (QR) (CRPF)

Vimal Singh, DC (IT)
(CRPF)

Binay Kumar, AD
(BPR&D)

Megh Raj, DIG (Eqpt)
(CRPF)

Vijay Kumar, IG (Comn & IT)
(CRPF)

Zaki Ahmad, IPS, SDG (ADM)
CRPF

✓ 
Approved/Not Approved

Gyanendra Pratap Singh, IPS
DG, CRPF

QRs/TDs of HCI Servers (Hyper Convergent Infrastructure)

S.N.	Specifications	Value	Trial Directives
1	Type of HCI offered	Generic node HCI (consisting both Compute and Storage)	Verification with OEM Tech Brochure and Console Software
2	Total usable Cores available (after installation of HCI software resources required for solution) in the offered solution	Min 44	Verification with OEM Tech Brochure and Console Software
3	Total usable Storage in TB available without using Deduplication, Compression (after installation of HCI software resources required for solution) in the offered solution	Min 8	Verification with OEM Tech Brochure and Console Software
4	Total usable RAM in GB available (after installation of HCI software resources required for solution) in the offered solution	Min 768 GB	Verification with OEM Tech Brochure and Console Software
5	Types of data copies across Cluster available in the offered solution	2	Verification with OEM Tech Brochure and Console Software
6	Number of Nodes offered in HCI Cluster	Min 3	Verification with OEM Tech Brochure and Console Software
7	Number of Sockets offered per Node	2	Verification with OEM Tech Brochure and Console Software
8	Number of Cores per Sockets	Min 16	Verification with OEM Tech Brochure and Console Software
9	Number of populated Processor per Node	2	Verification with OEM Tech Brochure and Console Software
10	Type of Processor offered in the system	Intel Xeon / Emerald Rapid series or better or Equivalent AMD (As per user requirement)	Verification with OEM Tech Brochure and Console Software
11	Indicate Processor Model number with Make	Intel Chipset or Equivalent AMD chipset (As per user requirement)	Verification with OEM Tech Brochure and Console Software



S.N.	Specifications	Value	Trial Directives
12	Type of storage media offered with the solution	SSD or NVME Drives (as per User Requirement)	Verification with OEM Tech Brochure and Console Software
13	Total Storage capacity (RAW) offered per node in TB	Min 9.6	Verification with OEM Tech Brochure and Console Software
14	Storage capacity offered per node with SAS drives in TB	As Per User Requirement	Verification with OEM Tech Brochure and Console Software
15	Storage Scalability per node with SAS drives in TB	As Per User Requirement	Verification with OEM Tech Brochure and Console Software
16	Storage capacity offered per node with SSD drives in TB	Min 9.6	Verification with OEM Tech Brochure and Console Software
17	Storage Scalability per node with SSD drives in TB	Min 9.6	Verification with OEM Tech Brochure and Console Software
18	Storage capacity offered per node with NL SAS drives in TB	As Per User Requirement	Verification with OEM Tech Brochure and Console Software
19	Storage Scalability per node with NL SAS drives in TB	As Per User Requirement	Verification with OEM Tech Brochure and Console Software
20	Storage capacity offered per node with NVMe in TB	As Per User Requirement	Verification with OEM Tech Brochure and Console Software
21	Storage Scalability per node with NVMe in TB	As Per User Requirement	Verification with OEM Tech Brochure and Console Software
22	RAM Capacity (Raw) offered per node in GB	Min 512	Verification with OEM Tech Brochure and Console Software
23	RAM scalability per node in GB	Min 1536	Verification with OEM Tech Brochure and Console Software
24	No of cache drives per node	As Per User Requirement	Verification with OEM Tech Brochure and Console Software
25	Cache offered per node in GB	As Per User Requirement	Verification with OEM Tech Brochure and Console Software
26	Cache scalability per node in GB	As Per User Requirement	Verification with OEM Tech Brochure and Console Software
27	Number of Network ports per node	Min 4	Practically Checkup and verification with OEM Tech Brochure


 A series of handwritten signatures in blue ink are placed at the bottom of the table. The signatures are somewhat illegible but appear to be names such as "Dinesh", "Anil", "Amit", "K", "R", and "A". There is also a small checkmark or mark to the right of the "A" signature.

S.N.	Specifications	Value	Trial Directives
28	Throughput Per Network port	10/25 Gbps or better (defined by user department)	Verification with OEM Tech Brochure and Console Software
29	Type of Network port	SFP +	Verification with OEM Tech Brochure and Console Software
30	Security certifications	FIPS-140, CCC, EAL2	Verification with OEM Tech Brochure and Console Software
31	Failover	<p>HCI Solution must be able to tolerate the following failures scenarios:</p> <ol style="list-style-type: none"> 1. Simultaneous failure of any 1 Nodes across the cluster. 2. Simultaneous failure of any 1 drive across the cluster 	Verification with OEM Tech Brochure and Console Software
32	GPU support	The supplied HCI solution should be capable to host at least 1 GPU card in case of future requirement.	Verification with OEM Tech Brochure and Console Software
HCI Interconnect Switches			
33	Number of L2 Switches to be offered for Interconnection all the Network Ports in the Cluster	2	Verification with OEM Tech Brochure and Console Software
34	Indicate Switch Model number with Make	L2 Switch L2	Verification with OEM Tech Brochure and Console Software
35	Throughput Available per port	10 Gbps	Verification with OEM Tech Brochure and Console Software
36	Number of populated Ports for 10 Gbps throughput per Switch	Min 12	Verification with OEM Tech Brochure and Console Software
37	Number of Enabled Ports for 10 Gbps throughput per Switch	Min 8	Verification with OEM Tech Brochure and Console Software
38	Number of Available Ports for 25 Gbps throughput per Switch	As Per User Requirement	Verification with OEM Tech Brochure and Console Software
39	Number of Enabled Ports for 25 Gbps throughput per Switch	As Per User Requirement	Verification with OEM Tech Brochure and Console Software





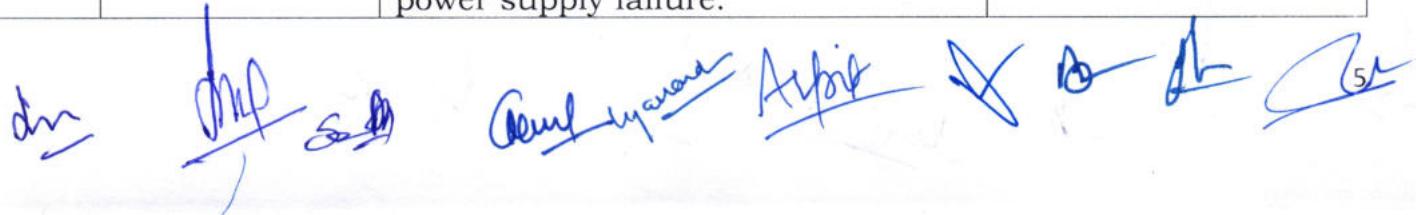


S.N.	Specifications	Value	Trial Directives
40	Number of Available Ports for 40 Gbps throughput per Switch	As Per Requirement	Verification with OEM Tech Brochure and Console Software
41	Number of Enabled Ports for 40 Gbps throughput per Switch	As Per Requirement	Verification with OEM Tech Brochure and Console Software
42	Number of Available Ports for 100 Gbps throughput per Switch	As Per Requirement	Verification with OEM Tech Brochure and Console Software
43	Number of Enabled Ports for 100 Gbps throughput per Switch	As Per Requirement	Verification with OEM Tech Brochure and Console Software
	Performance		
44	IOPS delivered at 70:30 Read: Write Ratio on 8K block size with latency of 5ms maximum for each node	Min 50000	Verification with OEM Tech Brochure
45	Scalability: Any additional node/ storage/ RAM added to the cluster to augment compute/storage/memory capacities, the same performance per node on upgraded node / Storage / RAM	Yes	Verification with OEM Tech Brochure





S.N.	Specifications	Value	Trial Directives
	HCI Features		
46	HCI Features 1	<ol style="list-style-type: none"> 1. HCI have all the features of offered industry standard hypervisor 2. HCI have independently scale storage and compute as and when needed without any downtime. 3. HCI have mechanism for Metadata protection for all offered nodes within the cluster so as to provide high availability and no single point of failure. 4. HCI supports thin provisioning of both storage entities and virtual machine hard disks 5. HCI provides automatic failover in case of hardware failure. 6. VLAN for networking and integrated VM IP's Management capabilities 7. HCI has security compliance methodology to ensure highly secure environment. 	Verification with OEM Tech Brochure
47	HCI Features 2	<ol style="list-style-type: none"> 1. HCI provides management through a remote/On premise GUI console. Also provides storage, compute & hypervisor metrics on as per VM /Node level as well as health and monitoring of entire platform. 2. Platform support LDAP Active Directory integration. The clients installed on any major Operating System. 3. Platform supports monitoring via SNMPv3, email alerting via SMTP. 4. Capable of creating instant snapshots of virtual machines and maintaining multiple copies of snapshots & clones 5. Capability to support native VM/HCI level replication for installed Hypervisor 	Verification with OEM Tech Brochure and console software
48	HCI Features 3	<ol style="list-style-type: none"> 1. Redundant components with no single point of failure in the system 2. Single management tool supports multiple clusters 3. Management tool is built into the solution, scales with the cluster 4. HCI having built-in -security for data 5. HCI capable to sustain single power supply failure. 	Verification with OEM Tech Brochure


 A series of handwritten signatures in blue ink are placed at the bottom of the table. The signatures are somewhat illegible but appear to be names such as "dr", "JNP", "S. S.", "Anil Kumar", "Arpit", "A", "B", and "C" with a small '5' next to 'C'.

S.N.	Specifications	Value	Trial Directives
49	HCI Features 4	<ol style="list-style-type: none"> 1. VM/Node-centric policy-based management. 2. Fault tolerance and proactive high availability. 3. Supports DRS, Distributed switch 4. Stretch cluster support 5. Management platform provide out of the box automation and orchestration for appliance based operational tasks. 6. Automated disaster recovery. 7. Support for VM or APP consistent snapshot/backup. 	Verification with OEM Tech Brochure
50	HCI Features 5	<ol style="list-style-type: none"> 1. Data at Rest Encryption. 2. Management tool is built into the solution, scales with the cluster, and does not require separate hardware infrastructure. 3. Integrated/Software based Remote Data recovery/Replication solution. 4. Data Integrity Checks. 5. Management tool provides visibility of network infrastructure. 6. Integrated management for hyper converged infrastructure and virtual environments with Storage & Compute/Storage/Network/Compute. 7. Intelligent data distribution across all nodes and uniform capacity utilization across all nodes at all time. 	Verification with OEM Tech Brochure and console software
51	Additional features of HCI (As per user requirement)	<p>Backup functionality to be enabled from day-1.</p> <p>Any additional licenses/ Appliance required to be quoted</p>	Verification with OEM Tech Brochure
52	Encryption at	VM level.	Verification with OEM Tech Brochure
53	HCI capability to support File/Block Services and file/block replication across clusters	Yes (SMB, NFS, iSCSI, S3) must be supported (User department can add / delete as per their requirement)	Verification with OEM Tech Brochure
54	Inline data Compression & Deduplication function licenses	Unlimited	Verification with OEM Tech Brochure

S.N.	Specifications	Value	Trial Directives
HCI Generic Parameters			
55	Number of nodes HCI supports in same cluster/deployment, such that any node out of the offered be able to use the storage of all other nodes	Min 16	Verification with OEM Tech Brochure
56	"Hypervisor to be integrated with SDS"	outside kernel	Verification with OEM Tech Brochure
57	HCI support	vSphere or Hyper-V or AHV or Hyperflex or HPE Virtualization or Redhat Virtualization or KVM	Verification with OEM Tech Brochure
58	"Bare-metal / Non-Bare metal type of virtualization hypervisor"	Bare Metal	Verification with OEM Tech Brochure
59	"Integration with Third Party FC Storage"	As Per User Requirement	Verification with OEM Tech Brochure
60	"The length of cable connecting the Nodes to the Switch (meters)"	Min 5	Verification with OEM Tech Brochure
61	Advance features of HCI	As Per User Requirement	Verification with OEM Tech Brochure
Generic Parameters			
62	The offered product has support from OEM for	<ol style="list-style-type: none"> 1. Updation for Patches and Bug fixes for software within support period. 2. Upgradation of version software within support period. 3. Service and support from OEM within support period. 	Verification with OEM Tech Brochure
63	Number of Years up to which support is available from OEM for Updation (Patches and Bug fixes) within support period	Min 1/3/5 Years (As per User Requirement)	Verification with OEM Tech Brochure
64	Number of Years up to which support is available from OEM for Upgradation of version within support period	Min 1/3/5 Years (As per User Requirement)	Verification with OEM Tech Brochure


 A series of handwritten signatures in blue ink, including "Dinesh", "S. S.", "Anand", "Vijay", "Arpit", "B. A.", and "A. C.", are placed below the table.

S.N.	Specifications	Value	Trial Directives
65	"Number of years of service and support from OEM"	Min 1/3/5 Years (As per User Requirement)	Verification with OEM Tech Brochure
66	Installation, & Commissioning	Yes	Verification with OEM Tech Brochure

SI/Exe Prashant Attri
(CISF)

AC-II Lalit Kumar
(NSG)

Insp/Tele Sree Kumar R
(ITBP)

Arpit Chaudhary, AC (IT)
(BSF)

Satyarth Sharma, JAD
(DCPW)

Munesh Kumar, AC(IT)
(SSB)

Gyanendra Kumar Giri
AC (QR) (CRPF)

Vimal Singh, DC (IT)
(CRPF)

Binay Kumar, AD
(BPR&D)

Megh Raj, DIG (Eqpt)
(CRPF)

Vijay Kumar, IG (Comm & IT)
(CRPF)

Zaki Ahmad, IPS, SDG (ADM)
CRPF

Approved/Not Approved

Gyanendra Pratap Singh, IPS
DG, CRPF

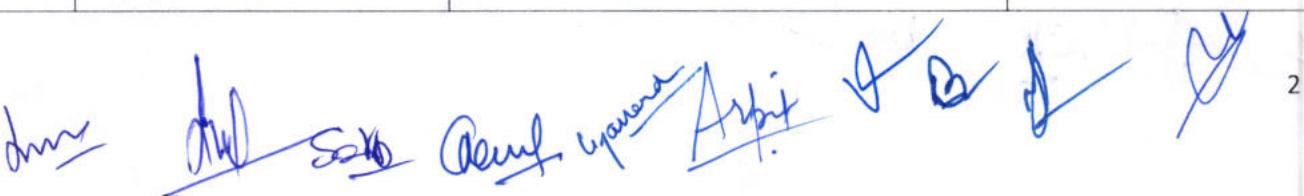
QRs/TDs of Rack Server

S.N.	Specification	Value	Trial Directive
Chassis			
1.	Form Factor	Rack	Practically Checkup and verification with OEM Tech Brochure
2.	Size (RU)	1 or 2 U (As per user requirement)	Practically Checkup and verification with OEM Tech Brochure
Processor			
3.	Processor Architecture	CISC(X86)	Verification with OEM Tech Brochure and console software
4.	Processor Make	Intel / AMD (As per User Requirement)	Verification with OEM Tech Brochure and console software
5.	Number of Cores per Processor	4 / 8 / 12 / 16 / 18 / 20 / 22 / 24	Verification with OEM Tech Brochure and console software
6.	Processor Base Frequency (GHz)	Min 2.1 or better	Verification with OEM Tech Brochure and console software
7.	Processor Turbo Frequency (GHz)	Min 3.9 or better	Verification with OEM Tech Brochure and console software
8.	Total Cache (L1+L2+L3) (MB)	25 or better	Verification with OEM Tech Brochure and console software
9.	Processor Description/ Number	Intel Xeon series or better or equivalent AMD with latest Generation	Verification with OEM Tech Brochure and console software






S.N.	Specification	Value	Trial Directive
Motherboard			
10.	Chipset compatible with CPU	Intel /AMD or better	Verification with OEM Tech Brochure and console software
11.	Expansion Slots Min Gen 4 (PCIe x1)	As per User Requirement	Verification with OEM Tech Brochure and console software
12.	Expansion Slots Min Gen 4 (PCIe x 4)	As per User Requirement	Verification with OEM Tech Brochure and console software
13.	Expansion Slots Min Gen 4 (PCIe x8)	As per User Requirement	Verification with OEM Tech Brochure and console software
14.	Expansion Slots Min Gen 4 (PCIe x16)	As per User Requirement	Verification with OEM Tech Brochure and console software
15.	Maximum number of Sockets available on Server	1 / 2 (As per User Requirement)	Verification with OEM Tech Brochure and console software
16.	Maximum number of Sockets populated with Processors available on Server	1 / 2 (As per User Requirement)	Verification with OEM Tech Brochure and console software
Co-Processor / GPU			
17.	Availability of Co-Processor /GPU	As per User Requirement	Verification with OEM Tech Brochure
18.	If Yes, Maximum Number of Slots available for Co-Processor/GPU	As per User Requirement	Verification with OEM Tech Brochure and console software
19.	If Yes, Maximum Number of slots populated with Co-processor/GPU	As per User Requirement	Verification with OEM Tech Brochure and console software


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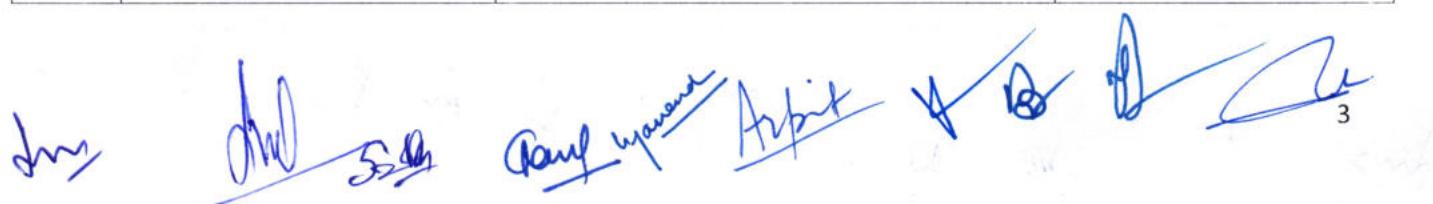
S.N.	Specification	Value	Test Directive
20.	If Yes, Co-Processor /GPU Description	As per User Requirement	Verification with OEM Tech Brochure and console software

Memory

21.	Type of RAM	DDR5 SDRAM with ECC	Verification with OEM Tech Brochure and console software
22.	Total Number of DIMM Slots available	12 or more	Verification with OEM Tech Brochure and console software
23.	Number of DIMM Slots populated with DDR SDRAM	4 or more (As per User Requirement)	Verification with OEM Tech Brochure and console software
24.	DDR SDRAM Size (GB)	Min 128 or More (Decided by User Department)	Verification with OEM Tech Brochure and console software
25.	DDR SDRAM upgradable up to using spare DIMM Slots (GB)	768 or More	Verification with OEM Tech Brochure and console software

SSD Storage

26.	Type of Interface for SSD	SATA or SAS (As per user requirement)	Verification with OEM Tech Brochure and console software
27.	Type of SATA SSD	Type of SATA / SAS SSD	Verification with OEM Tech Brochure and console software
28.	SATA SSD Hot Swappable	Yes	Verification with OEM Tech Brochure and console software
29.	Endurance for SATA / SSD (DWPD - Drive Writes Per Day) (X)	0.8	Verification with OEM Tech Brochure and console software


 A series of handwritten signatures in blue ink are placed across the bottom of the table. The signatures are somewhat illegible but appear to be names such as 'Dinesh', 'S. S. S.', 'Rajiv', 'Arpit', 'K. B.', and 'A. S.'.

S.N.	Specification	Value	Trial Directive
30.	Total Number of Slots available for SATA SSD	8	Verification with OEM Tech Brochure and console software
31.	Number of Slot Populated with SATA SSD	3 or More (As per User Requirement)	Verification with OEM Tech Brochure and console software
32.	Capacity offered per SATA SSD (GB)	960	Verification with OEM Tech Brochure and console software
33.	Total Capacity Offered with SATA SSD (GB)	2880	Verification with OEM Tech Brochure and console software
34.	Type of SAS SSD	As per User Requirement	Verification with OEM Tech Brochure and console software
35.	SAS SSD Hot Swappable	As per User Requirement	Verification with OEM Tech Brochure and console software
36.	Endurance for SAS SSD (DWPD - Drive Writes Per Day) (X)	As per User Requirement	Verification with OEM Tech Brochure and console software
37.	Total Number of Slots available for SAS SSD	As per User Requirement	Verification with OEM Tech Brochure and console software
38.	Number of Slots populated with SAS SSD	3	Verification with OEM Tech Brochure and console software
39.	Capacity Offered per SAS SSD (GB)	Min 960	Verification with OEM Tech Brochure and console software
40.	Total Capacity Offered with SAS SSD (GB)	As per User Requirement	Verification with OEM Tech Brochure and console software


 A series of handwritten signatures and initials in blue ink, including "Jms", "Shubh", "SVM", "Gauri", "upma", "Arpit", and several checkmarks and initials like "✓", "D", "S", "J", and "Y".

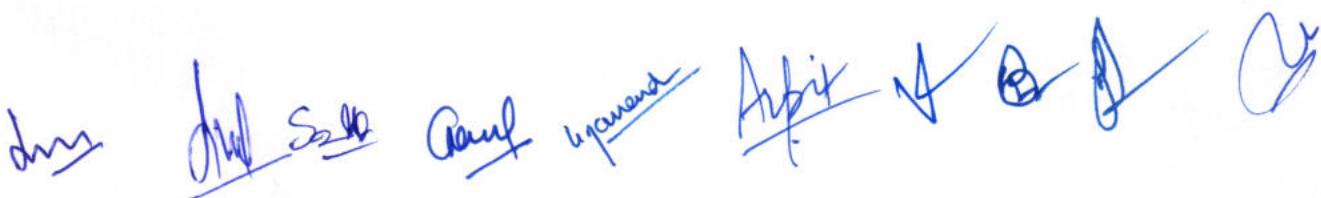
S.N.	Specification	Value	Trial Directive
41.	Type of NVMe SSD	As per User Requirement	Verification with OEM Tech Brochure and console software
42.	NVMe SSD Hot Swappable	As per User Requirement	Verification with OEM Tech Brochure and console software
43.	Endurance for NVMe SSD (DWPD - Drive Writes Per Day) (X)	As per User Requirement	Verification with OEM Tech Brochure and console software
44.	Total Number of Slots available for NVMe SSD	As per User Requirement	Verification with OEM Tech Brochure and console software
45.	Number of Slots populated with NVMe SSD	As per User Requirement	Verification with OEM Tech Brochure and console software
46.	Capacity Offered per NVMe SSD (GB)	As per User Requirement	Verification with OEM Tech Brochure and console software
47.	Total Capacity Offered with NVMe SSD (GB)	As per User Requirement	Verification with OEM Tech Brochure and console software

HDD Storage

48.	Type of Interface for Hard Disk Drive	As per User Requirement	Verification with OEM Tech Brochure and console software
49.	Total number of Slots available for SATA Drive	As per User Requirement	
50.	Number of Slots populated with SATA Drive	As per User Requirement	
51.	Capacity offered per SATA Drive (GB)	As per User Requirement	


 A series of handwritten signatures in blue ink, including 'Jas', 'Shyam', 'Anil', 'Arif', 'Vishal', 'Pawan', and 'Amit'.

S.N.	Specification	Value	Trial Directive
52.	SATA drive speed (hot plug or better) (RPM)	As per User Requirement	Verification with OEM Tech Brochure and console software
53.	Total Storage Capacity offered with SATA Drive (GB)	As per User Requirement	
54.	Total number of slots available for SAS drive	As per User Requirement	
55.	Number of Slots populated with SAS Drive	As per User Requirement	
56.	Capacity offered per SAS Drive (GB)	As per User Requirement	
57.	SAS drive Speed (Hot plug or better) (RPM)	As per User Requirement	
58.	Total Storage Capacity offered with SAS Drive (GB)	As per User Requirement	
59.	Total number of slots available for NL SAS drive	As per User Requirement	
60.	Number of Slots populated with NL SAS Drive	As per User Requirement	
61.	Capacity offered per NL SAS Drive	As per User Requirement	
62.	NL SAS drive speed (hot plug or better) (RPM)	As per User Requirement	


 A series of handwritten signatures and initials in blue ink, including 'dms', 'Jitendra', 'Anil', 'Manu', 'Ankit', 'A', 'B', 'C', and 'D'.

S.N.	Specification	Value	Trial Directive
63.	Total Storage Capacity offered with NL SAS Drive (GB)	As per User Requirement	Verification with OEM Tech Brochure and console software
RAID			
64.	RAID level	5 / 6 (As per User Requirement)	Verification with OEM Tech Brochure and console software
65.	No of RAID Controller Ports	8 or As per User Requirement	Verification with OEM Tech Brochure and console software
66.	Speed of Controller Ports (Gbps)	Min 12	Verification with OEM Tech Brochure and console software
67.	RAID Controller Cache (GB)	2 GB or As per User Requirement	Verification with OEM Tech Brochure and console software
Ports & Interfaces			
68.	Network Card Supported	1G & 10G	Verification with OEM Tech Brochure and console software
69.	Number of Networking Interface Cards (LAN)	4	
70.	Whether Network Interface Card Embedded or Add On	Yes	
71.	Number of Ports Per Network Interface Card	2x1G & 2 x 10G	
72.	Networking Interface Card Features	Asset Feature Tracking	
73.	Server Network Ports Should Support SR-IOV Feature	Yes	


 A series of handwritten signatures in blue ink, including "Jm", "John", "Sam", "Amit", "B", "D", and "Ch", are written across the bottom of the page.

S.N.	Specification	Value	Trial Directive
74.	Server network ports should support DPDK and it should deliver zero packet loss as per RFC 2544 and deliver 100%-line rate for all the packet sizes over 64 Bytes, Vendor to submit latest DPDK test report for the same	Yes	Verification with OEM Tech Brochure and console software
75.	Number of Single port FC HBA card	As per User Requirement	Verification with OEM Tech Brochure and console software
76.	Number of Dual port FC HBA card	As per User Requirement	
77.	Number of Quad port FC HBA card	As per User Requirement	
78.	FC HBA Speed (Gbps)	As per User Requirement	
79.	vHBA Card Features Supported	As per User Requirement	
80.	Number of Converged Network Adaptor (CNA)	As per User Requirement	
81.	Number of Ports per CNA card	As per User Requirement	
82.	CNA Port Speed (Gbps)	As per User Requirement	
83.	Length of LC-LC Cable per SFP+ Port (meter)	As per User Requirement	
84.	Length of LC-LC Cable per HBA Port (meter)	As per User Requirement	
85.	Length of LC-LC Cable per CNA Port (meter)	As per User Requirement	
86.	Video Controller (support VGA or above resolution)	Yes	

[Handwritten signatures and initials follow, including "Dinesh", "Sathish", "Ravindra", "Arpit", "A/B", and "OJ".]

S.N.	Specification	Value	Trial Directive
87.	Keyboard Port	As per User Requirement	Practically Checkup and verification with OEM Tech Brochure
88.	Mouse Port	As per User Requirement	Practically Checkup and verification with OEM Tech Brochure
89.	DVD ROM (Internal/External)	Yes	Verification with OEM Tech Brochure and software console
90.	USB Ports (version 2point0/3point0)	4	Practically Checkup and verification with OEM Tech Brochure
91.	Total number of Spare Bays Available for Future Upgradation (Internal)	Minimum 3 or As per user requirement	Practically Checkup and verification with OEM Tech Brochure
92.	Total number of Spare Bays Available for Future Upgradation (Hot Pluggable)	Minimum 3 or As per user requirement	Verification with OEM Tech Brochure and software console

Certifications

93.	Certifications/Compliance (OS)	Windows, Red Hat Linux, Suse Linux, Ubuntu	Verification with OEM Tech Brochure and Certification
94.	Certification/Compliance (Virtualization/Cloud Platform)	VM ware, Red Hat Virtualization	

Features

95.	Management Features-1	Remote Management of Server over LAN & WAN with SSL encryption through gigabit management port,	Verification with OEM Tech Brochure
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 A series of handwritten signatures in blue ink, including "Dinesh", "Sathish", "Rajesh", "Arpit", "K. B.", and "J. S.", are placed at the bottom of the page.

S.N.	Specification	Value	Trial Directive
96.	Management Features-2	Platform inventory and health status	Verification with OEM Tech Brochure
97.	Security Features-1	Secure Boot (Firmware and Bios Level Security)	Verification with OEM Tech Brochure
98.	Security Features-2	Secure /Automatic BIOS recovery	Verification with OEM Tech Brochure
99.	support for high availability clustering and virtualization	Yes	Verification with OEM Tech Brochure

Generic

100.	Redundant Power Supply	Yes	Verification with OEM Tech Brochure
101.	Hot Swappable (Redundant Power Supply)	Yes	
102.	Power Supply Efficiency	Platinum	
103.	Redundant Fan	Yes	
104.	Hot Swappable (Redundant Fan)	Yes	
105.	Server Main Supply	230 +/- 10%Vac	

Miscellaneous

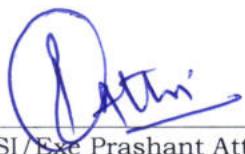
106.	BIS Registration under CRS of MeitY	Yes	Verification with OEM Tech Brochure and certification
107.	BIS Registration Number Under CRS of MeitY and its validity	Yes	Verification with OEM Tech Brochure and certification
108.	Other Certifications Available	UL, CE	Verification with OEM Tech Brochure and certification
109.	RoHS Compliance	Yes	Verification with OEM Tech Brochure and certification


 Dinesh Sathish Arun Arpit 10

S.N.	Specification	Value	Trial Directive
110.	Availability of the type test report from Central Government / NABL / ILAC accredited laboratory covering verification of all features & functional parameters & environmental tests sequence	As per User Requirement	Verification with OEM Tech Brochure and certification
111.	a) Dry heat: test - for 16 hrs at 45 deg C as per IS: 9000/pt-3/sec-5/1977 b) Cold test - for 4 hrs at 0 deg C as per IS: 9000/pt-2/sec-4/1977 c) Damp Heat Cyclic Test - for 2 cycles of 24 hrs at 40 deg C & 95% RH as per IS: 9000/pt-5/sec-1/1981	Yes	Verification with OEM Tech Brochure and certification
112.	The server has been checked for all the parameters before conditioning, after completion of the environmental tests sequence, with a recovery period of 1 to 2 hrs, the server found to be functional	Yes	Verification with OEM Tech Brochure and certification
113.	Test Report Number & date	As per User Requirement	Verification with OEM Tech Brochure and certification
114.	Name & Address of Lab	As per User Requirement	Verification with OEM Tech Brochure and certification



S.N.	Specification	Value	Trial Directive
Scope of Supply			
115.	Installation and Commissioning shall be included in the scope of supply	Yes	Verification with OEM Tech Brochure
Warranty			
116.	On Site OEM Warranty (Year)	1 / 3 / 5 (As per User Requirement)	Verification with OEM Tech Brochure



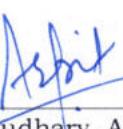
SI/Exe Prashant Attri
(CISF)



AC-II Lalit Kumar
(NSG)



Insp/Tele Sree Kumar R
(ITBP)



Arpit Chaudhary, AC (IT)
(BSF)



Satyarth Sharma, JAD
(DCPW)



Munesh Kumar, AC(IT)
(SSB)



Gyanendra Kumar Giri
AC (QR) (CRPF)



Vimal Singh, DC (IT)
(CRPF)



Binay Kumar, AD
(BPR&D)



Megh Raj, DIG (Eqpt)
(CRPF)



Vijay Kumar, IG (Comm & IT)
(CRPF)



Zaki Ahmad, IPS, SDG (ADM)
CRPF

✓
Approved/Not Approved



Gyanendra Pratap Singh, IPS
DG, CRPF

QRs/TDs of Storage Server

S.N	Specification	Values	Trial Directive
1.	Form Factor	Rack	
2.	Size (RU)	2 or 4 U (as defined by user department)	Practically Checkup and verification with OEM Tech Brochure
3.	Processor Make	Intel / AMD	Verification with OEM Tech Brochure and
4.	Maximum Number of sockets available on chipset	2	Console Software
5.	Maximum Number of sockets populated with processor	2	
6.	Number of cores per Processor	16	
7.	Processor Configuration	Intel Xeon Gold (2.10 GHz/16-core/22MB) or equivalent AMD with latest generation	
8.	Chipset compatible with CPU	Intel or equivalent AMD or better	
9.	Expansion Slots Gen 3 (PCIe x1)	As per User Requirement	
10.	Expansion Slots Gen 3 (PCIe x4)	As per User Requirement	
11.	Expansion Slots Gen 3 (PCIe x8)	2	
12.	Expansion Slots Gen 3 (PCIe x16)	2	
13.	Type of RAM	DDR4 / DDR5	


 A series of handwritten signatures and initials in blue ink, including 'Jm', 'dml', 'Sx', 'Aayu', 'Yannu', 'Abit', 'S', 'B', 'G', and 'A', are written across the bottom of the table.

S.N	Specification	Values	Trial Directive
14.	RAM Size (GB)	Min 128	Verification with OEM Tech Brochure and Console Software
15.	RAM upgradable upto (GB)	2048 or Higher	
16.	DIMM Slots (No.)	Min 16 or Higher	Verification with OEM Tech Brochure and Console Software
17.	Type of Hard Disk Drive	NL SAS	
18.	Total number of slots available for SSD drive	As per User Requirement	
19.	Number of Slots populated with SSD Drive	As per User Requirement	
20.	Capacity offered per SSD Drive (GB)	300 or more (As per User Requirement)	
21.	Total number of slots available for SAS drive	As per User Requirement	
22.	Number of Slots populated with SAS Drive	As per User Requirement	
23.	Capacity offered per SAS Drive	As per User Requirement	
24.	SAS drive Speed (Hot plug or better) (RPM)	10K	
25.	Total number of slots available for NL SAS drive	Min 16	
26.	Number of Slots populated with NL SAS Drive	12	
27.	Capacity offered per NL SAS Drive	2000 or better	
28.	NL SAS drive speed (hot plug or better) (RPM)	7200 RPM	

S.N	Specification	Values	Trial Directive
29.	Total number of slots available for SATA drive	As per User Requirement	Verification with OEM Tech Brochure and Console Software
30.	Number of Slots populated with SATA Drive	As per User Requirement	Verification with OEM Tech Brochure and Console Software
31.	Capacity offered per SATA Drive	As per User Requirement	
32.	SATA drive speed (hot plug or better) (RPM)	7200 RPM or more (As per User Requirement)	Verification with OEM Tech Brochure and Console Software
33.	Total Storage Capacity offered	Min 24 terabyte (As per User Requirement)	
34.	RAID Controller Cache (GB)	2 or more	
35.	RAID Level	5/6 (As per User Requirement)	
36.	RAID Controller Ports @12 Gbps	Min 8	
37.	Video Controller (support VGA or above resolution)	Yes	
38.	Keyboard	As per User Requirement	Practically Check-up and verification with OEM Tech Brochure
39.	Mouse	As per User Requirement	
40.	Bays (minimum 2 internal or more hot plug)	Min 16	
41.	USB Ports (version 2.0/3.0)	Min 4	
42.	Certifications, Compliance support by Windows, Red Hat or Novell	Yes	

Handwritten signatures in blue ink, including initials and names, are placed below the table. The signatures are somewhat illegible but appear to be of the team members involved in the review.

S.N	Specification	Values	Trial Directive
43.	Network Card Supported	1G, 10G	Practically Check-up and verification with OEM Tech Brochure
44.	No of Network Ports	4X1G, 2X10G or As per User Requirement	
45.	Networking dual LAN (10/100/1000) network card	Yes	Practically Check-up and verification with OEM Tech Brochure
46.	FC HBA Dual port card	As per User Requirement	
47.	FC HBA Dual port card Speed	As per User Requirement	
48.	Power Management	Screen blanking, hard disk & system idle mode in power on, set up password, power supply surge protected	Verification with OEM Tech Brochure
49.	Redundant Power Supply	Yes	
50.	Redundant Fan	Yes	
51.	Server Main Supply	230 V +/-10%, 50 Hz	Verification with OEM Tech Brochure and Certification
52.	Maximum power consumption of the system (Watt)	1500	
53.	Server scalability to be achieved within the box & without adding nodes	Yes	
54.	BIS Registration under CRS of Meity	Yes	
55.	BIS Registration number & its Validity	Required	


 4

S.N.	Specification	Values	Trial Directive
56.	Other Certifications Available	Yes	Verification with OEM Tech Brochure and Certification
57.	RoHS Compliance	Yes	
58.	Availability of Type test reports from Central Govt / NABL /ILAC accredited lab covering verification of all the features & functional parameters & environmental tests sequences as under: a Dry heat test (For 16 hrs at a temperature of 45 degree C in accordance with IS: 9000/part-3/section-5/1977) b Cold test(For 4 hrs at a temperature of 0 degree C in accordance with IS: 9000/part-2/section-4/1977 c Damp Heat Cyclic Test (For 2 cycles of 24 hrs at a temperature of 40 degree C & 95% RH in accordance with IS: 9000/part-5/section-1/1981) Note:- The server shall be checked for all the parameters before conditioning, After completion of the above environmental tests sequence, with a recovery period of 1 to 2 hrs, the server shall be functional	As per User Requirement	Verification with OEM Tech Brochure and Certification

Mr. John S. Smith and Wanted Arrest W. B. D. for the

S.N	Specification	Values	Trial Directive
59.	Name & address of Lab	As per User Requirement	Verification with OEM Tech Brochure and Certification
60.	Test Report No & date	As per User Requirement	
61.	On Site OEM Warranty (years)	1 / 3 / 5 Years (As per User Requirement)	Verification with OEM Certification

SI/Exe Prashant Attri
(CISF)

AC-II Lalit Kumar
(NSG)

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Vijay Kumar, IG (Comm & IT)
(CRPF)

Zaki Ahmad, IPS, SDG(ADM)
CRPF

Approved/Not Approved

Gyanendra Pratap Singh, IPS
DG, CRPF

QRs/TDs of Unified Storage System and Normal Storage

(Unified Storage System)

S.N.	Specification	Value	Trial Directive
1.	Storage System Type	Unified Storage	Verification with OEM Tech Brochure and Console Software
2.	Storage Capacity (TB)	48 terabyte or more Usable (As per User Requirement)	
3.	Hardware Form Factor of Storage System (RU)	4	

Disks

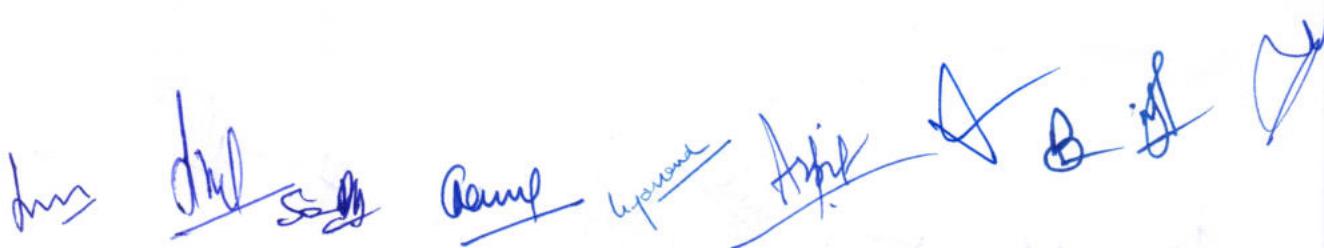
4.	Disk Type	SSD / NL-SAS	Verification with OEM Tech Brochure and Console Software
5.	Speed of dual ported disk drive in Gbps	Min 12	
6.	Total Numbers of Drive Slots	Min 15	
7.	Number of Drive Slots Populated with drives of different type in the Storage System	Min 12	
8.	Total no of drive slot populated with SSD	As per User Requirement	
9.	Total no of drive slot populated with Flash Drive	As per User Requirement	
10.	Total no of drive slot populated with SAS	As per User Requirement	
11.	Total no of drive slot populated with NL-SAS	As per OEM Calculation	
12.	Drive Type Wise Storage Capacity of System in GB	4000 GB (As per User Requirement)	

John John John Paul Lyndon Albert ✓ ✓ ✓ ✓ 1

S.N.	Specification	Value	Trial Directive
13.	Automated Storage tiering feature across the populated Drives types (in case of multiple drive system)	Yes	Verification with OEM Tech Brochure and Console Software
14.	Automated Storage tiering Software License Included	Yes	
15.	Hot Spares	Yes	
16.	Number of Populated Disks per Hot Spare	As per OEM best practices	
17.	Provision for additional Capacity	Yes	
18.	If Yes, Number of Drive Slots available to achieve additional capacity	12 (As per User Requirement) Drive capacity increased by additional enclosure	

Connectivity & Ports

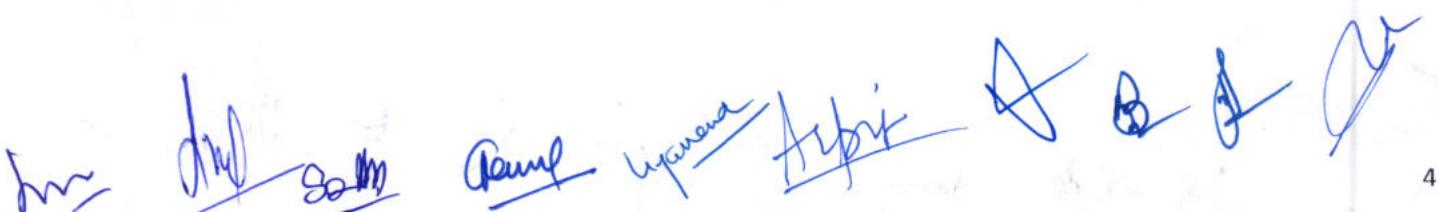
19.	Type of Front-end Ports	6 x 10G SFP+, 4 x 16G FC	Practically Checkup and verification with OEM Tech Brochure
20.	Number of Front-end Ports	6 x 10G SFP+, 4 x 16G FC	
21.	Speed of front-end Ports in Gbps	16G for FC and 10G for iSCSI,	
22.	Type of Back end Ports	4 x SAS Ports (each port having 4 x 12G SAS lanes/links)	
23.	Number of Back end Ports	Min 4	
24.	Speed of Back end ports in Gbps	12	
25.	Number of Remote Replication Ports (FC/Ethernet)	2	



S.N.	Specification	Value	Trial Directive
Controllers			
26.	Number of Controllers/VSD/ Node available in the storage System on common back plane without using external switch/device OR without common backplane using switches	2	Verification with OEM Tech Brochure and Console Software
27.	RAID Level Support	RAID- 1 / 10, 5, 6	
28.	Active-Active Controllers Configured in HA	Yes	
29.	Active Stand by Controller Configured in HA	As per User Requirement	
30.	Cache Availability Type	Local / Global	
31.	Total Configurable Cache (GB)	Min 128	
32.	Wide Stripping or equivalent feature	As per User Requirement	
33.	No of Snapshot Copies Per Volume	Min 255	
34.	License for Snapshot included	Yes	
Data Replication			
35.	Remote Replication	Yes	Verification with OEM Tech Brochure and Console Software
36.	Remote Replication license included	Yes	
37.	Synchronized Replication Support	Yes	
38.	Synchronous Replication license included	Yes	


 A series of handwritten signatures in blue ink, likely belonging to the review committee, are placed across the bottom of the table. The signatures are somewhat stylized and overlapping.

S.N.	Specification	Value	Trial Directive
39.	Asynchronous Support	Replication As per Requirement	User Verification with OEM Tech Brochure and Console Software
40.	Asynchronous license included	Replication As per Requirement	User
41.	Type of Data Compression	S/W Level	
42.	Type of Data Deduplication	S/W Level	
43.	No Single point of Failure with Non-Disruptive replacement of Hardware	As per Requirement	User
44.	The Storage provide Non-disruptive Firmware /Microcode upgrade	Yes	
45.	Firmware upgrade without any controller reboot	As per Requirement	User
46.	Encryption Required	Yes	
47.	Type of Data at Rest Encryption	Drive based / Controller based	
48.	Storage management software for configuration and multipathing (part of the supply).	YES	
49.	Multi-pathing and load balancing and fail over software (part of supply) with license for windows/Linux servers or shall support native multipathing of OS.	YES	
50.	Protocols Supported by the storage system from day one	SMB, NFS, iSCSI, FC	Verification with OEM Tech Brochure and Console Software


 A series of handwritten signatures in blue ink, including "Hari", "John Smith", "David", "Lakshmi", "Abir", "A", "B", "C", and "D", are written across the bottom of the page.

S.N.	Specification	Value	Trial Directive
51.	Operating System Platform and Clustering Supported by the Storage from day one	As per User Requirement	Verification with OEM Tech Brochure and Console Software
52.	Operating Temp Range	0°C to 35°C (± 5) As per User Requirement	Verification with OEM Tech Brochure and Certification
53.	Operating Humidity (Rh)	20% to 80% or Better	
54.	BIS Registration under CRS of MeITY	Yes /No (As per User Requirement)	
55.	If Yes, BIS Registration No under CRS of MeITY otherwise indicate N/A	As per User Requirement	
56.	BIS Registration Certificate shall be furnished when demanded by the buyer	Yes/No (As per User Requirement)	
57.	Storage System is compliant with IPv6	Yes	
58.	Standby power consumption of System in Watt	1000 or less	
59.	Scope of Supply	It includes installation, commissioning & integration together with all necessary software to make the system fully functional as intended.	
60.	On Site OEM Warranty	1 / 3 / 5 Years (As per User Requirement)	

Specification for Normal Storage

61.	Storage System Type	Storage	Practically Check-up and verification with OEM Tech Brochure
62.	Storage Capacity (TB)	10 terabyte or more (Or Defined by User Deptt)	
63.	Hardware Form Factor of Storage System (RU)	Desktop / Rackmount	


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S.N.	Specification	Value	Trial Directive
Disks			
64.	Disk Type	SATA / SSD / NL-SAS	Verification with OEM Tech
65.	Speed of dual ported disk drive in Gbps	As per User Requirement	Brochure and Console Software
66.	Total Numbers of Drive Slots	Min 6 (Depends upon capacity)	
67.	Number of Drive Slots Populated with drives of different type in the Storage System	As per User Requirement	
68.	Total no of drive slot populated with SSD	As per User Requirement	
69.	Total no of drive slot populated with Flash Drive	As per User Requirement	
70.	Total no of drive slot populated with SAS	As per User Requirement	
71.	Total no of drive slot populated with NL-SAS/SATA	As per User Requirement	
72.	Drive Type Wise Storage Capacity of System in GB	6000 GB	
73.	Automated Storage tiring feature across the populated Drives types (in case of multiple drive system)	As per User Requirement	
74.	Automated Storage tiering Software License Included	As per User Requirement	Verification with OEM Tech
75.	Hot Spares	Yes	Brochure and Console Software
76.	Number of Populated Disks per Hot Spare	As per User Requirement	
77.	Provision for additional Capacity	Yes	
78.	If Yes, Number of Drive Slots available to achieve additional capacity	As per User Requirement	

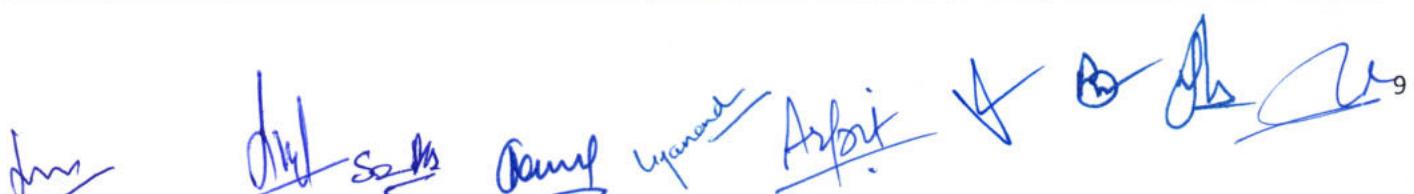

 A series of handwritten signatures and initials are written in blue ink across the bottom of the page. From left to right, they include: 'dav', 'JUL 55th', 'Anand Upendra', 'Arpit', 'A', 'S', and 'J'. There is also a small '6' in the bottom right corner.

S.N.	Specification	Value	Trial Directive
Connectivity & Ports			
79.	Type of Front-end Ports	FC, iSCSI, NFS, SMB	Practically Checkup and verification with OEM Tech Brochure
80.	Number of Front-end Ports	1	
81.	Speed of front-end Ports in Gbps	10	
82.	Type of Back end Ports	4 x 16G FC and 4 x 10G per Controller	
83.	Number of Back end Ports	2	
84.	Speed of Back end ports in Gbps	2	
85.	Number of Remote Replication Ports (FC/Ethernet)	As per User Requirement	
Controllers			
86.	Number of Controllers/VSD/ Node available in the storage System on common back plane without using external switch/device OR without common backplane using switches	As per Requirement	Practically Checkup and verification with OEM Tech Brochure
87.	RAID Level Support	1/0,5,6 (As per Requirement)	User Verification with OEM Tech Brochure and Console Software
88.	Active-Active Controllers Configured in HA	As per Requirement	User
89.	Active Stand by Controller Configured in HA	As per Requirement	User
90.	Cache Availability Type	Global	
91.	Total Configurable Cache (GB)	128 GB DRAM Cache	
92.	Wide Stripping or equivalent feature	As per Requirement	User

S.N.	Specification	Value	Trial Directive
93.	No of Snapshot Copies Per Volume	As per Requirement	User Verification with OEM Tech Brochure and Console Software
94.	License for Snapshot included	As per Requirement	User
Data Replication			
95.	Remote Replication	Yes	Verification with OEM Tech Brochure and Console Software
96.	Remote Replication license included	Yes	
97.	Synchronized Replication Support	Yes	
98.	Synchronous Replication license included	Yes	
99.	Asynchronous Replication Support	As per Requirement	User
100.	Asynchronous Replication license included	As per Requirement	User
101.	3-DC Zero Data Loss Support (Optional)	As per Requirement	User Verification with OEM Tech Brochure and Console Software
102.	If Yes, Supported Replication Topology for 3-DC Zero Data Loss (Optional)	As per Requirement	User
103.	Type of Data Compression	S/W Level	
104.	Type of Data Deduplication	S/W Level	
105.	No Single point of Failure with Non-Disruptive replacement of Hardware	As per Requirement	User
106.	The Storage provide Non-disruptive Firmware /Microcode upgrade	Yes	


 8

S.N.	Specification	Value	Trial Directive
107	Firmware upgrade without any controller reboot	As per User Requirement	Verification with OEM Tech Brochure and Console Software
108	Encryption Required	Yes	
109	Type of Data at Rest Encryption	Drive Based / Controller based	
110	Storage management software for configuration and multi-pathing (part of the supply).	YES	
111	Multi-pathing and load balancing and fail over software (part of supply) with license for windows/Linux servers or shall support native multipathing of OS.	YES	
112	Protocols Supported by the storage system from day one	SMB, NFS, FC, iSCSI	
113	Operating System Platform and Clustering Supported by the Storage from day one	As per User Requirement	
114	Operating Temp Range	0°C to 35°C (± 5) As per User Requirement	Verification with OEM Tech Brochure and Certification
115	Operating Humidity (Rh)	10% to 80% or Better	
116	BIS Registration under CRS of MeITY	Yes / No (As per User Requirement)	
117	If Yes, BIS Registration No under CRS of MeITY otherwise indicate N/A	As per User Requirement	
118	BIS Registration Certificate shall be furnished when demanded by the buyer	Yes/No (As per User Requirement)	
119	Storage System is compliant with IPv6	Yes	


 A series of handwritten signatures in blue ink are placed below the table. The signatures are somewhat illegible but appear to be the names of individuals involved in the review or approval process. One signature is clearly 'Arbit' with a checkmark next to it.

S.N.	Specification	Value	Trial Directive
120	Standby power consumption of System in Watt	1000 or less	Verification with OEM Tech Brochure and Certification
121	Scope of Supply	It includes installation, commissioning & integration together with all necessary software to make the system fully functional as intended.	
122	On Site OEM Warranty	1 / 3 / 5 Years (User Department)	

SI/Exe Prashant Attri
(CISF)

AC-II Lalit Kumar
(NSG)

Insp/Tele Sree Kumar R
(ITBP)

Arpit Chaudhary, AC (IT)
(BSF)

Satyarth Sharma, JAD
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Munesh Kumar, AC(IT)
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Gyanendra Kumar Giri
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Megh Raj, DIG (Eqpt)
(CRPF)

Vijay Kumar, IG (Comm & IT)
(CRPF)

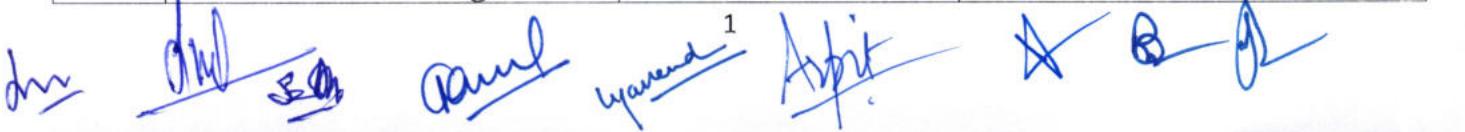
Zaki Ahmad, IPS, SDG (ADM)
CRPF

Approved/Not Approved

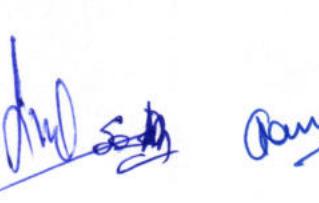
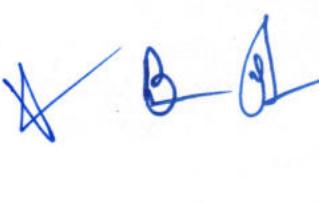
Gyanendra Pratap Singh, IPS
DG, CRPF

QRs/TDs of Blade Servers and Chassis for Blade Server

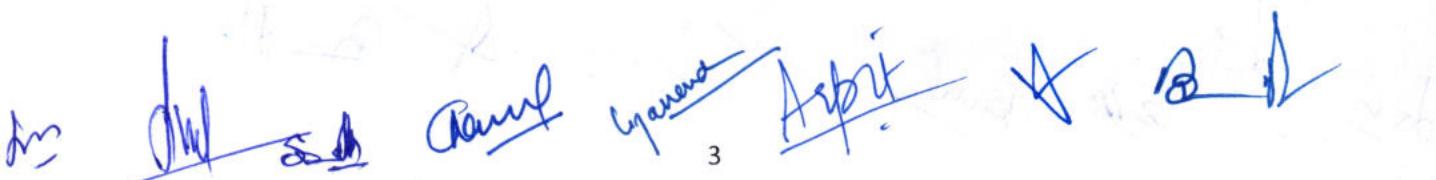
Chassis for Blade Server			
Slno.	Specifications	Value	Trial Directives
1	Form Factor	Blade Chassis	Practically Check-up and verification with OEM Tech Brochure
2	Size of Blade Server Chassis (RU)	10	Practically Check-up and verification with OEM Tech Brochure
3	Number of Bays available in Chassis (Number)	Should support 8 dual socket blade servers	Practically Check-up and verification with OEM Tech Brochure
4	Chassis is complete with Interconnect Modules, Power supplies, Fans & Management Modules	Should have redundant Modules for Power Supply, Fans and Management Modules	Practically Check-up and verification with OEM Tech Brochure
5	Chassis Includes all the accessories so that it can be mounted on an Industry Standard 42U Rack	In Compliance	Practically Check-up and verification with OEM Tech Brochure
6	Chassis is fully populated with Power Supplies Redundancy	N+N/N+1 redundancy	Practically Check-up and verification with OEM Tech Brochure
7	Chassis is fully populated with fans for cooling with adequate redundancy built in for the entire enclosure & its components	In Compliance	Practically Check-up and verification with OEM Tech Brochure
8	Chassis has required number of redundant Ethernet Switches/Modules to provide at least two numbers of ports of 10 Gb/s connectivity, Server to Server communication should be in 1:1 non-blocking	Support 4 port (2x1g & 2x10G/2x 25g) on each Blade or equivalent on converge architecture	Practically Check-up and verification with OEM Tech Brochure
9	Chassis has Redundant fibre channel switch/ modules to provide at least 2 numbers of 16 Gb/s fibre channel connectivity to the external SAN Storage, Server to Server communication should be in 1:1 non-blocking	Optional (As per User Requirement)	Practically Checkup and verification with OEM Tech Brochure


 A row of handwritten signatures in blue ink, including "Jas", "Dhaval", "Sohail", "Aman", "1", "Amit", "A", "B", and "G".

Slno.	Specifications	Value	Trial Directives
10	Aggregated LAN Bandwidth (In Gbps)	Min 40	Verification with OEM Tech Brochure
11	Aggregated SAN Bandwidth (In Gbps)	Min 32	Verification with OEM Tech Brochure
12	In case the external / Internal switches/ modules are offered to provide connectivity to SAN & LAN, the intermediate interconnect modules should provide 1:1 non-blocking architecture for server to server communication	As per User Requirement	Verification with OEM Tech Brochure
13	Chassis / Blade Architecture has redundant Management Module to provide single point of control for intelligent management of the entire console Access for all the Server Blades from the Management Module	Redundant Management Module/Solution	Verification with OEM Tech Brochure
14	Report Thermal & Power Information on per Server & per Enclosure basis	Yes	Verification with OEM Tech Brochure
15	System remote management should support browser based graphical remote console along with Virtual Power button, remote boot using USB/CD/DVD Drive It should be capable of offering upgrade of software and patches from a remote client using Media/image/folder; It should have support for multifactor authentication	Yes	Verification with OEM Tech Brochure and Console Software
16	Server should support agentless management using remote management port	Yes	Verification with OEM Tech Brochure and Console Software

Slno.	Specifications	Value	Trial Directives
17	The server should support monitoring and recording changes in the server hardware and system configuration	Yes	Verification with OEM Tech Brochure and Console Software
18	Remote console sharing up to 6 users simultaneously during pre-OS and OS runtime operation, Console replay - Console Replay captures and stores for replay the console video during a server's last major fault or boot sequence	Yes	Verification with OEM Tech Brochure and Console Software
19	Software should support dashboard view to quickly scan the managed resources to assess the overall health of the data centre It should provide an at-a-glance visual health summary of the resource's user is authorized to view	Yes	Verification with OEM Tech Brochure and Console Software
20	The Systems Management software should provide Role-based security	Yes	Verification with OEM Tech Brochure and Console Software
21	Management software should support integration with popular virtualization platform management software like vCenter, SCVMM and RedHat RHEV	Yes	Verification with OEM Tech Brochure and Console Software
22	Should help to proactively identify out-of-date BIOS, drivers, and Server Management agents and enable the remote update of system software/firmware components	Yes	Verification with OEM Tech Brochure and Console Software
23	The Server Management Software should be of the same brand as of the server supplier	Yes	Verification with OEM Tech Brochure and Console Software
24	Maximum Rated Power for Fully Populated Chassis	18000	Verification with OEM Tech Brochure & Certification


 A row of handwritten signatures in blue ink, likely representing approval or certification from various team members. The signatures are somewhat stylized and overlapping, making individual names difficult to decipher.

Slno.	Specifications	Value	Trial Directives
25	BIS Registration under CRS of Meity	Yes	Verification with OEM Tech Brochure & Certification
26	BIS Registration number and validity	If available	Verification with OEM Tech Brochure & Certification
27	On Site OEM Warranty (Years)	1/3/5 Years or as per User Requirement	Verification with OEM Tech Brochure & Certification
Blade Server Specification			
28	Type of Server	Blade	Verification with OEM Tech Brochure and Console Software
29	Maximum Number of sockets available on chipset	2	Verification with OEM Tech Brochure and Console Software
30	Maximum Number of sockets populated with processor	2	Verification with OEM Tech Brochure and Console Software
31	Processor Make	Intel/AMD equivalent	Verification with OEM Tech Brochure and Console Software
32	No. of Cores per Processor	Min 16	Verification with OEM Tech Brochure and Console Software
33	Processor Configuration	Latest Intel Xeon (Freq- Min 2.1GHz, Core - Min 16, Cache - Min 22 Mb, or better or Equivalent AMD with latest generation)	Verification with OEM Tech Brochure and Console Software
34	Chipset compatible with CPU	INTEL / equivalent AMD or better	Verification with OEM Tech Brochure and Console Software
35	Number of PCI Express Slots (Gen 3.0 or higher)	Min 2	Verification with OEM Tech Brochure and Console Software
36	RAM Type	DDR5	Verification with OEM Tech Brochure and Console Software
37	RAM SIZE (GB)	Min 128	Verification with OEM Tech Brochure and Console Software
38	RAM upgradable upto (GB)	2000 GB	Verification with OEM Tech Brochure and Console Software

Slno.	Specifications	Value	Trial Directives
39	DIMM Slots (Minimum)	16	Verification with OEM Tech Brochure and Console Software
40	Type of Hard Disk	SAS/SSD/NVMe	Verification with OEM Tech Brochure and Console Software
41	Hard disk drive Capacity (GB)	Min 1200	Verification with OEM Tech Brochure and Console Software
42	Hard disk drive RPM (hot plug or better) (RPM)	10K	Verification with OEM Tech Brochure and Console Software
43	RAID Type	1 / 5 / 6 (As per User Requirement)	Verification with OEM Tech Brochure and Console Software
44	RAID Controller Caches (GB)	8	Verification with OEM Tech Brochure and Console Software
45	Connectivity Ports	FC + Ethernet or converged	Verification with OEM Tech Brochure and Console Software
46	Dual Port Network Card Bandwidth (Gbps)	Min 10 Gbps	Verification with OEM Tech Brochure and Console Software
47	InfiniBand Bandwidth (Gbps)	As per User Requirement	Verification with OEM Tech Brochure and Console Software
48	FC HBA Dual port card	Available	Verification with OEM Tech Brochure and Console Software
49	FC HBA Dual port card Speed (Gbps)	Min 16 Gbps	Verification with OEM Tech Brochure and Console Software
50	OS Certifications, Compliance; support by Windows, Red Hat or Novell.	Yes	Verification with OEM Tech Brochure and Certification
51	BIS Registration under Compulsory Registration Scheme of Meity	Yes	Verification with OEM Tech Brochure and Certification
52	BIS Registration Number and its Validity	As per User Requirement	Verification with OEM Tech Brochure and Certification
53	RoHS Compliance	Yes	Verification with OEM Tech Brochure and Certification


 A series of handwritten signatures in blue ink, including 'Dinesh', 'Anil', 'Rakesh', 'Abir', 'V', and 'B'.

Slno.	Specifications	Value	Trial Directives
54	Operating Temperature Range (Degree C)	5°C to 35°C (\pm 5) As per user Requirement	Verification with OEM Tech Brochure and Certification
55	Operating Humidity (%)	90% or Better	Verification with OEM Tech Brochure and Certification
56	On Site OEM Warranty (Year)	1 / 3 / 5 Years or (As per User Requirement)	Verification with OEM Tech Brochure and Certification

SI/Exe Prashant Attri
(CISF)

AC-II Lalit Kumar
(NSG)

Insp/Tele Sree Kumar R
(ITBP)

Arpit Chaudhary, AC (IT)
(BSF)

Satyarth Sharma, JAD
(DCPW)

Munesh Kumar, AC(IT)
(SSB)

Gyanendra Kumar Giri
AC (QR) (CRPF)

Vimal Singh, DC (IT)
(CRPF)

Binay Kumar, AD
(BPR&D)

Megh Raj, DIG (Eqpt)
(CRPF)

Vijay Kumar, IG (Comm & IT)
(CRPF)

Zaki Ahmad, IPS, SDG (ADM)
CRPF

Approved/Not Approved

Gyanendra Pratap Singh, IPS
DG, CRPF

QRs/TDs of IP Based CCTV System (Camera and CCTV Storage)

Specification – CCTV Camera

S.N.	Specification	Value	Trial Directive
Camera Type			
1.	Type of Camera Housing	DOME /PTZ / Box / Bullet Camera (As per User Department)	Practically Checkup and verification with OEM Tech Brochure
2.	IP Camera	Yes	Verification with OEM Tech Brochure and console software
3.	PTZ Camera	Yes	Practically Checkup and verification with OEM Tech Brochure
Image Sensor			
4.	Image Sensor Type	CMOS	Verification with OEM Tech Brochure
5.	Image Sensor Size	Min 0.34 inch	Verification with OEM Tech Brochure
6.	Camera Image Sensing capacity (Picture Mode)	Min 2MP	Verification with OEM Tech Brochure
7.	Resolution	Full HD (1920 x 1080 Pixel) @ 25/30 FPS framerate or better	Verification with OEM Tech Brochure
8.	Day/Night Capable	Yes	Verification with OEM Tech Brochure
9.	IR illumination Range (mtr)	DOME – Min30 /PTZ- Min 300 / Box / Bullet Min – 50 Mtr Camera	Verification with OEM Tech Brochure
Optics			
10.	Lens Type	Motorized Varifocal	Verification with OEM Tech Brochure


 A series of handwritten signatures and initials in blue ink, including 'Jas', 'DML', 'SS', 'Gauri', 'Yantri', 'Abhi', and 'RJ'.

S.N.	Specification	Value	Trial Directive
11.	Focal Length(mm)	Different for DOME / Bullet Camera- 2.8mm~12mm PTZ - Camera 4.4 mm - 169.4 mm DC-iris PIris/Fixed/Auto Iris	Verification with OEM Tech Brochure
12.	Iris Control	PIris/Fixed/Auto Iris	Verification with OEM Tech Brochure
13.	Focus Mode	Auto, Zooming, One Push, Manual	Verification with OEM Tech Brochure

Video

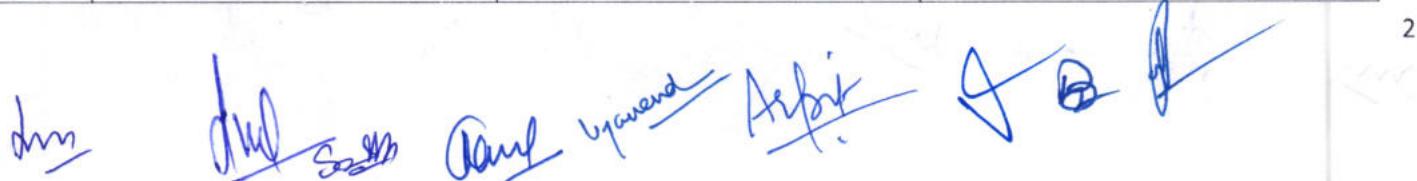
14.	Frame Rate (fps)	25	Verification with OEM Tech Brochure
15.	Video Compression	H.264, H.265, H.265, MJPEG	Verification with OEM Tech Brochure
16.	Video Streaming	Dual compressed stream	Verification with OEM Tech Brochure

PAN / Tilt / Zoom

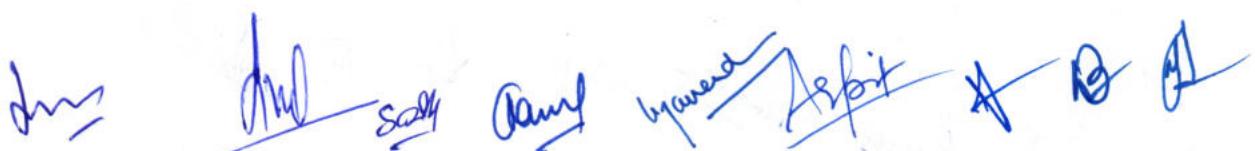
17.	Panning Range	0-360	Verification with OEM Tech Brochure
18.	Pan Speed (deg/sec)	Min 240	
19.	Tilt Range below horizontal (deg)	Min 0-90	
20.	Tilt Range above horizontal (deg)	Min 0-5	
21.	Tilt Speed (deg/sec)	Min 120	
22.	Optical Zoom	Min 30X	
23.	Digital Zoom	Min 16X	

Audio

24.	Audio Support	Yes	Verification with OEM Tech Brochure
25.	Audio Compression	G.726, G.722.1, G.711	


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S.N.	Specification	Value	Trial Directive
26.	Audio Streaming	Two-Way	Verification with OEM Tech Brochure
27.	Number of Audio Input Channel	1	
28.	Number of Audio Output Channel	1	
29.	External Microphone Support	As per User Requirement	
Alarm			
30.	Alarm Support	Yes	Verification with OEM Tech Brochure
31.	Number of Alarm Digital Input	Min 2 for PTZ and one for Bullet & Dom	
32.	Number of Alarm Relay Output	1	
33.	Pre/Post Alarm Buffer	Yes	
Security			
34.	Multi-Level User ID/Password	Yes	Verification with OEM Tech Brochure
35.	IP Address Filtering	Yes	
36.	Encrypted Data Transmission	HTTPS (SSL/TSL)	
Performance			
37.	Minimum Illumination for Capturing Color Image	0.5 lux	Verification with OEM Tech Brochure
38.	Electronic Shutter Speed(sec)	1/50 to 1/10000	
39.	WDR (Wide Dynamic Range)	120 dB	


 A series of handwritten signatures and initials in blue ink, including 'J', 'Sath', 'Paul', 'Bijendra', 'Arpit', 'A', and 'B'.

S.N.	Specification	Value	Trial Directive
40.	SNR (Signal to Noise Ratio)	50-60	Verification with OEM Tech Brochure
41.	Auto Exposure	Electronic Level Control	

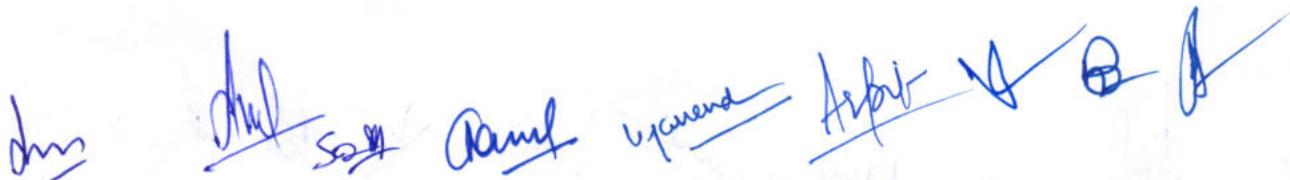
Features

42.	White Balance (Indoor/Outdoor/Manual Selectable)	Yes	Verification with OEM Tech Brochure
43.	Auto Gain Control (On/Off selectable)	Yes	
44.	Back Light Compensation	Yes	
45.	Remote Administration (Remote configuration and status using web-based tool)	Yes	
46.	Remote System Update Over Network	Yes	
47.	PC Client (PC application client with a channel recording feature support)	Yes	
48.	Web Client (Viewer through HTTP system configuration)	Yes	
49.	On Screen Display in English	Yes	
50.	ONVIF Support	Yes	
51.	Presets	Min 100 for PTZ only	
52.	Group Touring	Min 8 for PTZ only	
53.	Privacy Zones	Min 4 for Dom/Bullet and Min 8 for PTZ	

[Handwritten signatures and initials]

S.N.	Specification	Value	Trial Directive
Network and Interface			
54.	Supported Protocols	IPv4/v6, TCP/IP, UDP, RTP, RTSP, HTTP, HTTPS, ICMP, FTP, SMTP, DHCP, PPPoE, IGMP v2 & v3, SNMP, QoS, ONVIF, SSH v2, 802.1x	Verification with OEM Tech Brochure
55.	IP Support	Static, Dynamic	
56.	Signal Processing	Digital Signal Process	
57.	IPv6 ready	Yes	
58.	Wireless (Optional)	As per User Requirement	
59.	Simultaneous Connections	Min 4	
Storage			
60.	On Board SD Card Support	Yes	Verification with OEM Tech Brochure and console software
61.	SD Card Memory (GB)	Min 128	Verification with OEM Tech Brochure and console software
Housing			
62.	Installation Type	Outdoor / Indoor	Verification with OEM Tech Brochure
63.	Material of the Housing construction	Plastic / Metal	Practically Checkup and verification with OEM Tech Brochure
64.	Protection	IP 66	Verification with OEM Tech Brochure
65.	Vandal Resistant Housing	Yes	Verification with OEM Tech Brochure
66.	If Yes, IK rating	IK 10	Verification with OEM Tech Brochure

S.N.	Specification	Value	Trial Directive
67.	Mounting bracket	Pole Mounted	Verification with OEM Tech Brochure
Power Supply			
68.	Power Input	24 V DC	Verification with OEM Tech Brochure
69.	Power Consumption	26 Watt	
70.	Suitable Adapter Shall be Supplied to Make the Equipment Work on 230 V (+/- 10 %), 50 Hz	Yes	
Operating Condition			
71.	Operating Temperature Range	0°C to +50°C	Verification with OEM Tech Brochure
72.	Relative Humidity Non-Condensing (%)	95% or Better	Verification with OEM Tech Brochure
Warranty / Services			
73.	Warranty	1 year or As per User Requirement	Verification with OEM Tech Brochure
74.	Time for Replacement of Defective Product During Warranty Period	72 hours	Verification with OEM Tech Brochure
75.	Supply of Compatible drivers and software included	Yes	Verification with OEM Tech Brochure
Environmental / Certification			
76.	Availability of facility & infrastructure for verification of all parameters, features, and capability with Seller	Yes	Verification with OEM Tech Brochure and Certification
77.	Availability of facility to test signal to noise ratio of camera at 0-01 lux	Yes	


 A series of handwritten signatures and initials in blue ink, including 'Jyoti', 'Shal', 'Smt', 'Anand', 'Vijendra', 'Arbit', 'V', 'B', and 'J'.

S.N.	Specification	Value	Trial Directive
78.	Conformity to Dry Heat test at 55-degree C for 16 hours as per IS :9000 latest	Yes	Verification with OEM Tech Brochure and Certification
79.	Conformity to Damp heat at 40-degree C - 95% RH (cyclic test): two cycles of 16+8 hours as per IS: 9000 latest	Yes	
80.	Conformity to Cold test at -10 / -20-degree C for 4 hours as per IS: 9000 latest, as applicable	Yes	
81.	BIS Registration for safety general requirements as per IS 13252 (Part 1): latest	Yes	
82.	Availability of Type Test Report from Central Govt /NABL/ILAC accredited lab to prove conformity to specification	Yes, or As per User Requirement	



Specification – CCTV Video Recorder

S.N.	Specification	Value	Trial Directive
83.	Type of Recording Device	NVR	Verification with OEM Tech Brochure
84.	IP Camera Support	Yes	Verification with OEM Tech Brochure
85.	PTZ Camera control Support	Yes	Verification with OEM Tech Brochure
86.	Housing construction	Aluminum	Practically Checkup and verification with OEM Tech Brochure
87.	Mounting	Rack Mounted	Practically Checkup and verification with OEM Tech Brochure
88.	Rack Mount configuration	2U / 4U	Practically Checkup and verification with OEM Tech Brochure
89.	Capability of Recorder to Work with Other Makes of CCTV Cameras (ONVIF support)	Yes	Verification with OEM Tech Brochure

VIDEO

90.	Number of Video Input Channels	Min 32	Practically Checkup and verification with OEM Tech Brochure
91.	Number of IP based Video input Channels for HVR	Min 32 Channels for NVR	Verification with OEM Tech Brochure
92.	Number of Video Output Channels	Min 1 HDMI in Video channel	Practically Checkup and verification with OEM Tech Brochure
93.	Recording Resolution	HD/Full HD/ 4K (3840 × 2160)	Verification with OEM Tech Brochure

Handwritten signatures in blue ink, including "Jas", "Shyam", "Rajul", "Vijayendra", "Abhir", "A", "B", and "C".

S.N.	Specification	Value	Trial Directive
94.	Supported Compression Technique	H.264 / H.264+ /H.265 / H.265+ /MJPEG	Verification with OEM Tech Brochure
95.	Maximum Number of cameras to be viewed on a single display	64	Verification with OEM Tech Brochure
96.	Total number of simultaneous local views	4	Verification with OEM Tech Brochure
97.	Recording Speed for all channels (fps)	25	Verification with OEM Tech Brochure
98.	Minimum Through put (Mbps)	Min 256 Mbps	Verification with OEM Tech Brochure
99.	Display Image Rate	Real time per channel	Verification with OEM Tech Brochure

AUDIO

100.	Audio Support	Yes	Verification with OEM Tech Brochure
101.	Audio Input	1	Verification with OEM Tech Brochure
102.	Audio Output	1	Verification with OEM Tech Brochure
103.	Audio Compression	G.726 / G.711 / G.722.1 /A-Law /U-Law /MP2L2 /AAC	Verification with OEM Tech Brochure
104.	Minimum Number of Simultaneous Channels for Two-way Audio Support	1	Verification with OEM Tech Brochure

Security

105.	Type of Encryption	HTTPS (SSL/TLS), HTTP (SSL/TLS)	Verification with OEM Tech Brochure
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 A series of handwritten signatures in blue ink, including "dms", "J. M. S.", "Amit", "Amit", "A. D.", and "A. D.", are placed across the bottom of the page.

S.N.	Specification	Value	Trial Directive
106.	Multi-Level User ID / Password	Yes	Verification with OEM Tech Brochure

Alarm

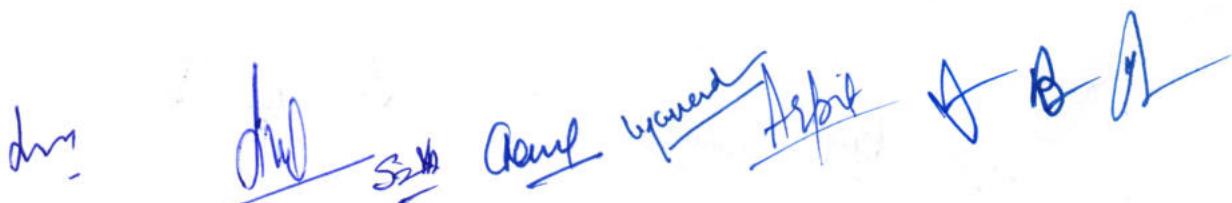
107.	Alarm Support	Yes	Verification with OEM Tech Brochure
108.	Alarm Input	2 or More	
109.	Alarm Output	Min 1	
110.	Pre / Post Alarm Buffer	Yes	
111.	Pre-Alarm Recording	30 second	
112.	Post-Alarm Recording	60 second	
113.	Video Content Analytics (VCA)	Motion Detection	

Network protocols / Interface / Operating system

114.	Operating System Supported	Windows/ MAC/ Linux	Verification with OEM Tech Brochure
115.	Supported Network Protocols	UDP, SNMP, IGMP, DHCP, RTP, RSTP, HTTP, HTTPS, DNS, DDNS, RTSP, RTCP, NTP, UPnP, SMTP, FTP, ICMP, QoS, TCP/IP (for NVR)	Verification with OEM Tech Brochure
116.	Supported Interface	Ethernet, HDMI, VGA, USB	Verification with OEM Tech Brochure
117.	Physical Layer of Ethernet	10/100/1000 Base TX	Verification with OEM Tech Brochure
118.	Number of Ethernet Ports	2	Practically Checkup and verification with OEM Tech Brochure
119.	Number of HDMI Ports	Min 1 HDMI Port	
120.	Number of VGA Ports	1	

[Handwritten signatures and initials]

S.N.	Specification	Value	Trial Directive
121.	Number of USB Ports	Min 3 & above	Practically Checkup and verification with OEM Tech Brochure
Features			
122.	Video Loop Support	Yes	Verification with OEM Tech Brochure
123.	Video Recorder supports recording on NAS Directly	Yes	
124.	Remote Administration (Remote Configuration and Status Using Web/Client Based Tool)	Yes	
125.	System Update (Remote System Update Over Network Using Web/Client)	Yes	
126.	PC Client (PC Application Client with A Channel Recording Feature Support)	Yes	
127.	Web/Client (Viewer through HTTP system configuration or Client based)	Yes	
128.	On Screen Display (In English)	Yes	
129.	Drivers / Compatible Software (Wherever Applicable) Part of Supply	Yes	
130.	Recording schedule support	Yes	
131.	Bandwidth Control	Yes	
132.	Camera Notification	Spot (POP up Window) on Event, E-mail	


 A series of handwritten signatures in blue ink, including initials and names, are written across the bottom of the page. The signatures are somewhat stylized and overlapping.

S.N.	Specification	Value	Trial Directive
133.	Other features, if any	Min 256 Mbps B/W, RAID 0/1/5/6/10	Verification with OEM Tech Brochure

Playback / View / Management

134.	Search	Date, Time, Event, Log, Motion, Bookmarks	Verification with OEM Tech Brochure and Software Console
135.	Bookmarks	Forward, Backward, adjustable playback speed, Full Screen	

Storage

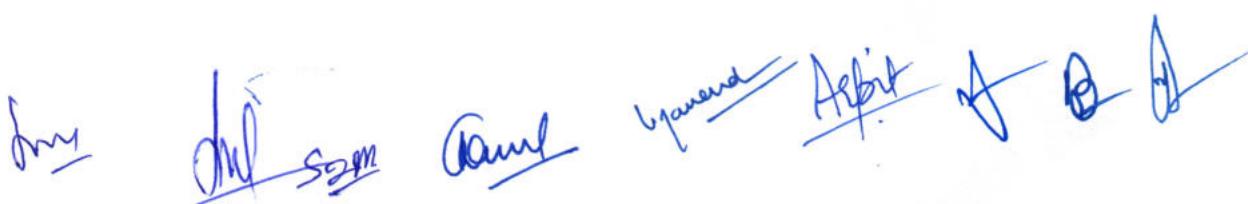
136.	Internal Hard Drive Interface	SATA	Verification with OEM Tech Brochure and Software Console
137.	Number of Hard Disks (inclusive in the scope of supply)	1	
138.	Storage Capacity of each Hard Disk (TB)	Min 8	
139.	Total Storage Capacity (TB)	Expendable up to 120 TB	
140.	Number of Hard Disks supported	8	
141.	Redundancy Option	RAID 0/1/5/6/10	

Power Supply

142.	Power Input	230 \pm 10%, 50Hz	Verification with OEM Tech Brochure
143.	Power Consumption	Min 16.7 Watt	
144.	Suitable Adapter to be Supplied to Make the Equipment Work on 230 V \pm 10 %, 50 Hz	Yes	
145.	Redundant Power Supply	As per User Requirement	

[Handwritten signatures and initials]

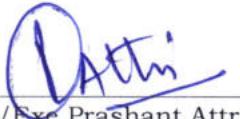
S.N.	Specification	Value	Trial Directive
Operating Conditions			
146.	Operating Temperature	0°C to 45°C (± 5) (As per User Requirement)	Verification with OEM Tech Brochure
147.	Relative Humidity Non-Condensing at 40 deg C	95% or Better	
Warranty / Services			
148.	Warranty	1 / 3 / 5 years or As per User Requirement	Verification with OEM Tech Brochure
149.	Time for Replacement of Defective Product During Warranty Period	72 hours	
Environmental / Certification			
150.	Availability of facility and infrastructure for verification of all the parameters, features and capability with the Seller	Yes	Verification with OEM Tech Brochure and Certification
151.	Conformity to Dry Heat test at Specified Maximum Operating Temperature for 16 hours as per IS :9000 latest	Yes	
152.	Conformity to Damp heat at 40 degree C - 95% RH (cyclic test): two cycles of 16+8 hours as per IS: 9000 latest	Yes	
153.	Conformity to Cold test at Specified Minimum Operating Temperature for 4 hours as per IS: 9000 latest	Yes	
154.	BIS Registration for safety general requirements as per IS: 13252 (Part 1): latest	Yes	


 A series of handwritten signatures in blue ink, including 'JAY', 'DILIP SAWALI', 'KAMAL', 'Vijendra', 'Asif', 'J. B.', and 'J. B.', are written in a cursive style across the bottom of the page.

S.N.	Specification	Value	Trial Directive
155.	Availability of Test Report from Central Govt/NABL/ILAC accredited lab to prove conformity to specification	Yes	Verification with OEM Tech Brochure and Certification
156.	Certification	FCC, CE, BIS, equivalent Indian STD of FCC/CE	

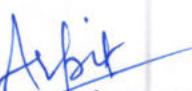
List of Items

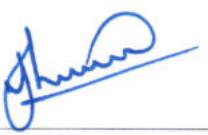
157.	List of Items and Quantity of each item included in the offer	HDD included	Verification with OEM Tech Brochure
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SI/Exc Prashant Attri
(CISF)


AC-II Lalit Kumar
(NSG)

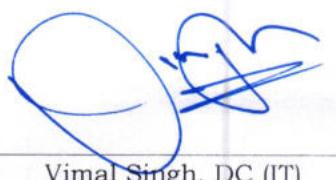

Insp/Tele Sree Kumar R
(ITBP)


Arpit Chaudhary, AC (IT)
(BSF)


Satyarth Sharma, JAD
(DCPW)


Munesh Kumar, AC(IT)
(SSB)


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Binay Kumar, AD
(BPR&D)


Megh Raj, DIG (Eqpt)
(CRPF)


Vijay Kumar, IG (Comm & IT)
(CRPF)


Zaki Ahmad, IPS, SDG (ADM)
CRPF

 
Approved/Not Approved

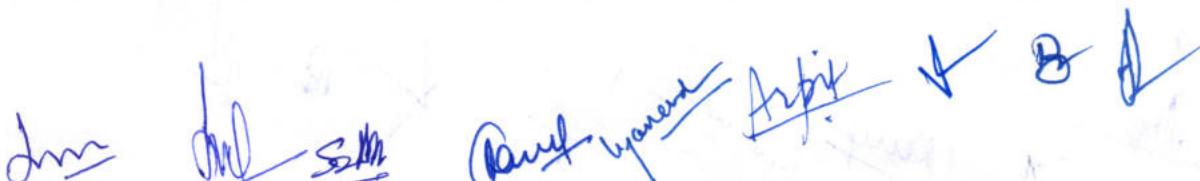

Gyanendra Pratap Singh, IPS
DG, CRPF

QRs/TDs of Network Video Management Software

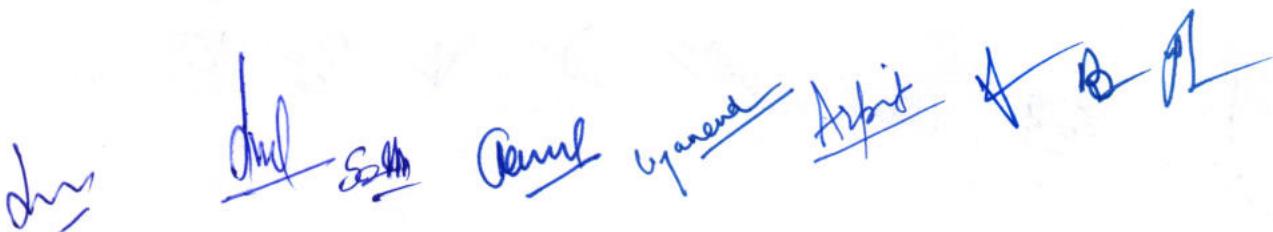
S.N	Specification	Value	Trail Directive
Basic Information			
1.	Software domain	Network Video Management System Software	Practically Checkup and verification with OEM Tech Brochure
2.	Type of video management system software	1. VMS software for local monitoring 2. VMS software for centralized monitoring for multi-location installation	Verification with OEM Tech Brochure
3.	Type of license	1. Perpetual	Verification with OEM Tech Brochure and Certification
4.	License Type	Per Device (Camera) / Per Concurrent User	Verification with OEM Tech Brochure and Certification
5.	Deployment option	1. On site compute device	Verification with OEM Tech Brochure
6.	Name of Software	Enterprise VMS	Practically Checkup and verification with OEM Tech Brochure
7.	Brief Description	NVMS Software with Version and Date of launch	Verification with OEM Tech Brochure
Generic Features			
8.	Generic feature in the offered product	1. Video Management software is highly scalable Enterprise level software & a complete video surveillance solution. It is scalable to required numbers of cameras that can be added on a unit -by-unit basis. 2. Video Management software is licensed & operates on open architecture & requires no proprietary IT hardware. 3. The Video Management software allows video to be streamed on workstation monitor or on a Video wall	Verification with OEM Tech Brochure

July 1961 SSM Paul Spencer Aspin AB AF

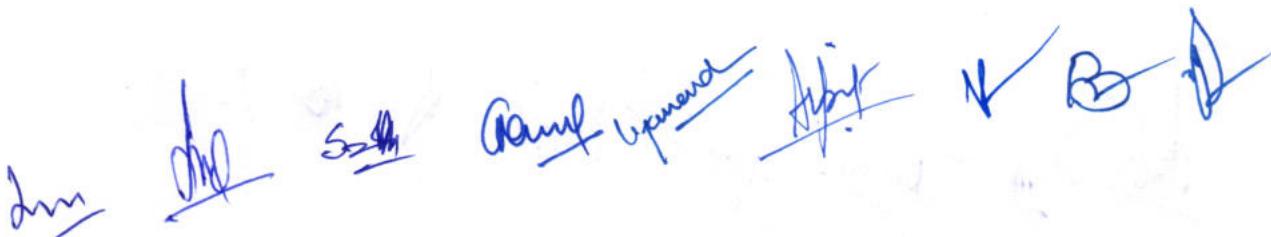
S.N	Specification	Value	Trail Directive
		<p>4. The User with administrative rights to create clients (users) & give access to the software client application based on predefined user access rights.</p> <p>5. System allow the recording, live monitoring, playback of archived video and data simultaneously.</p> <p>6. The VMS Video management system to be seamlessly integrated with Face recognition software and have the capability to receive the alerts. RTSP API for seamless third-party integration accepted.</p> <p>7. Management screen: Lock, unlock with password support.</p>	Verification with OEM Tech Brochure
9.	Software provides	<p>1. Several simultaneous live picture connections of camera in network.</p> <p>2. Configuration of monitoring situation (site maps).</p> <p>3. Programming of alarm-triggered automatic events in various alarms configuration.</p> <p>4. System set up with limited operation options for clearly defined surveillance tasks.</p> <p>5. Programming of automatic recording events on a network recorder.</p>	Verification with OEM Tech Brochure
10.	Type of Streaming	<p>1. Single Streaming.</p> <p>2. Dual Streaming.</p> <p>3. Multi-streaming.</p>	Verification with OEM Tech Brochure
11.	Video compression format supported by the software in real time	<p>1. H.264</p> <p>2. MJPEG</p> <p>3. H.265</p> <p>4. MPEG-4</p>	Verification with OEM Tech Brochure
12.	Frame rate range supported by the software (in fps)	Min 60 FPS	Verification with OEM Tech Brochure


 A series of handwritten signatures and initials in blue ink, including "Jm", "Jm S", "Parul", "Ankit", and "B", with a blue checkmark and a small "2" at the end.

S.N	Specification	Value	Trail Directive
13.	Resolution	1. Full HD 2. Ultra HD 3. HD	Verification with OEM Tech Brochure
14.	Number of monitors for displaying live video with one server /workstation	> 1 (Defined by User Department)	Verification with OEM Tech Brochure
15.	Number of level of users and alarm prioritization supported by the offered product	> 1 (Defined by User Department)	Verification with OEM Tech Brochure
16.	Number of cameras to be replayed simultaneously by the offered product	4 or More (Defined by User Department)	Verification with OEM Tech Brochure
17.	Compliance of standard of the offered product	1. Global standards ONVIF Profile 'S', 'G', 'T' & 'M' for the interface of network video product (ONVIF- Open Network Video Interface Forum).	Verification with OEM Tech Brochure and Verification through ONVIF Website & ONVIF Profile Certificate /Compliance
18.	Cyber security Parameters	1. SSL/TLS 2. Complex passwords 3. user lockout 4. Digital Watermarking 5. STQC Certificate	Verification with OEM Tech Brochure

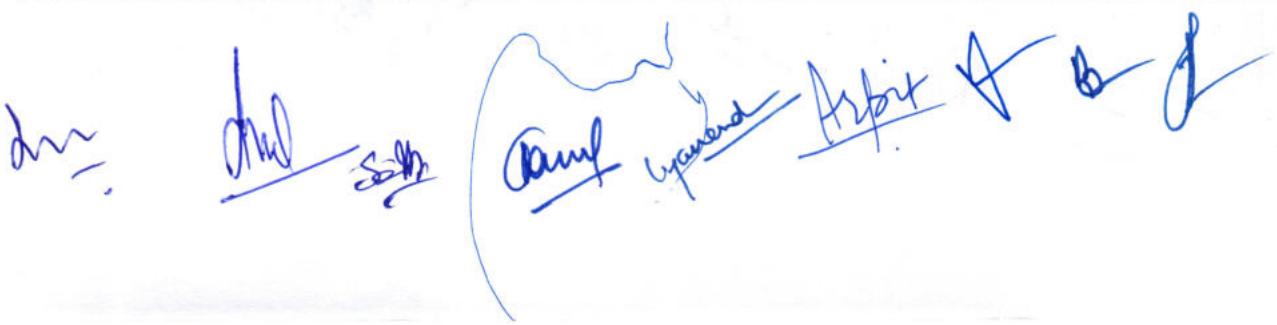

 A series of handwritten signatures in blue ink, including 'Jyoti', 'Dhaval', 'Soham', 'Anand', 'Vipendra', 'Arpit', 'A', 'B', and 'P'.

S.N	Specification	Value	Trail Directive
CAMERA RELATED FEATURE			
19.	Camera related feature in the offered product	<ol style="list-style-type: none"> 1. Camera's bit rate, frame rate and resolution to be set independently from other Cameras in the system and altering these settings does not affect the recording and display settings of other Cameras. 2. The software capable to provide automatic search & discovery of components of video surveillance system on the network which can be network Cameras. 3. The software capable to provide drag & drop functions on the system & also for set up of connection between Cameras and monitors connected to one workstation. 4. The Software capable of handling Camera & alarm icons on area map & area map to be configurable to pop up upon the receipt of an alarm received from a camera on the map. This can be on the same or other monitors on the PC. 5. The Software enables the client to dynamically create connections between Cameras and clients and view live or recorded video on monitors. 6. Software capable to provide the client seamless operation of all cameras & clients available in the system regardless of the actual connection to different network video recording servers. 7. Scalable licensing model supporting unlimited cameras per server based on the available hardware configuration. 8. Camera License not tied to MAC address of cameras. 9. Unrestricted camera replacement in case of camera failure. 	Verification with OEM Tech Brochure


 A series of handwritten signatures and initials in blue ink, including "J.W.", "S.M.", "S.M.", "Paul Upward", "A.J.", "V.B.", and "D.J.".

S.N	Specification	Value	Trail Directive
20.	The offered product capable to allow	<ol style="list-style-type: none"> 1. Live Display of Cameras. 2. Live Display of Camera sequences. 3. Control of PTZ Cameras. 4. Playback of archived video. 5. Retrieval of archived video. 6. Instant Replay of live Video. 7. Use of Site maps. 8. Configuration of System Settings. 9. Configuration and programming of P /T /Z Cameras, features like auto tours, presets etc. 10. Digital PTZ Control. 11. Comport Joystick support. 12. Preset position setup. 13. Preset position search. 14. Optical zoom in, Zoom out. 15. Digital zoom enable/disable. 16. Full screen view enable/disable. 17. Camera connect/disconnect. 	Verification with OEM Tech Brochure

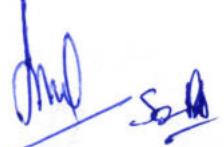
VIDEO MANAGEMENT FEATURES			
21.	Software capable to record video on	<ol style="list-style-type: none"> 1. Inbuilt hard disks on the server. 2. Direct attached storage boxes attached to the servers. 3. Network attached storage. 4. Storage area network. 	Verification with OEM Tech Brochure
22.	Software capable to select recording based on	<ol style="list-style-type: none"> 1. Time at which recording was activated. 2. Duration of recording. 3. Operator activated recording. 4. Event activated recording. 5. Scheduled recording. 6. Camera. 7. Date. 	Verification with OEM Tech Brochure
23.	Option available in the offered product for reporting utility for tracking	<ol style="list-style-type: none"> 1. Video clips and image snapshots to be stored with reports for documenting events. 2. Alarms. 3. Incidents. 4. Operator logs. 	Verification with OEM Tech Brochure



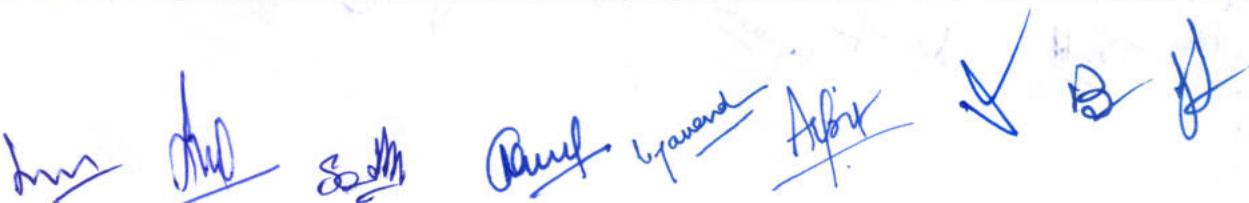
S.N.	Specification	Value	Trail Directive
24.	Video management and recording feature in the offered product	<p>1. Software have the facility to export the desired portion of clipping of video from a Desired date/ Time to another desired date/ time on DVD on any client/ Network storage device. Viewing of the recording possible on authorized player or in media player on computer utilizing a Window environment.</p> <p>2. The video management server not to limit the number of video recording servers can be networked together to form video management and recording system.</p> <p>3. The video management servers capable to maintain a catalog of settings for all clients, servers and IP Cameras & IP enabled Cameras in the system. In case of single server, if recording cannot be managed then offered products have a provision for addition of server.</p> <p>4. The Software enables the client to dynamically create connections between Cameras and clients and view live or recorded video on monitors.</p> <p>5. Software capable to provide the client seamless operation of all cameras & clients available in the system regardless of the actual connection to different network video recording servers.</p> <p>6. Software capable to commence the video recording from the date & time specified by the end-user & also able to playback more than one camera recording simultaneously.</p> <p>7. Watermarking, Encrypt and Digital Signature option while video exporting.</p> <p>8. Software shall support encryption-based recording. Encrypted recording shall play only in Video Management Software.</p> <p>9. Video push feature to send individual cameras or an entire view of cameras to public view or another monitor.</p> <p>10. Manage users through LDAP/Active directory.</p>	Verification with OEM Tech Brochure



S.N.	Specification	Value	Trail Directive
		11. Client bandwidth throttling to Optimize video data rates over limited bandwidth client connections. 12. Scheduled Access time for Operation with assign permission.	Verification with OEM Tech Brochure
25.	Supporting feature in the offered product	1. The Video management software provides a full matrix operation of IP video to display monitors. 2. Video management software have the capability of creating camera sequences with following functionalities: - i) Capability to sequence cameras. ii) Each camera in the sequence has its own individual dwell time. iii) Multiple users able to view the same camera sequence simultaneously, not necessarily synchronized one with the other.	Verification with OEM Tech Brochure
26.	NO of cameras VMS Software can sequence upto	60 or more (Defined by Users Department)	Verification with OEM Tech Brochure
27.	Each camera in the sequence have its own individual dwell time in seconds	60 or more (Defined by User Department)	Verification with OEM Tech Brochure
28.	Client Interface (Thick Client)	1 or more	Verification with OEM Tech Brochure
29.	Suspect Tracking through Multiple link of Cameras	1 or more	Verification with OEM Tech Brochure

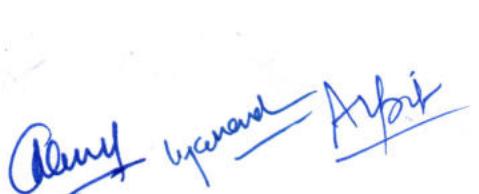

 H.S.  Sathish  Anand  Jayend  Ajith  V.B.  D.

S.N.	Specification	Value	Trail Directive
30.	Server Connections	1 or more	Verification with OEM Tech Brochure
31.	Operating System Compatibility	Window 64 Bit (Latest)	Verification with OEM Tech Brochure
32.	Architecture	1. Client & Server on Multiple Hardware. 2. Client & Server on Same Hardware	Verification with OEM Tech Brochure
Display Mode			
33.	Number of monitors for displaying live video with one server / workstation	9 or more	Verification with OEM Tech Brochure
34.	Number of Video Streams (Channels) currently supported by Local VMS	64 or more	Verification with OEM Tech Brochure
35.	Number of Video Streams (Channels) expandable for local VMS up to	64 or more	Verification with OEM Tech Brochure
36.	Number of Video Streams (Channels) concurrently supported by Central VMS	64 or more	Verification with OEM Tech Brochure
37.	Image rotate (in degree)	360 Degree	Verification with OEM Tech Brochure
38.	No of Auto Tour selectable option	10 or more	Verification with OEM Tech Brochure


 A series of handwritten signatures and initials in blue ink, including 'Huz', 'Shah', 'Sohm', 'Ranjit', 'Vijendra', 'Alok', a checkmark, 'B', and 'J'.

S.N.	Specification	Value	Trail Directive
39.	Status display	Free disk space, Camera status, CPU usage	Verification with OEM Tech Brochure
40.	Display clock (in real time)	day, date, time, year	Verification with OEM Tech Brochure
41.	Display mode (split screen matrix)	64	Verification with OEM Tech Brochure
42.	Display Characteristics Overlay of the Cameras during -	Live view, Live View & Navigate, Live view & Navigate over camera icons	Verification with OEM Tech Brochure
Audio			
43.	Type of audio	2-way	Verification with OEM Tech Brochure
44.	Type of Codec	PCM/ G.711U/ G.711A/ G.722/ G.729A/ GSM-AMR/ AAC	Verification with OEM Tech Brochure
Event Trigger			
45.	Motion detection selectable area	As per User Requirement	Verification with OEM Tech Brochure
46.	System event	shutdown, restart, login, logoff, Camera reboot, external I/O trigger	Verification with OEM Tech Brochure
47.	Hot-Spot Window Feature	As per User Requirement	Verification with OEM Tech Brochure
48.	Hotspot window split Screen from the matrix	1,2,4	Verification with OEM Tech Brochure
Recording			
49.	Recording type	schedule, continuous, manual, motion, event	Verification with OEM Tech Brochure
50.	Recording Recycle	Auto, FIFO mode Audio and video simultaneous recording, Motion Detect from camera	Verification with OEM Tech Brochure

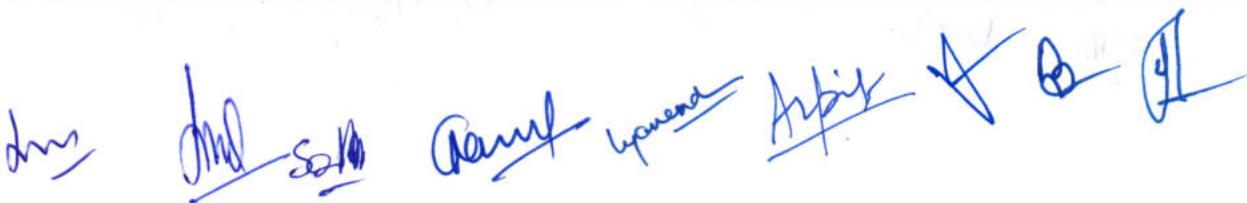




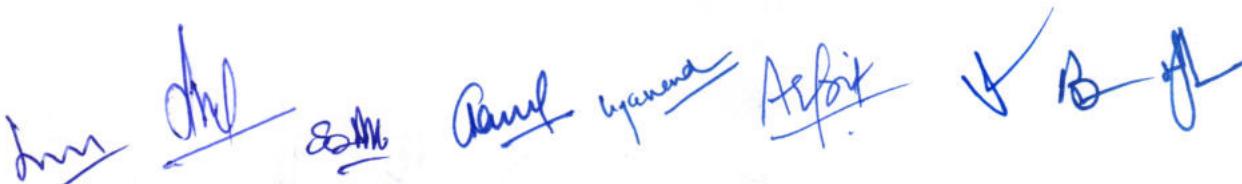


S.N.	Specification	Value	Trail Directive
51.	Audio Recording	Pre-record, Post -record support	Verification with OEM Tech Brochure
Storage / Backup			
52.	Number of selectable paths in Local storage simultaneously	30	Verification with OEM Tech Brochure
53.	Network storage path	iSCSI, network share, NAS	Verification with OEM Tech Brochure
54.	Storage/ Backup features	Multiple local storage support, Network Storage Device Support, USB backup support, back up Tape device	Verification with OEM Tech Brochure
Playback			
55.	Playback Search from Local and Network storage	1. Channels. 2. Date and time. 3. Bookmarking. 4. Alarm. 5. All - Channels; Date & Time; Bookmarking; Alarm. 6. Attribute Search (Object Size, color)	Verification with OEM Tech Brochure
56.	Event Playback Search from video loss, motion detection and manual recording	1. Channels. 2. Date and time.	Verification with OEM Tech Brochure
57.	Playback mode	Play, Stop, Pause, Forward, Backward, Next, Previous.	Verification with OEM Tech Brochure
58.	Forward/Backward mode	x1/4, x1/2, x1, x2, x4, x16	Verification with OEM Tech Brochure
59.	Video Search	External alarm input trigger	Verification with OEM Tech Brochure
60.	Image Export	Image Export by JPEG	Verification with OEM Tech Brochure

S.N.	Specification	Value	Trail Directive
Network Features			
61.	Protocols	TCP, RTSP and Multicast supported	Verification with OEM Tech Brochure
62.	Remote View	<ol style="list-style-type: none"> 1. Remote Live streaming. 2. Image Snapshot to JPEG. 3. PTZ control. 4. Event notification. 5. Video playback. 	Verification with OEM Tech Brochure
63.	E MAP	<ol style="list-style-type: none"> 1. Multi E-map layers support. 2. Indicator camera &I/O. 3. E-Map Type BMP/JPG/GIF/PNG/TIF. 4. Unlimited E-map pictures. 5. Camera Preview. 7. Map support: map, satellite and hybrid view. (Optional) 8. Online control: left, right, up, down, zoom in and Zoom out. 	Verification with OEM Tech Brochure
64.	Tools	<ol style="list-style-type: none"> 1. DB Tools. 2. Backup system. 3. File export to AVI, ASF, MP4 	Verification with OEM Tech Brochure
65.	Compatibility	<ol style="list-style-type: none"> 1. Compatible with 3rd party IP cameras. 2. Widescreen Support 	Verification with OEM Tech Brochure
Graphic User Interface			
66.	The GUI software capable to perform the applications simultaneously without interfering with any of the storage server operations (recording, alarms etc)	<ol style="list-style-type: none"> 1. Live display of Cameras. 2. Live display of Camera sequences. 3. Control of PTZ Cameras. 4. Playback of archived video. 5. Retrieval of archived video. 6. Instant replay of live video. 7. Use of graphical controls (maps) and alarm management. 8. Configuration of system settings. 	Verification with OEM Tech Brochure
67.	The GUI software capable to support	<ol style="list-style-type: none"> 1. Any form of IP network connectivity including LAN, WAN and wireless LAN technologies. 2. Multicast video streaming. 3. Unicast video streaming. 	Verification with OEM Tech Brochure


 A series of handwritten signatures and initials in blue ink, including "Dinesh", "John Sathish", "Parul Venkatesh", "Abhishek", "K. B.", and "A. L.".

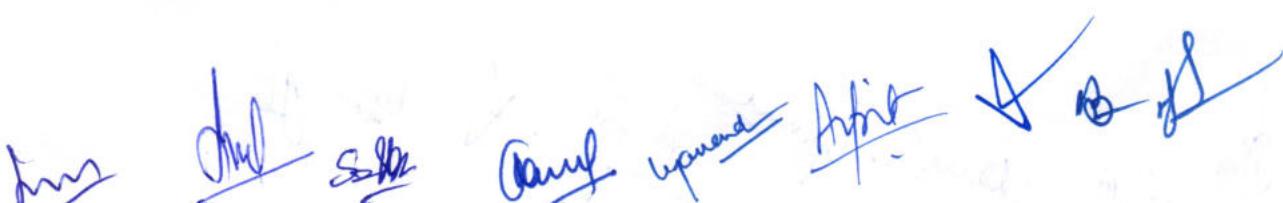
S.N.	Specification	Value	Trail Directive
68.	GUI Software Feature	<ol style="list-style-type: none"> 1. Capable to provide an authentication mechanism, which verifies the validity of the user. 2. Capable to allow live monitoring of video. 3. Capable to provide management and control over the system using a standard PC mouse, keyboard and Digital keyboard. 4. Capable to display all Cameras attached to the system regardless of their physical location on the network. 5. Capable to display all Camera sequences created in the system. 6. Capable to display all Cameras, sequences and users in a logical tree. 7. Capable to support graphical site representation (map) functionality, where digital maps are used to represent the physical location of Cameras and other devices throughout facility. 8. The maps have the ability to contain hyperlinks to create a hierarchy of interlinked maps. 9. Capable to support digital zoom on a fixed Camera's live video streams. 10. Capable to support digital zoom on a PTZ Camera's live video streams. 11. Capable to display video of Cameras on 40-inch Large Format Display Monitors and Workstation Monitors. 12. Capable to allow the control of display from the client PC. 13. The operator from the GUI software able to decide the screen layout and also the Cameras that shall be displayed on the monitors. 14. Capable to support multicasting. 15. Capable to switch the screen layout in response to an alarm. 16. Adaptive Streaming. Option to switch stream to lower to higher or vice-versa based on full screen. 	Verification with OEM Tech Brochure


 A series of handwritten signatures in blue ink, including 'Dinesh', 'Sathish', 'Ravul', 'Arif', and 'Brij', are arranged horizontally across the page.

S.N.	Specification	Value	Trail Directive
69.	Frame rate per camera in the GUI Software	As per Camera resolution	Verification with OEM Tech Brochure
70.	No Of video tiles enable on a single digital monitor	64	Verification with OEM Tech Brochure
71.	Tiles Views provided on each of the digital monitors independently	<ol style="list-style-type: none"> 1. Full screen 2. Quad view 3. 4x4(16-view) 4. Support any other window division based on the site requirement 	Verification with OEM Tech Brochure
72.	GUI Software Operator Feature	<ol style="list-style-type: none"> 1. Allow operators to view an instant replay of any Camera. 2. The operator able to define the amount of time he wishes to go back from timeline bar or through a custom setup period. 3. The operator able to control the playback with play, pauses, forward, and speed buttons. 4. Operator capable to drag and drop a Camera from a tree of available Cameras into any video tile for live viewing. 5. Operator capable to view the Camera from a tree of available Cameras into any video tile for live viewing. 7. Operator able to click on an icon in a map to initiate PTZ Camera preset, run PTZ pattern, view Camera in an analog monitor or send an I/O stream. 8. The operator capable to control Pan, Tilt and Zoom patterns of P/T/Z Camera. 	Verification with OEM Tech Brochure
73.	The operator capable to choose and trigger following action from a macro/site map	<ol style="list-style-type: none"> 1. View Camera in a video tile. 2. View map or procedure in a video tile. 3. Starting/stopping PTZ pattern. 4. Go to PTZ preset. 	Verification with OEM Tech Brochure

[Handwritten signatures and initials in blue ink, including "Dinesh", "S. S. S.", "Anand", "Vineet", "Debjit", "A.", "B.", and "C."]

S.N.	Specification	Value	Trail Directive
Video Recording Software			
74.	Video Recording Feature by the offered product	<ol style="list-style-type: none"> Support recording H.264/MJPEG/H.265 or higher video streams and audio for all the channels. Supports triplex applications, recording, re-play and backup simultaneously compatible with windows Server OS or Linux for highest performance and reliability. Software operates on open architecture and not requires any proprietary hardware. Software capable to record different video streams or more simultaneously accessible from any client PC connected to the network. Software provides network time server function to ensure the synchronization of the video servers and the recordings. Software capable to receive alarms of different types from equipment to start a recording These alarms be motion detection, video loss, unified picture and trigger input. Software alarm recording supports pre- and post-alarm periods both can be configured in duration. Software shall provide a status of the available recording capacity. Software shall define limits and alerts for low disk space at warning and recording stopped levels 	Verification with OEM Tech Brochure
75.	Video Recording Software supports redundancy configurations for recording servers Video Recording Servers/ Network Video Recorders	<ol style="list-style-type: none"> N to X redundancy. X to N redundancy. N to N redundancy. <p>(As per user requirement)</p>	Verification with OEM Tech Brochure


 A series of handwritten signatures and initials in blue ink, including "TMS", "John", "SSB", "David", "Vineet", "Ajit", "B", and "J". There are also some crossed-out or faint markings.

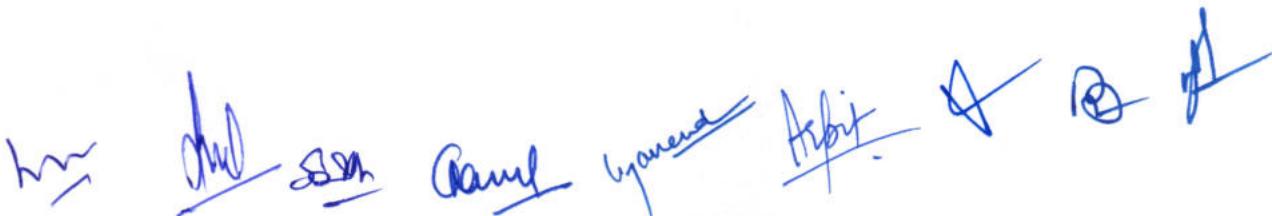
S.N.	Specification	Value	Trail Directive
76.	Failover Time (Maximum Time to which application switches from main server to Failover server)	40 Min	Verification with OEM Tech Brochure
77.	Features of Fault Tolerance Recording	<p>1. Software & Server(s)/ NVRs operation are interrupted, like power disconnection and once the server(s) are restarted, these automatically resume recording of any Cameras these were recording prior to the interruption.</p> <p>2. Software supports network fault-tolerant recording such that if the network connection between a video management server and video recording server becomes unavailable, for example through cable breakage, network congestion or WLAN interruption, the system operation shall automatically recover when the connection is restored.</p>	Verification with OEM Tech Brochure
78.	Feature of Search & Export	<p>1. Search for recordings in the software by Camera, date and time if a date and time is specified, playback shall commence from that date and time possible to playback more than one Camera simultaneously.</p> <p>2. Software be capable to export sections of recordings to a separate Windows folder, which then be written to CD-ROM, DVD-ROM or USB Flash Drives etc. to be played back at a location not connected to the network video management& recording network. The export process makes available a player application, which provided with the exported video. Export be possible in Windows media player or any other media player compatible format. Simultaneous export of multiple Cameras be possible.</p>	Verification with OEM Tech Brochure

~~John~~ ~~John~~ ~~John~~ ~~Paul~~ ~~Howard~~ ~~Arabic~~ ~~KB~~ ~~JD~~

S.N.	Specification	Value	Trail Directive
		<p>3. Software provides secured recording for evidence purposes and user authentication to protect data integrity.</p> <p>4. Software supports activity-controlled video recording. This is required to automatically adjust recording bit rate depending on motion & scene. During periods of negligible motion, the recording bits rate shall drop and when motion occurs, the recording bit rate shall return to normal without any perceptible delay.</p> <p>5. Watermarking, Encrypt and Digital Signature option while video exporting</p>	Verification with OEM Tech Brochure

Central Monitoring Software

79.	Central Monitoring Software	<p>1. Centralized monitoring of Unlimited devices spread across multiple station.</p> <p>2. Local recording at branch with High Quality Video and Low bandwidth streaming to Central station.</p> <p>3. The alert send by VMS, Video Analytics software can be view in form of pop up on screen.</p>	Verification with OEM Tech Brochure
80.	No of cameras monitored from the central location by the software (Set by User Department)	Up to 100000 (As per User Department)	Verification with OEM Tech Brochure


 A series of handwritten signatures and initials in blue ink. From left to right, the markings include: a stylized 'W', a signature that looks like 'John Smith', a signature that looks like 'Paul Young', a signature that looks like 'Tribit', a checkmark '✓', a signature that looks like 'R', and a signature that looks like 'A'.

S.N.	Specification	Value	Trail Directive
Alert Features			
81.	Alert feature in the offered product	<ol style="list-style-type: none"> 1. The software capable to detect signal loss & have the capability to alert the Systems administrator. 2. Software capable to receive all incoming events (motion detection, triggered digital input & relay output) in the system and take the appropriate actions based on user-defined event/action relationships. 3. The Software shall create an audit trail of all events and user activities. 4. Software capable to provide alarm management module. 5. Alarm management able to set any monitor or groups of monitors to automatically display cameras in response to alarm inputs. 	Verification with OEM Tech Brochure
Supported Hardware Requirement Parameters			
82.	Minimum Hard Disk Space Required	512 GB	verification with OEM Tech Brochure and software Console
83.	Minimum RAM Size required	64 GB or more	verification with OEM Tech Brochure and software Console
84.	Server requirements	Customized	verification with OEM Tech Brochure and software Console
85.	CPU required	Intel i7 or better or AMD or equivalent	verification with OEM Tech Brochure and software Console
86.	Operating Systems supported	MS Windows 11 or latest	verification with OEM Tech Brochure and software Console
87.	Supported Web browsers OR Mobile Application	Google Chrome, Firefox, IE, Safari	verification with OEM Tech Brochure and software Console

Mr. John Smith Paul Lyman Arbitrator ✓ 10/10/01

S.N.	Specification	Value	Trail Directive
88.	Supported Database	MS SQL	verification with OEM Tech Brochure and software Console
General Parameters			
89.	Free Upgradation to Higher Version within support period	Yes	Verification with OEM Tech Brochure

SI/Exe Prashant Attri
(CISF)

AC-II Lalit Kumar
(NSG)

Insp/Tele Sree Kumar R
(ITBP)

Arpit Chaudhary, AC (IT)
(BSF)

Satyarth Sharma, JAD
(DCPW)

Munesh Kumar, AC(IT)
(SSB)

Gyanendra Kumar Giri
AC (QR) (CRPF)

Vimal Singh, DC (IT)
(CRPF)

Binay Kumar, AD
(BPR&D)

Megh Raj, DIG (Eqpt)
(CRPF)

Vijay Kumar, IO (Comn & IT)
(CRPF)

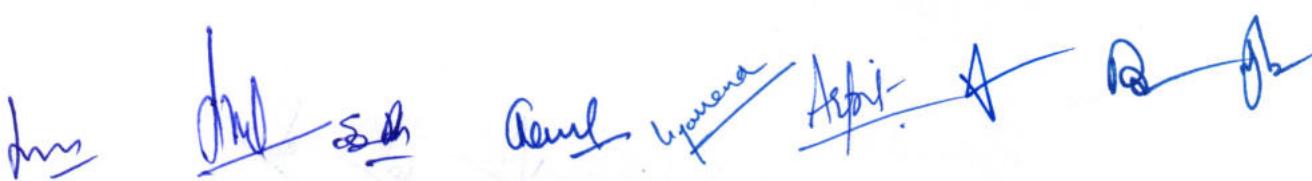
Zaki Ahmad, IPS, SDG (ADM)
CRPF

Approved/Not Approved

Gyanendra Pratap Singh, IPS
DG, CRPF

QRs/TDs of Web Application Firewall (WAF)

S. N.	Specification	Values	Trial Directive
1	Deployment modes	Reverse Proxy, and full Proxy Mode	Verification with OEM Tech Brochure and Software Console
2	Web Application Security	Solution must distinguish between browsers & bot's byte has browser capability & CAPTCHA / fingerprint challenge	Verification with OEM Tech Brochure
3	Concurrent Connection (Maximum) (Numbers)	28000000	Verification with OEM Tech Brochure
4	HTTP Connections/Sec (Maximum) (Numbers)	5 million	Verification with OEM Tech Brochure
5	System Throughput (Maximum) (Gbps)	Min 2 (As per User Requirement)	Verification with OEM Tech Brochure
6	Request Latency	Sub-ms	Verification with OEM Tech Brochure
7	Network Interface Ports	2X10G + 8*1G Copper	Practically Checkup and verification with OEM Tech Brochure
8	Bypass ports for fail safe	As per User Requirement	Verification with OEM Tech Brochure
9	Attack Protection	OWSAP TO Q10, SQL, VRVP & WEB INJECTION. Device ID tracking along with protection of credential setting	Verification with OEM Tech Brochure and Software Console



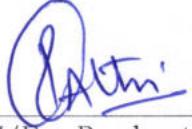
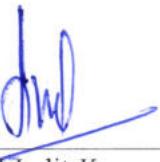
S. N.	Specification	Values	Trial Directive
10	Detect and prevent attackers from finding hidden directories Features	Available	Verification with OEM Tech Brochure
11	Processor	Min One 4 Core Intel Xeon Processor or better or AMD or equivalent	Verification with OEM Tech Brochure
12	Storage (GB)	Min 400 or more	Verification with OEM Tech Brochure and Software Console
13	Authentication and Authorization	must provide capability to obfuscate sensitive field name to defeat Man-in-The-Browser Attack	Verification with OEM Tech Brochure
14	Integrated scanner	As per User Requirement	Verification with OEM Tech Brochure
15	Logging, Reporting and Monitoring	Through Management or Centralized Local Management	Verification with OEM Tech Brochure
16	Input-Output Port	Management Port- RJ45; Console Port - RS232. Monitoring & policy through single central manager GUI for WAF & ADC	Practically Checkup and verification with OEM Tech Brochure
17	Power Supply	Dual	Practically Checkup and verification with OEM Tech Brochure
18	Power Consumption (Watt)	Min 140 Watt	verification with OEM Tech Brochure and software Console


 A series of handwritten signatures in blue ink, including "Jm", "Shw", "Sd", "Paul", "Vijay", "Arpit", "V", "D", and "2", are written across the bottom of the page.

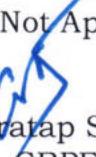
S. N.	Specification	Values	Trial Directive
19	Operating Temperature Range (Degree C)	0°C - 40°C	Verification with OEM Tech Brochure
20	Storage Temperature Range (Degree C)	0°C - 40°C	Verification with OEM Tech Brochure
21	Operating Humidity (%RH)	90% or Better	Verification with OEM Tech Brochure
22	Compliance Certificates	Required	Verification with OEM Tech Brochure and certification
23	Availability of test reports from Central Govt /NABL / ILAC accredited Lab covering all the parameters	Available	Verification with OEM Tech Brochure and certification
24	If yes, Name of the Lab	Variable	Verification with OEM Tech Brochure and certification
25	If yes, Address of the Lab	Variable	Verification with OEM Tech Brochure and certification
26	If yes, Test Report Number and Date	Variable	Verification with OEM Tech Brochure and certification
27	If yes, Test Report to be furnished to the buyer on demand	Yes	Verification with OEM Tech Brochure and certification



S. N.	Specification	Values	Trial Directive
28	On Site OEM Warranty (Year)	1 / 3 / 5 years or as per User Requirement	Verification with OEM Tech Brochure

	SI/Exe Prashant Attri (CISF)		AC-II Lalit Kumar (NSG)		Insp/Tele Sree Kumar R (ITBP)		Arpit Chaudhary, AC (IT) (BSF)
	Satyarth Sharma, JAD (DCPW)		Munesh Kumar, AC(IT) (SSB)		Gyanendra Kumar Giri AC (QR) (CRPF)		Vimal Singh, DC (IT) (CRPF)
	Binay Kumar, AD (BPR&D)		Megh Raj, DIG (Eqpt) (CRPF)		Vijay Kumar, IG (Comm & IT) (CRPF)		Zaki Ahmad, IPS, SDG (ADM) CRPF

 Approved/Not Approved

 Gyanendra Pratap Singh, IPS
DG, CRPF

QRs/TDs of Next Generation Firewall (NGFW) & Universal Threat Management (UTM)

S.N.	Specification	Value	Test Directives
1.	Type	NGFW	Verification with OEM Tech Brochure
2.	Form Factor (RU)	1	Verification with OEM Tech Brochure
3.	Features	Layer 3 - Layer 4, NAT, VPN, Application Visibility and Control (AVC), User Identity, Next Generation Intrusion Prevention System (IPS), Zero Day Protection / Advance Malware protection, Web Security Essentials / URL Filtering, Gateway Antivirus	Verification with OEM Tech Brochure
4.	Traffic handled	TCP, UDP, HTTP/TCP, TCP/UDP	Verification with OEM Tech Brochure
5.	Packet Size (KB)	Min 64	Verification with OEM Tech Brochure
6.	Throughput with all features enabled (Under Test Condition) (Mbps)	Minimum 1000	Verification with OEM Tech Brochure
7.	Throughput (Real World/Prod Performance) (Under Test Condition) (Mbps)	Minimum 1000	Verification with OEM Tech Brochure
8.	Concurrent Session/Concurrent Connection	Min 300K	Verification with OEM Tech Brochure
9.	New session/Connection per second	Min 25K	Verification with OEM Tech Brochure
10.	Type of Interface Supported Multiselect	GE Copper / OFC	Verification with OEM Tech Brochure

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S.N.	Specification	Value	Trail Directives
11.	Number of GE Copper interface	Min 8	Practically Checkup and Verification with OEM Tech Brochure
12.	Number of 10G SFP+ interface	Min 2	Practically Checkup and Verification with OEM Tech Brochure
13.	Number of QSFP+ 40 G interface	As per User Requirement	Practically Checkup and Verification with OEM Tech Brochure
14.	Number of GE Small Form-Factor Pluggable (SFP) interface	As per User Requirement	Practically Checkup and Verification with OEM Tech Brochure
15.	Number of QSFP28 100 G interface	As per User Requirement	Practically Checkup and Verification with OEM Tech Brochure
16.	Number of col /WAN Ports	Min 8	Practically Checkup and Verification with OEM Tech Brochure
17.	Number of IPsec VPN Peers supported (Site to Site)	Min 300	Verification with OEM Tech Brochure and Console Software
18.	Number of IPsec VPN Peers supported (Client to Site)	Min 300	
19.	Number of SSL VPN Peers supported (Client to Site)	Min 100	
20.	Type of Storage Disk	SSD	Verification with OEM Tech Brochure
21.	Storage Capacity (GB)	Min 240	Verification with OEM Tech Brochure

S.N.	Specification	Value	Trail Directives
22.	Power Supplies	Single / Dual (As per User Requirement)	Verification with OEM Tech Brochure
23.	Hot Swappable Power Supply	Yes / No (As per User Requirement)	Verification with OEM Tech Brochure
24.	Redundant Fan	Yes / No (As per User Requirement)	Verification with OEM Tech Brochure
25.	Hot Swappable (Redundant Fan)	As per User Requirement	Verification with OEM Tech Brochure
26.	Type of Processor	x86	Verification with OEM Tech Brochure and Software Console
27.	High Availability Support	Yes	Verification with OEM Tech Brochure
28.	If Yes, High Availability from day 1	Yes	Verification with OEM Tech Brochure
29.	Interface Expansion slots supported	0	Verification with OEM Tech Brochure
30.	Firewall Policies - License	Yes	Verification with OEM Tech Brochure
31.	Details of the Firewall Policies for the Firewall provided with the License	Web Security Essentials / URL Filtering, IPS License, Application Visibility License, APT (Advance Persistent Threat) License (Anti Malware Protection, C& C attacks, Geo IP Protection, Zero Day Threat Protection), Gateway Anti-virus (As per User Requirement)	Verification with OEM Tech Brochure
32.	NGIPS Signature supported	Min 5000	Verification with OEM Tech Brochure
33.	Security Intelligence	IP, URL, Domain	Verification with OEM Tech Brochure

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[Handwritten signatures]

S.N.	Specification	Value	Trail Directives
34.	Certification	Common Criteria /NDPP/NSS /EAL4 or Equivalent	Verification with OEM Tech Brochure and Certificate Console
35.	Operating Temperature (Degree C)	0°C to 40°C (As per User Requirement)	Verification with OEM Tech Brochure
36.	Operating Humidity (%RH)	90% or Better	Verification with OEM Tech Brochure
37.	IPv6 Ready from day 1	Yes	Verification with OEM Tech Brochure
38.	On Site OEM Warranty (Year)	1 / 3 / 5 Years or As per User Requirement	Verification with OEM Tech Brochure

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