File No. NSD/ADG (NR)/CCTV
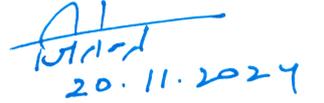
प्रसार भारती/PRASAR BHARATI

भारत का लोक प्रसारक/India's Public Service Broadcaster

आकाशवाणी, दिल्ली /Akashvani, Delhi

नई दिल्ली /New Delhi-110001.

सं0/No. NSD/ADG (NR)/CCTV   दिनांक: Dated–20.11.2024

Subject: **Vendors/OEMs feedback and budgetary quote in respect of Draft Technical Specification of Supply, Installation, Testing, Commissioning and maintenance of CCTV Surveillance System on Rental basis at Akashvani, New Delhi.**

1. Draft Technical Specification for **Supply, Installation, Testing, Commissioning and maintenance of CCTV Surveillance System on Rental basis at Akashvani, New Delhi** is being uploaded to invite feedback from the Vendors/OEMs dealing with supply of such equipments. The interested parties are requested to provide comments/feedback on this technical specification.
2. Vendors/OEMs are also requested to provide percentage of local content in the offered equipment.
3. The budgetary price offered for **Supply, Installation, Testing, and Commissioning including 05 years maintenance of CCTV Surveillance System on Rental basis** may also be submitted.
4. All these information may be provided by E-mail to ddgenbh@prasarbharati.gov.in on or before 08.12.2024.

(JITENDER PRUTHI)
(Dy. Director General (Engg.)

Subject: Supply, Installation, Testing, Commissioning and maintenance for five (05) years of IP BASED CCTV Surveillance System on <u>Rental basis</u> at Akashvani, New Delhi-110 001.

1. **GENERAL**

   a) The IP based CCTV surveillance system shall be used to monitor and record the movement of persons inside the Studios & Office Block of **Broadcasting House (BH)** & **New Broadcasting House (NBH)** buildings of Akashvani Delhi on 24x7x365 basis.
   b) The contract covers the Supply, Installation, testing, commissioning and maintenance of IP based CCTV surveillance system for 05 (five) years period on yearly rental & review basis.
   c) All items of supply shall be complete in all respects and any item not covered in the specification and BOQ, but essential for proper installation, operation and functioning of the system shall be quoted by the bidder in his offer and the reasons for such inclusion shall be clearly stated.
   d) The aim of the system is to monitor entry of the person till he/she exits from the building except few locations e.g. toilets, ladies room and officer's cabins.
   e) System's equipment should be capable enough to record activities clearly. Installed camera (one or more) should record activity in a manner that identification of person is easy even if lights are off and can be used as evidence.
   f) System should be capable of **storing 45 days video recording** of each and every camera.
   g) It should be possible to search camera and it's recording in the CCTV control room as well as through mobile app.

2. **SCOPE OF WORK**

   a) The scope of work includes **Supply, Installation, Testing, Commissioning and five (05) years of maintenance for IP BASED CCTV Surveillance System on Rental basis** of IP based CCTV surveillance system as specified in this specification.
   b) The IP Cameras, network switches, NVRs etc. have to be supplied on yearly rental basis along with 24 hours operator service for monitoring & maintenance. However, the rental & operator service bills will be accepted on quarterly basis for payments. A few infrastructure items like racks, cables etc. will be purchased one time during installation & commissioning as defined in the Bill of material at **Para-6**.
   c) The contract will be reviewed at the end of each year and renewed on the basis of successful operation of previous year.
   d) One set of IP based CCTV system with 39 cameras at NBH Basement 2-level parking is already in existence, which shall be made fully functional. Another set of 30 cameras at Rang Bhawan (Auditorium) is functional, these 2 setups preferably be integrated with the new CCTV system so that entire area with this proposed system is monitored at one place in the existing security monitoring room.
   e) The complete surveillance system shall be maintained for trouble free working for the contract period.
   f) Both Studio buildings i.e. BH & NBH are in regular operation on 24x7x365 basis for Production & Broadcast activity. The installations of Cameras & cablings in the Studios will be done in a phased manner. A detailed installation plan in consultation with Akashvani representative need to be prepared and approved before execution of work.
   g) Bidder has to submit detailed technical wiring diagram before execution of the work.
   h) All cabling should be properly wired in a concealed structured way and should also take care of the building esthetic look in Studio and Office complex. Existing trenches for Horizontal and Risers for vertical wiring shall be used wherever possible.
   i) The details of Camera locations in BH & NBH are provided in **Para-5** and the Bill of Material is at **Para-6**. The bidder may quote the additional items required for making IP BASED CCTV Surveillance System fully functional.

3. ELIGIBILITY CRITERIA (TECHNICAL)

Sr. No.	OEM & Bidder Eligibility Criteria	Compliance (Yes/No)
1	CCTV OEM should have existing capability and infrastructure to provide technical support in India.	
2	CCTV OEM should be a registered business entity in India with its own office in India.	
3	Bidder must possession Authorization Certificate directly from the OEM (for active and passive products i.e. CCTV, NVR & Networking Switches) and the same should be submitted in digital formats.	
4	CCTV OEMs should have their own factory in India.	
5	CCTV OEM should have ISO/IEC20000-1:2011, ISO/IEC270012013, and ISO9001:2015 certificates.	
6	Bidder Should have ISO 9001:2015, ISO 14001:2015 Certificates.	
7	The products should qualify under CLASS- I LOCAL SUPPLIER as per Preferential Market Access (PMA) and Public Procurement Policy (PPP) Make In India (MII) scheme of the Govt. of India dated. 04.06.2020 & 16.09.2020 with 50% or the latest applicable local content as per the Govt. norms.	
8	Bidder/OEM should provide an escalation matrix defining who should handle incidents at each escalation level with names and contact details for each level.	
9	**Experience Criteria**: The Bidder or it's OEM (themselves or through a reseller) should have regularly, manufactured and supplied same or similar category products to any Central/ State Govt. Organization/ PSU/ Public Listed Company for 3 years before the bid opening date. Copies of the relevant contracts to be submitted along with the bid in support of having supplied some quantity during each of the year.	
10	The Bidder is required to upload, along with the bid, all relevant certificates such as BIS certificate, type test certificate, approval certificates and other such certificates as prescribed in the Product Specifications given in the bid document.	
11	Data sheets of the product(s) offered in the bid are to be uploaded along with the bid documents. Buyers can match and verify the Data sheets with the product specifications offered. In case of any un-explained mismatch of technical parameters, the bid is liable for rejection.	
12	OEM and Bidder should not be blacklisted by any Central/State Govt. Organization, PSU, Public Listed Company or Indian Army.	
13	OEM should provide the certificate indicating : 1.Malicious code is not embedded in the firmware or software 2. Hisilicon chipset not used in the products.	
14	OEMs need to confirm on their letterhead that any hardware, firmware or software product, assembly, component or part used in the offered solution (hardware/software) does not support GB28181, GB/T28181-2011 standards.	
15	CE and FCC Certifications should be from NABL or Govt. accredited laboratories.	
16	The Bidder Must accompany copy of PAN, Certificate of Registration of Firm, GST Certificate.	
17	The Bidder should have an experience of minimum 3 years in the field of surveillance and must have supplied in reputed Government Organization/PSU or any other Government Body.	

4.   Technical Specifications

1.	5MP Fixed Dome Camera			
Sr. No.	Parameter	Specifications	Compliance (Yes/NO)	Remarks
1	Image Sensor	1/2.8"Progressive Scan, Back light illuminated CMOS Sensor Note: The bidder must state the Make and model of the sensor to ensure the authenticity of the component. The order will be cancelled if the sensor used is not as Mentioned by the bidder		
2	Maximum resolution	5 MP (2592x1944)		
3	Lens Type	3.6mm		
4	FOV	HFOV* - 90° VFOV* - 47° DFOV* - 110°		
5	Aperture (F#)	F1.6		
6	Iris	Fixed		
7	Shutter speed	1/15s - 1/100000s		
8	Minimum Illumination	Color-0.01Lux@(F1.2AGCON) Monochrome-0Lux		
9	Day/Night Camera Switching	Automatic /Manual /schedule		
10	Built-in IR irradiance up to	50 m		
11	Noise Reduction	2 DNR, 3 DNR		
12	Adaptive streaming	Should reduce the FPS and Bitrates during no activity period.		
13	Signal to Noise Ratio (SNR)	≥ 70dB		
14	Backlight Compensation(BLC)	Supported		
15	Wide Dynamic Range (WDR)	120 dB True WDR		
16	VCA	Motion detection, View Tamper Detection, Tripwire detection, object Intrusion,		
17	Events and actions	Audio Exception, IP conflict, Network Disconnect, Storage Full, Time Trigger, E-mail, SMS, TCP notification		
18	Image Enhancement	Saturation/Contrast/ Sharpness/ Brightness/ Auto Exposure /White balance		
19	ON VIF Compliance	Profile S & Profile G The IP Camera make, and model shall appear on the ONVIF Conformant products List		
20	Unit-casting/Multicasting	Supported		
21	Auto initiation	The camera shall connect to the Video Management Software (VMS) or Network Video recorder (NVR) of same brand without any need of Static IP to the Camera in LAN as well as WAN.		
22	ROI	Supported		
23	Privacy masking	Up to 3Z one programmable		
24	AWB	Supported		

25	Network Failure recording	In case of Network failure, the Camera shall start recording on NAS or SD Card, which can be retrieved back when the network connectivity restores (if VMS belongs to same brand)		
26	MAC Address	The Mac Address of the Camera shall be registered in the name of the OEM.		
27	Supported Resolutions	1920x1080, 720p, D1, 2CIF, CIF, QCIF		
28	No of Stream Profiles	4		
29	Video Compression	H.265		
		H.264		
		M-JPEG		
30	Frame Rate (FPS)	1to 30		
31	Video Standard	PAL		
32	Number of Streaming profiles support	Four profiles support		
		Profile 1: Mainstream - 1080p(2MP)/720p/D1/2CIF/CIF/QCIF up to 30fps (H.265/H.264)		
		Profile2:Substream- D1/2CIF/CIF/QCIF up to 30fps (H.265/H.264)		
		Profile3:MJPEG- 1080p(2MP)/720p/D1/2CIF/CIF/QCIF Up to 5fps (MJPEG)		
		Profile4: 720p/D1/2CIF/CIF/QCIF up to 30fps (H.265/H.264/MJPEG)		
33	Bitrate	128kbps-16Mbps		
34	Edge Storage	SD Card- 512GB & NAS		
35	Bitrate Type	CBR,VBR		
36	Ethernet	10Base-T/100BaseTXE the net(RJ-45)		
37	Network protocols	TCP/IP, HTTP, HTTPs, DSCP, QoS, DHCP, DNS, DDNS, RTP, RTCP, RTSP, PPPOE, SMTP, NTP, TLS/SSL, FTP, ICMP, IGMP, ARP, UDP, 802.1x, SNMP, UPnP, Bonjour		
38	Audio Input / Output	1AudioIn,1AudioOut		
39	Audio Compression	Two Way Audio Full Duplex with G711 and G726 compression		
40	Alarm in put/out put	1 Alarm IN, 1 Alarm Out		
41	Regulatory Approvals/ Certifications:	CE, FCC,		
		ROHS, BIS, IP66, IK10, UL		
		Note: All the reports and certificates shall be from a NABL accredited Lab		
42	Power	POE(802.3af/at),12V 2A		
43	Operating Temperature	-30°C-+50°C		
44	Storage Temperature	-30°C-+50°C		
45	Operating Humidity	90% or less		

2.	5 MP Motorized Varifocal Bullet Camera			
Sr. No.	Parameter	Specifications	Complianc e(Yes/NO)	Remarks
1	Image Sensor	1/2.8" Progressive Scan, Backlight illuminated CMOS Sensor Note: The bidder must state the Make and model of the sensor to ensure the authenticity of the component. The order will be cancelled if the sensor used is not as mentioned by the bidder		
2	Maximum resolution	5 MP (2592x1944)		
3	Lens Type	2.8mm-12mm Motorized varifocal		
4	FOV	HFOV-98°-33° DFOV-116°-38° VFOV-51°-19°		
5	Aperture(F#)	F1.6-F2.8		
6	Iris	P iris		
7	Shutter speed	1/15s-1/100000s		
8	Minimum Illumination	Colour- 0.01 Lux@ (F1.2AGCON) Monochrome - 0 Lux		
9	Day/Night Camera Switching	Automatic/ Manual/ schedule		
10	Built in IR irradiance up to	50m		
11	Noise Reduction	2DNR, 3DNR		
12	Adaptive streaming	Should reduce the FPS and Bit rate during no activity period.		
13	Signal to Noise Ratio (SNR)	≥70 dB		
14	Back light Compensation (BLC)	Supported		
15	Wide Dynamic Range (WDR)	120 dB True WDR		
16	VCA	Motion detection, View Tamper Detection, Tripwire detection, object Intrusion, loitering detection, missing/abandoned object, object counting		
17	Events and actions	Audio Exception, IP conflict, Network Disconnect, Storage Full, Time Trigger, E-mail, SMS,TCP notification		
18	Image Enhancement	Saturation/ Contrast/ Sharpness/ Brightness/ Auto Exposure/ White balance		
19	ONVIF Compliance	Profile S & Profile G The IP Camera make, and model shall appear on the ONVIF Conformant products List		
20	Uni-casting/ Multicasting	Supported		
21	Auto initiation	The camera shall connect to the Video Management Software (VMS) or Network Video recorder (NVR) of same brand without any need of Static IP to the Camera in LAN as well as WAN.		
22	ROI	Supported		
23	Privacy masking	Up to 3 Zone programmable		
24	AWB	Supported		

25	Network Failure recording	In case of Network failure, the Camera shall start recording on NAS or SD Card, which can be retrieved back when the network connectivity restores (if VMS belongs to the same brand only)		
26	MAC Address	The Mac Address of the Camera shall be registered in the name of the OEM.		
27	Supported Resolutions	1920x1080,720p,D1,2CIF,CIF,QCIF		
28	No of Stream Profiles	4		
29	Video Compression	H.265H.264MJPEG		
30	Frame Rate (FPS)	1to 30		
31	Video Standard	PAL		
32	Number of Streaming profiles support	Four profiles support Mainstream: 1080p(2MP)/720p/D1/2CIF/CIF/QCIF up to 30fps (H.265/H.264) Sub-stream: D1/2CIF/CIF/QCIF up to 30fps (H.265/H.264) MJPEG: 1080p(2MP)/720p/D1/2CIF/CIF/QCIF up to 5fps (MJPEG) Fourth Stream: 720p/D1/2CIF/CIF/QCIF up to 30 fps (H.265/H.264/MJPEG)		
33	Bit Rate	128kbps-16 Mbps		
34	Edge Storage	SDCard-512GB&NAS		
35	Bit Rate Type	CBR,VBR		
36	Ethernet	10Base-T/100BaseTXEthernet(RJ-45)		
37	Network protocols	TCP/IP, HTTP, HTTPS, DSCP, QoS, DHCP, DNS, DDNS, RTP, RTCP, RTSP, PPPOE, SMTP, NTP, HTTPS, TLS/SSL, FTP, ICMP, IGMP, ARP, UDP, 802.1x, SNMP, UPnP, Bonjour		
38	Audio Input / Output	1 Audio In, 1Audio Out		
39	Audio Compression	Two Way Audio Full Duplex with G711 and G726 compression		
40	Alarming put/output	1 Alarm IN, 1Alarm Out		
41	Regulatory Approvals/ Certifications:	CE,FCC,EN/IEC,IP66,BIS Note: All the reports and certificates shall be from a NABL accredited Lab		
42	Power	POE(802.3af/at), 12V 2A		
43	Operating Temperature	-30°C-+60°C		
44	Storage Temperature	-30°C-+60°C		
45	Operating Humidity	90% or less		

3.	5 MP Motorized Varifocal Bullet Camera with Audio Support			
Sr. No.	Parameter	Specifications	Compliance (Yes/NO)	Remarks
1	Image Sensor	1/2.8"Progressive Scan, Backlight illuminated CMOS Sensor Note: The bidder must state the Make and model of the sensor to ensure the authenticity of the component. The order will be cancelled if the sensor used is not as Mentioned by the bidder		
2	Maximum resolution	5MP(2592x1944)		
3	Lens Type	2.8mm-12mm Motorized varifocal		
4	FOV	HFOV-98°-33° DFOV-116°-38° VFOV-51°-19°		
5	Aperture(F#)	F1.6-F2.8		
6	Iris	P iris		
7	Shutter speed	1/15s-1/100000s		
8	Minimum Illumination	Colour- 0.01Lux@(F1.2AGCON) Monochrome- 0 Lux		
9	Day/ Night Camera Switching	Automatic/ Manual/ Schedule		
10	Built in IR irradiance up to	50 m		
11	Noise Reduction	2 DNR, 3 DNR		
12	Adaptive streaming	Should reduce the FPS and Bit rate during no activity period.		
13	Signal to Noise Ratio(SNR)	≥70dB		
14	Back light Compensation (BLC)	Supported		
15	Wide Dynamic Range(WDR)	120 dB True WDR		
16	VCA	Motion detection, View Tamper Detection, Tripwire detection, object Intrusion, loitering detection, missing/abandoned object, object counting		
17	Events and actions	Audio Exception, IP conflict, Network Disconnect, Storage Full, Time Trigger, E-mail, SMS, TCP notification		
18	Image Enhancement	Saturation/Contrast/Sharpness/Brightnes s/Auto Exposure/ White balance		
19	ONVIF Compliance	Profile S & Profile G The IP Camera make, and model shall appear on the ONVIF Conformant products List		
20	Uni-casting/ Multicasting	Supported		
21	Auto initiation	The camera shall connect to the Video Management Software (VMS) or Network Video recorder (NVR) of same brand without any need of Static IP to the Camera in LAN as well as WAN.		
22	ROI	Supported		
23	Privacy masking	Upto3Zoneprogrammable		
24	AWB	Supported		

25	Network Failure recording	In case of Network failure, the Camera shall start recording on NAS or SD Card, which can be retrieved back when the network connectivity restores (if VMS belongs to the same brand only)		
26	MAC Address	The Mac Address of the Camera shall be registered in the name of the OEM.		
27	Supported Resolutions	1920x1080, 720p, D1, 2CIF, CIF, QCIF		
28	Nos. of Stream Profiles	4		
29	Video Compression	H.265H.264MJPEG		
30	Frame Rate(FPS)	1to 30		
31	Video Standard	PAL		
32	Number of Streaming profiles support	Four profiles support Mainstream: 1080p(2MP)/720p/D1/2CIF/CIF/QCIF up to 30 fps (H.265/H.264) Sub-stream:D1/2CIF/CIF/QCIFupto30fps (H.265/H.264) MJPEG:1080p(2MP)/720p/D1/2CIF/CIF/QCIFup to5fps (MJPEG) FourthStream: 720p/D1/2CIF/CIF/QCIF up to 30fps (H.265/H.264/MJPEG)		
33	Bit rate	128kbps-16 Mbps		
34	Edge Storage	SDCard-512GB&NAS		
35	Bit rate Type	CBR,VBR		
36	Ethernet	10Base-T/100BaseTXEthernet(RJ-45)		
37	Network protocols	TCP/IP, HTTP, HTTPS, DSCP, QoS, DHCP, DNS, DDNS, RTP, RTCP, RTSP, PPPOE, SMTP, NTP, HTTPS, TLS/SSL, FTP, ICMP, IGMP, ARP, UDP, 802.1x, SNMP, UPnP, Bonjour		
38	Audio Input/ Output	1AudioIn, 1AudioOut, Microphone for Audio Recording Purpose		
39	Audio Compression	Two Way Audio Full Duplex with G711 and G726 compression		
40	Alarm input/ output	1AlarmIN, 1AlarmOut		
41	Regulatory Approvals/ Certifications:	CE,FCC,EN/IEC,IP66,BIS Note: All the reports and certificates shall be from a NABL accredited Lab		
42	Power	POE(802.3af/at),12V 2A		
43	Operating Temperature	-30°C-+60°C		
44	Storage Temperature	-30°C-+60°C		
45	Operating Humidity	90% or less		
46	Warranty	5 years		

4.		64 Channel NVR		
Sr. No.	Parameter	Specifications	Complianc e (Yes/NO)	Remarks
1	Control Mode	Desktop Client, Mobile Client and Local client (Through HDMI)		
2	OS	Embedded Linux		
3	Processor	ARM cortex-Quad Core		
4	Video-Input	64 IP Channels		
5	Video Output	HDMI(2.0) – 1 Port (Main)		
6	Video Compression	H.265/H.264/Motion JPEG		
7	Audio input	1 Channel, RCA Port		
8	Audio Output	1 Channel, RCA Port		
9	Audio Compression	G.711U		
10	Two-way Audio	Required		
11	Recording Resolution	12MP, 8MP, 5MP, 4MP, 3MP, 2MP, 720p, D1, CIF		
12	Decoding Resolution (on local display)	Upto4K		
13	Split (Through LAN/ HDMI)	1x1, 2x2, 3x3, 4x4, 1+5, 1+7, 3+4, 2+8, 1+12, 1©+12, 1+9, 4+9,2+12,5x5,6x6,8x8 and Sequential		
14	Digital Zoom	Required in both live view & play back		
15	OSD	Channel Number, Name, Bit rate, video loss		
16	Snap shot Format	JPEG		
17	Recording type	Continuous, Scheduled, Manual, Alarm		
18	Band width Optimization	Yes		
19	Synchronous Playback	4 channels @ 1080P (via Desktop client), 16 channels @ 1080P (via HDMI)		
20	Search Mode	Date & Time, Camera, Recording Type, Recording Drive		
21	Playback Modes	Fast Forward, Slow Forward, Slow Reverse, Fast Reverse at Different Speed Control, Next-Previous Frame		
22	Backup	Manual Backup & Scheduled		
23	Configuration Backup	Required		
24	Remote Operations	Monitor, PTZ Control, Playback, System Setting, File Download, Log Information, Upgrade		
25	Camera events	Motion Detection, Recording Start, Recording Fail, Camera offline, Camera online		
26	System events	Manual Trigger, On Boot Alarm, Storage Alert, Disk Volume Full, Disk Fault, Scheduled Backup Fail		
27	Actions	Recording on Selected Channel, Upload Images on FTP/Email server, Email Notification with Snapshot, TCP Notification, Recall PTZ Preset Position, Turn On/Off Alarm Outputs, Buzzer Notification, SMS Notification		
28	Camera status, Manual recording, Scheduled recording, Alarm recording, Adaptive recording	Required		
29	FPS and GOP count	Required		

30	Motion detection, View tampering, Tripwire, Object intrusion, Missing Object, Suspicious Object, Loitering Detection, Audio Exception, Object Counting	Required		
31	CPU usage display	Required		
32	CPU temperature display	Required		
33	Thermal shutdown	Required		
34	SATA Interface	4SATAIII (10TB per port)		
35	NAS	2NAS(CIFS,NFS)		
36	RAID	RAID-0,RAID-1,RAID-5,RAID-10		
37	Recording Retention	Camera-wise, HDD usage % wise, Day wise		
38	Incoming Band width	256Mbps		
39	Outgoing Band width	256Mbps		
40	Maximum User	128 Programmable		
41	Simultaneous login	9		
42	Network Protocols	TCP/IP, DHCP, PPPOE, DNS, Dyn DNS, FTP, SMTP ,NTP, RTP/RTSP, CIFS/NFS		
43	Audio Input	1 Channel, RCA Port(1VRMS)		
44	Audio Output	1 Channel, RCA Port(0.5VRMS)		
45	Alarm Input	2 Ports(Max. load resistance:4.7KΩ)		
46	Alarm Output	1 Port(Max load power:<50VA,Maxloadcurrent:<1A)		
47	Network Interface	2 Ports x Ethernet (RJ-45)10/100/1000Mbps		
48	USB	3 ports(2xUSB2.0,1xUSB3.0)		
49	Number of SATA Interface	8 Ports(SATA III)		
50	HDD size	10TBHDD support (with 6Gb/speed)		
51	HDMI	HDMI(2.0)–1Port (Main)		
52	Reset Switch (Network, User account and General settings)	Required		
53	Buzzer	Required		
54	Regulatory Approvals/ Certifications	FCC(FCCPart15Sub-partBClassA), ROHS,BIS,CE,EN/IEC		
55	Operating temperature	0°Cto+50°C(32°Fto 122°F)		
56	Humidity range	5% to 95% RH Non-Condensing		
57	Chassis	19" Rack mount		
58	Power input	SMPS(100-240-voltAC)		
59	Power consumption (without hard disk)	≤75W		

5.	SOFTWARE NVR		
Sr. No.	Parameter	Specifications	Compliance (Yes/NO)
1	It Should be Possible to configure, playback & live streaming of cameras added to other NVR from the main NVR without the need of any Server/Workstation.		
2	The system should be capable of integrating with IP cameras of any brand which Supports ONVIF 2.0 & above or ONVIF S profile.		
3	It should be possible to define a different number of Retention days for individual cameras.		
4	NVR should have a configuration wizard for quick configurations.		
5	NVR should show the estimated number of storage days.		
6	The device must be capable of taking Snapshot with integrated Access control and time Attendance system of the same brand in case of user allow/denied events.		
7	Digital Zoom during live view.		
8	The system should be able to take a Snapshot during live view/playback in JPEG format.		
9	The Device Must Provide Configuration Backup.		
10	It Should Have its Own Free DNS Server.		
11	Video pop-up for both Desktop and Local clients.		
12	3 User Access Levels (Default): Admin, Viewer, and Operator		
13	10,000 Events Log		
14	NVR Should Be Capable of Exporting Files in Native and AVI File Format to FTP and USB.		
15	NVR should have IP Address Filtering to Enhance Security.		
16	System Admin Should Be Capable of Programming PTZ Tour.		
17	Dual Stream Option Should Be Available for Simultaneous Recording and Transmission of Video on The Network Depending on the Bandwidth.		
18	The system should support Daylight Saving Time (DST).		
19	The Device Should Be Designed, Developed and Manufactured in India.		
	MOBILE CLIENT		
20	Mobile application should be Provided by The Vendor, free of Cost with the NVR.		
21	It should be possible to see the playback from a mobile client.		
22	The Mobile client Should Have 4x4 Layout for Display cameras.		
23	The Mobile client Should Have Digital Zoom functionality.		
24	The Mobile client Should Be Able to Control PTZ Cameras.		
25	The Mobile client Software Should Support Up To 50NVRs.		
26	Software Should Have Feature to Configure Camera as Favorite Channels.		
27	Mobile Viewer Application should Function on Android and IOS Based Phones.		
28	Mobile Viewer Application Should Support Calling from Mobile App Feature Where a Mobile Number Can be Added Per Camera in the Device and The User Can directly call a Concerned Person by Just One Click on Camera View from Mobile (without any SIM card in NVR)		

6.		55"LED Display			
Sr. No.	Parameter	Specifications	Complia nce(Yes /NO)	Remarks	
1	Display	Supply, Installation, Testing and Commissioning of 55" 4K UHD (3840x2160) Ready resolution Android LED display with built in 2.4Ghz Wi-Fi,1.1 Ghz Built-in Quad core processor, 2GB DDR3 RAM, 16 GB Memory, built in Triple Mali 600 MHz GPU, with 2K HDR, Dolby Audio, Built in Wi-Fi and Chrome cast, Built in web browser, HDMI CEC, HDMI ARC, Built-in Bluetooth Ver.4, 20W built in speakers, HDMI 2.0 X 3, AV X 1, USB 2.0 X 1, RJ45 X 1, Headphone Out x 1, SPDIF Out x 1			

7.		Online UPS		
Sr. No.	Parameter	Specifications	Compliance (Yes/NO)	Remarks
1	Rating in KVA(KVA)	3.0 KVA		
2	Technology	IGBT-PWM with out in-built isolation transformer		
3	Input Power	Single phase 160V-260V sine wave, 50Hz		
4	Output power	Single phase 230V+/-1% sine wave 50 Hz		
5	Backup time (Minutes)	30		
6	Minimum VAH(VAH)	4800		
7	Movable trolley for Batteries	Without trolley but with rack		
8	Degree of Protection	IP 20		
9	Minimum thickness of M.S. Sheet Enclosure duly painted (mm)	1		
10	Voltage Regulation from no load to full load (%)	</=3%		
11	20% Over load limit For minimum 10 minutes	Yes		
12	Overall Efficiency (%)	>/=90%		
13	Total Harmonic Distortion (THD)(%)	Maximum3%		
14	50% Overload limit For minimum 1 minute	Yes		
15	Protection for under voltage at battery terminal at 10.5V per 12 V Battery.	Yes		
16	Protection of Over voltage, Short Circuit& over load at UPS output terminal	Yes		

17	Digital Metering in UPS for AC Input Voltage, Output AC Voltage, Current, Frequency, Battery Voltage and Current	Yes		
18	Indicators for mains presence, Battery charging and discharging, Output Over Load, Low Battery Voltage	Yes		

8.		42 U NETWORKING/SERVER RACKS		
Sr. No.	Parameter	Specifications for Glass door	Compliance (Yes/NO)	Remarks
1	Size	Networking - 42U - 800W - 1000D – Black Fine Tex.		
2	Basic Frame	Multi hollow extrusion Aluminum profile frame		
3	Construction	Modular Construction of the rack made of 4 vertical , 4 horizontal& 4 depth extruded aluminum alloy multi hollow profiles bolted and joined together with Links and Corner Block.2/3 pairs of support channel to equate the load evenly		
4	Top & Bottom Cover	Bolted to Frame with Cable entry cut outs		
5	Front Door	Lockable 4mm thick Toughened Glass Door		
6	Rear Door	Lockable Steel Door with square ventilation		
7	Lock for doors	Cam Lock /3 point lock		
8	19" Mounting Angle	4 No Adjustable.19" verticals with Punched 9.5mm Squarer Hole and Universal 12.7 mm-15.875 mm-15.875 mm alternating hole pattern offers greater mounting flexibility, maximizes usable mounting space.		
9	Standard Finish	Epoxy polyester Powder coated 60-80 micron thickness		
10	Standard Colour	Combination of RAL 7035 & 7037 OR RAL 9005		
11	Standard Mounting	Caster wheels (2 with Brake & 2 without Brake) and Levellers OR Plinth		
12	Static Load	Up-to 1200KG.		
13	Reducing channel for 800mm width racks	2 pairs of 100mm Reducing cable channel to have more space for cable management and to maintain 19" for equipment mounting		
14	Accessories	Power distribution unit, Metal Cable manager, Hardware packet, Monitor Shelf, Cantilever Shelf, Blank Panels, Support angles, Keyboard tray, Metal cable channel		
15	Equipment cooling	4 Fan Mount provision on top cover		
16	Corrosion Resistance	Salt spray test according to ISO 9227 (NSS test) and IEC EN 60068-2-11 (Ka test) for 168 hours: degree of Rusting Ri1 according to ISO4628-3, propagation≤1mm according to ISO 4628-8.		
17	Rack Standards	IS9606-1980,UL2416,IECEN60529,IECEN62262,ISO 9001:2008,ISO14001:2015		

| 18 | Degree of Protection | IP20 according to IEC60529:2013, IK08 according to IECEN 62262:2002 | | |
| 20 | Size | Moducab Networking- 42U-800W-1000D-Black Fine Tex. | | |

9.		6U Indoor NETWORKING RACK-SIDE INTEGRATED		
Sr. No.	Parameter	Specifications	Compliance (Yes/NO)	Remarks
1	Size	600W x 600D		
2	Form factor	6U		
3	Construction	Clear 'U' usable space, fan or extra cables should not occupy usable space		
4	Basic Frame	CRCA		
5	Assembly	Assembled / SKD		
6	Top & Bottom Cover	Integrated to both sides and Frame. Cable entry cut outs.		
7	Front Door	Lockable Toughened Glass Door		
8	Rear side	Wall Mounting brackets		
9	19" Mounting Angle	4 No Adjustable. 19" verticals with Punched 9.5mm Squarer Hole and Universal 12.7 mm-15.875 mm-15.875 mm alternating hole pattern offers greater mounting flexibility, maximizes usable mounting space.		
10	Std. Equipment Mounting	9.5mmSq. Slots and Universal 12.7mm-15.875mm-15.875mm alternating hole pattern		
11	Static Load	Up-to 70Kgs		
12	Standard Finish	Epoxy polyester Powder coated 60-80 micron thickness		
13	Colour	Combination of RAL 7035 & 7037 OR RAL9005		
14	Accessories	Horizontal power distribution unit, Metal Cable manager, Hardware packet and Cantilever Shelf		
15	Equipment cooling	1 or 2 Fan Mount provision on top cover		
16	Rack Standards	IS 9606-1980, UL 2416, IECEN 60529, IECEN 62262, ISO 9001:2008, ISO 14001:2015		
17	Degree of Protection	IP 20 according to IEC60529:2013, IK08 according to IECEN 62262:2002		
18	Warranty	One year		

10.		15U Indoor NETWORKING RACK- SIDE INTEGRATED		
Sr. No.	Parameter	Specifications	Compliance (Yes/NO)	Remarks
1	Size	600Wx 600D		
2	Form factor	15U		
3	Basic Frame	CRCA Steel frame		
4	Construction	Robust Steel Sheet Welded Construction consisting of top, bottom, rear and side panels together		
5	Front Door	Lockable Metal Plain Door with filter and hood		

6	Top Cover	Top cover with Fan and IP54 compatible filter. Rain canopy is provided over the top cover for protection		
7	Bottom Cover	Bottom cover with Single Plain Gland Plate		
8	19"Mounting Angle	4 No Adjustable. 19" verticals with Punched 9.5mm Squarer Hole and Universal 12.7 mm-15.875 mm-15.875 mm alternating hole pattern offers greater mounting flexibility, Maximizes usable mounting space.		
9	Std. Equipment Mounting	9.5mm Sq. Slots and Universal 12.7mm-15.875mm-15.875mm alternating hole pattern		
10	Powder coating Shade	Pure polyester paint applied by electrostatic dusting. RAL 7035 Structure – 80 to 100uM.		
11	Rack Standard	IS 9606-1980, IP54/ IP55 certified product according to IEC 60529:2013, ISO9001:2008, ISO14001:2015		
12	Accessories	Horizontal power distribution unit, Metal Cable manager, Hardware packet and Cantilever Shelf		

11.		24 port Web Managed POE Layer 2 Access Switch		
Sr. No.	Parameter	Specifications	Compliance (Yes/NO)	Remarks
1		Non-blocking equipment		
2		Total RU: 1RU maximum		
3		Total Width: 21.7cm (Half19"Rack)		
4		Power Supply must be internal and integrated in to the switch		
5		SFP`s Hot Swap		
6		Minimum of 24 ports 10/100/1000 Base TRJ45 with PoE+		
7		Minimum of 4 SFP ports (1Gbps) for Uplink or VFL		
8		The above minimum ports quantity cannot be combo ports. All ports must be available in the switch, and at the same time		
9	General	Equipment MUST be Fan less		
10		Minimum switching capacity of 40Gbps		
11		Switch capacity with all ports (full-duplex + VFL) of 80Gbps		
12		Minimum Processing Capacity (Mpps):35.7Mpps		
13		Operating Temperature : 0°C to 45ºC		
14		Humidity (operation) : 5% to 95% non-condensing		
15		Power Supply efficiency (max load) of 93.5%		
16		MTBF (hours)@ 25ºC : 1.094.000		
17		System power consumption idle of 30W		
18		System power consumption 100% traffic all ports of 60W		
19		PoE Budget of 400W		
20		Unified management,control and virtual chassis technology		
21		Virtual Chassis 1+N redundant supervisor manager		
22	Resiliency and high availability functionalities	Virtual Chassis In-Service Software Upgrade (ISSU)		
23		Smart continuous switching technology		

24		IEEE 802.1s Multiple Spanning Tree Protocol (MSTP) Encompasses IEEE802.1D Spanning Tree Protocol (STP) and IEEE 802.1w Rapid Spanning Tree Protocol (RSTP)		
25		Per-VLAN spanning tree (PVST+) and 1x1 STP mode		
26		IEEE 802.3ad/802. 1AX Link Aggregation Control Protocol (LACP) and static LAG groups across modules		
27		Virtual Router Redundancy Protocol (VRRP) with tracking capabilities		
28	Resiliency and high availability functionalities	IEEE protocol auto-discovery		
29		Bidirectional Forwarding Detection (BFD) for fast failure detection and reduced re-convergence times in a routed environment		
30		Redundant and hot-swappable power supplies		
31		Built-in CPU protection against malicious attacks		
32		Split Virtual Chassis protection		
33		Static routing for IPv4 and IPv6		
34	L3 protocols and features	Up to 64 IPv4 and 4 IPv6 static routes		
35		Up to 32 IPv4 and 4 IPv6 interfaces		
36		Up to 16k MAC Addresses		
37		Up to 4000 VLANs		
38	Layer-2 capabilities	Up to 1.5k total system policies		
39		Latency: < 4µs		
40		Max Frame: 9216 bytes (jumbo)		
41		IGMPv1 /v2/v3 snooping to optimize multicast traffic		
42	Multicast protocols and features	Multi cast Listener Discovery (MLD)v1/v2 snooping+		
43		Up to 1000 multicast groups		
44		Auto sensing IEEE 802.1X multiclient, multi-VLAN support		
45	Security features	MAC-based authentication for non-IEEE802.1X hosts		
46		Web based authentication (captive portal): a customizable web portal residing on the switch		
47		Dynamically provide pre-defined policy configuration to authenticated clients — VLAN,ACL, BW		
48		User Network Profile(UNP) simplifies NAC by dynamically providing pre-defined policy configuration to authenticated clients - VLAN,ACL,BW		
49		Secure Shell (SSH) with public key infrastructure (PKI) support		
50		Terminal Access Controller Access-Control System Plus (TACACS+) client		
51		Centralized Remote Access Dial-In User Service (RADIUS) and Lightweight Directory Access Protocol (LDAP) administrator authentication		
52		Centralized RADIUS for device authentication and network access control authorization		
53		Learned Port Security (LPS) or MAC address lockdown		
54		Access Control Lists (ACLs); flow based filtering in hardware (Layer 1 to Layer 4)		
55		DHCP Snooping, DHCP IP and Address Resolution Protocol (ARP) spoof protection		
56		ARP poisoning detection		

57		IP Source Filtering as a protective and effective mechanism against ARP attacks		
58		Role-based authentication for routed domains		
59		BYOD provides on-boarding of guest, IT/non-IT issued and silent devices; restriction/remediation of traffic from non- compliant devices. RADIUS CoA dynamically enforces User Network Profiles based on authentication, profiling, posture check of devices using Unifed Policy Access Manager (UPAM)		
60	Quality of Service (QoS) features	Priority queues: Eight hardware based queues per port for flexible QoS management		
61		Traffic prioritization: Flow-based QoS with internal and external (a.k.a., remarking) prioritization		
62		Bandwidth management: Flow-based traffic policing and bandwidth management, ingress rate limiting; egress rate shaping per port		
63	Quality of Service (QoS) features	Queue management: Configurable scheduling algorithms —Strict Priority Queuing (SPQ), Weighted Round Robin (WRR)		
64		Congestion avoidance: Support for End-to-End Head-Of- Line (E2EHOL) Blocking Protection		
65		Auto QoS for switch management traffic		
66	Software Defined Networking(SDN) features	Fully programmable REST ful web services interface with XML and JSON support. API enables access to CLI and Individual mib objects.		
67	Management features	Intuitive CLI in a scriptable BASH environment via console, Telnet, or Secure Shell (SSH) v2 over IPv4 / IPv6		
68		Powerful Web View Graphical Web Interface via HTTP and HTTPS over IPv4/ IPv6+		
69		FileuploadusingUSB,TFTP,FTP,SFTP,orSCPusingIPv4/IPv6		
70		Human-readable ASCII-based configuration files for off-line editing, bulk configuration and out-of-the-box auto- provisioning		
71		Multiple microcode image support with fallback recovery		
72		Dynamic Host Configuration Protocol (DHCP) relay for IPv4/ IPv6		
73		DHCPv4 and DHCPv6 server		
74		Loopback IP address support for management per service		
75		Policy-and port-based mirroring		
76		Remote port mirroring		
77		sFlow v5 and Remote Monitoring (RMON)		
78	Compliance and certifications	47 CRF FCC (ClassA), VCCI, ICES–003, CE-Mark		
79		EN50581,EN55022,EN55024:2010,EN61000-3-2,EN 61000-3-3,EN61000-4-2,EN61000-4-3,EN61000-4-4,EN 61000-4-5,EN61000-4-6,EN61000-4-8,EN61000-4-11		
80		CDRH laser, Compliant with RoHS and Waste Electrical and Electronic Equipment (WEEE) directives, EN60825-1/2, UL 60950-1, CAN/CSA, IEC62368-1, IEC60950-1		

12.		8-PORT MANAGED POE SWITCH WITH 2 GIGABIT SFP UPLINK		
Sr. No.	Parameter	Specifications	Compliance (Yes/NO)	Remarks
1	General	Non-blocking equipment		
2		Total RU:1RU maximum		
3		Total Width:21.7cm (Half19"Rack)		
4		Power Supply must be internal and integrated into the switch		
5		SFP`s Hot Swap		
6		Minimum of 8 ports 10/100/1000 Base T RJ45 with PoE+		
7		Minimum of 2SFP ports (1Gbps) for Uplink or VFL		
8		The above minimum ports quantity cannot be combo ports. All ports must be available in the switch, and at the same time		
9		Equipment MUST be Fanless		
10		Minimum switching capacity of 32Gbps		
11		Switch capacity with all ports (full-duplex + VFL) of 24Gbps		
12		Minimum Processing Capacity (Mpps): 35.7Mpps		
13		Operating Temperature: 0°C to 45°C		
14		Humidity (operation): 5% to 95% non-condensing		
15		Power Supply efficiency (max load) of 93.5%		
16		MTBF (hours) @ 25°C : 1.094.000		
17		System power consumption (idle) of 11W		
18		System power consumption 100% traffic call ports of 18W		
19		PoE Budget of 120W		
20	Resiliency and high availability functionalities	Unified management, control and virtual chassis technology		
21		Virtual Chassis 1+N redundant supervisor manager		
22		Virtual Chassis In-Service Software Upgrade (ISSU)		
23		Smart continuous switching technology		
24		IEEE 802.1s Multiple Spanning Tree Protocol (MSTP) encompasses IEEE 802.1D Spanning Tree Protocol (STP) and IEEE 802.1w Rapid Spanning Tree Protocol (RSTP)		
25		Per-VLAN spanning tree(PVST+) and 1x1 STP mode		
26		IEEE802.3ad/802.1AX Link Aggregation Control Protocol (LACP) and static LAG groups across modules		
27		Virtual Router Redundancy Protocol (VRRP) with tracking capabilities		
28		IEEE protocol auto-discovery		
29		Bi-directional Forwarding Detection (BFD) for fast failure detection and reduced re-convergence times in a routed environment		
30		Redundant and hot-swappable power supplies		
31		Built-in CPU protection against malicious attacks		
32		Split Virtual Chassis protection		
33	L3protocolsand features	Static routing for IPv4 and IPv6		
34		Up to 64 IPv4 and 4 IPv6 static routes		
35		Up to 32 IPv4 and 4 IPv6 interfaces		
36		Up to 16k MAC Addresses		
37		Up to 4000 VLANs		

38		Up to 1.5k total system policies		
39	layer-2capabilities	Latency: < 4 µs		
40		Max Frame: 9216 bytes (jumbo)		
41	Multicast protocols	IGMPv1/v2/v3 snooping to optimize multicast traffic		
42	And features	Multi cast Listener Discovery (MLD) v1/v2 snooping+		
43		Up to 1000 multi cast groups		
44		Auto Sensing IEEE 802.1 X multi-client, multi- VLAN support		
45		MAC-based authentication for non-IEEE802.1X hosts		
46		Web based authentication (captive portal): a customizable web portal residing on the switch		
47		Dynamically provide pre-defined policy configuration to authenticated clients — VLAN, ACL, BW		
48		User Network Profile (UNP) simplifies NAC by dynamically providing pre-defined policy configuration to authenticated clients — VLAN, ACL, BW		
49		Secure Shell (SSH) with public key infrastructure (PKI) support		
50		Terminal Access Controller Access-Control System Plus (TACACS+) client		
51	Security features	Centralized Remote Access Dial- In User Service (RADIUS) and Lightweight Directory Access Protocol (LDAP) administrator authentication		
52		Centralized RADIUS for device authentication and network access control authorization		
53		Learned Port Security (LPS) or MAC address lockdown		
54		Access Control Lists (ACLs); flow based filtering in hardware (Layer 1 to Layer 4)		
55		DHCP Snooping, DHCP IP and Address Resolution Protocol (ARP) spoof protection		
56		ARP poisoning detection		
57		IP Source Filtering as a protective and effective mechanism against ARP attacks		
58		Role-based authentication for routed domains		
59		BYOD provides on-boarding of guest, IT/non-IT issued and silent devices; restriction/remediation of traffic from non- compliant devices. RADIUS CoA dynamically enforces User Network Profiles based on authentication, profiling, posture check of devices using Unified Policy Access Manager (UPAM)		
60		Priority queues: Eight hardware based queues per port for flexible QoS management		
61		Traffic prioritization: Flow-based QoS with internal and external (a.k.a., remarking) prioritization		
62	Quality of Service (QoS) features	Bandwidth management: Flow-based traffic policing and bandwidth management, ingress rate limiting; egress rate shaping per port		
63		Queue management: Configurable scheduling algorithms— Strict Priority Queuing(SPQ), Weighted Round Robin(WRR)		
64		Congestion avoidance: Support for End-to-End Head-Of-Line (E2EHOL) Blocking Protection		

65		Auto QoS for switch management traffic		
66	Software Defined Networking(S DN) features	Fully programmable RESTful web services interface with XML andJSONsupport.API enables access to CLI and individual MIB objects.		
67		Intuitive CLI in a scriptable BASH environment via console, Telnet, or Secure Shell (SSH) v2 over IPv4/IPv6		
68	Management features	Powerful Web View Graphical Web Interface via HTTP and HTTPS over IPv4/ IPv6+		
69		File upload using USB, TFTP, FTP, SFTP or SCP using IPv4/ IPv6		
70		Human-readable ASCII-based configuration files for off-line editing, bulk configuration, and out-of-the-box auto- provisioning		
71		Multiple micro code image support with fallback recovery		
72		Dynamic Host Configuration Protocol (DHCP) relay for IPv4/ IPv6		
73		DHCPv4 and DHCPv6 server		
74		Loop-back IP address support for management per service		
75		Policy-and port-based mirroring		
76		Remote port mirroring		
77		sFlow v5 and Remote Monitoring (RMON)		
78	Compliance and certifications	47 CRF FCC(ClassA), VCCI, ICES–003, CE-Mark		
79		EN50581,EN55022,EN55024:2010,EN61000-3-2,EN 61000-3-3,EN61000-4-2,EN61000-4-3,EN61000-4-4,EN 61000-4-5,EN61000-4-6,EN61000-4-8,EN61000-4-11		
80		CDRH laser , Compliant with RoHS and Waste Electrical and Electronic Equipment (WEEE) directives , EN 60825-1/2 , UL 60950-1 , CAN/CSA , IEC 62368-1 , IEC 60950-1		

13.	24 PORTS Stackable Access L3 data Switch			
Sr. No.	Parameter	Specifications	Compliance (Yes/NO)	Remarks
1		The switch must be 19" rack mountable. 24 PORT (20 PoE+ ,4 x 60W PoE), MAC sec. PoE budget With 1 PS-450 W With 2 PS-900W		
2		The switch must have minimum stackable 24x1G SFP ports and 4 x 1 / 10G SFP+		
3		The switch must support at least 224 Gbps switching capacity & 150 mpps packet forwarding rate.		
4		At least 4000 VLAN s with support for 802.1Q.		
5		Support for 48K MAC and 64K IPv4 Routes, RAM - 2GB		
6		Support Stacking of up-to 8 switches from day one with 80 Gbps Stacking band width		
7		The switch must support 802.1D STP, 802.3 bz, 802.1w RST, Rapid Spanning Tree (802.1w), 802.1s MST and 802.3ad LACP.		
8		The switch must support standard based IEEE802.3af, IEEE802.3at and IEEE802.3bt on All copper (RJ45) ports.		
9		Switch should support 802.1AE, 802.1aq and DPI for application filtering and policy enforcement		
10		The Switch Support Security like RADIUS, TACACS+, Guest VLAN, SSHV2 for Telnet management, MAC based Network Access Control.		
11		Must Support ITU-TG.8032/ Y.1344 (ERPv2)		
12		The Switch Must Support Single IP address stack management and Across stack link aggregation, VLAN and Port Mirroring.		
13		Switch must support ether channel configuration across two different core switches.		
14		The switch must support L3 functionalities like inter VLAN routing. The switch must Support IPv6 management. DHCP option.		
15		Should support SDN protocols like Open Flow 1.3.1 and 1.0 agent for control of native Open Flow		
16		Support for RADIUS authentication & accounting. Management support using SNMPv3, HTTP, Telnet, SSHv2.		
17		Switch shall support either of UL 60950 or IEC 60950 or CSA 60950 or EN 60950 Standards for Safety requirements of Information Technology Equipment		
18		Switch shall conform to EN 55022 Class A/B or CISPR22 ClassA/B or CE Class A/B or FCC Class A/B Standards for EMC (Electro Magnetic Compatibility) requirements.		
19		Switch/Switch's Operating System should be tested and certified for EAL2/ NDPP or above under Common Criteria Certification, FIPS140-2. Temperature operating - 0 to 45 degree Air flow Front-to-back		
20		Vendor to be present in Gartner Magic Quadrant from last 8 yrs		
21		5 years of Warranty		

14.	CAT-6 UTP CABLE			
Sr. No.	Parameter	Specifications	Compliance (Yes/NO)	Remarks
1	Applications	Enhanced Performance cable for transmission of high speed data, digital and analogue voice and video (RGB) signals on LANs. Supports Gigabit Ethernet (1000 baseT) standard. Operates at bandwidth of 250Mhz. The cable well exceeds the requirements of ANSI/TIA-568-C.2 and ISO/IEC 11801		
2	Construction			
3	Conductor	23 AWG solid bare copper		
4	Insulation	High Density Polyethylene		
5	Pairs	2 insulated conductors twisted together		

6	Sheath	LSZH		
7	Cable Diameter	6.0mm Nominal		
8	Electrical Properties			
9	Conductor Resistance	≤9.38 Ohm/100m		
10	Mutual Capacitance	< 5.6nF/100m		
11	Resistance Unbalance	5%Max		
12	Capacitance Unbalance	330pF/100m		
13	Delay Skew	<45nS		
14	Mechanical Properties			
15	Bending Radius	4xCableDiameter(mm)at-20°C±1°C		
16	Pulling Force	11.5Kg		
17	Temperature Range	-20°Cto+70°C		
18	Flame Properties			
19	Flammability Test	IEC 60332-1		
20	Acid Gas Emission Test	IEC 60754-1		
21	Smoke Density Test	ASTM 2843		

15.	Single mode OFC 6 Core Cable			
Sr. No.	Parameter	Specifications	Compliance (Yes/NO)	Remarks
1	Type of Cable	OS1, OS2 Single mode Loose tube Outdoor/ Corrugated steel tape – 6, 12 Core Fiber		
2	Attenuation	(of cable with fibres)-IEC60793-1-40		
3	1310nm–1625nm	≤0.39 dB/km		
4	1550nm	≤0.25 dB/km		
5	Cable Construction			
6	Loose Tube	ø2.8 mm jelly filled loose tube with 2-16 fibres; ø3.5 mm loose tube with 24 fibres		
7	Strength Member	E-Glass Yarn		
8	Armouring	0.15 mm corrugated steel tape		
9	Cable Diameter	8.5 mm		
10	Sheath	Should be 1.5 mm black MDPE (Drop resistance and shock resistance, less sensitive and higher stress-cracking resistance) sheath, IEC 60811, IEC 60708		
11	Physical properties	IEC 60794-1		
12	Nominal outer diameter	8.5 mm		
13	Nominal weight	75 kg/km		
14	Tensile Strength (dynamic)	1000 N		
15	Tensile strength (permanent)	500 N		
16	Compressive strength(crush)	2000 N		
17	Impact	10 Nm		

18	Torsion	5 cycles ± 1 turn		
19	Min. Bending radius, unloaded	R = 55 mm		
20	Min. Bending radius, loaded	R = 110 mm		
21	Temperature range	40°C to + 70°C		
22	Standards & Approval	ISO 11801 2nd edition/ EN 50173-1:2002		
23		IEC 60794-1/ IEC 60793-2-50 class B1.3		
24		EN 60793-2-50: class B1.3		
25		ITU Recommendation G.652.D- the ITU designations A, B and C are also fulfilled		
26		EN 50 173-1:2007, cat. OS2; also OS1 Requirements are fulfilled		
27		ISO / IEC 11801:2002 cat		
28		OS1/ISO/IEC24702:2006, cat. OS2; also OS1 requirements are fulfilled/IEEE 802.3 - 2002 incl. 802.3ae		
29		The fiber cable should cover of 6 optical fibres of UNI tube construction and be armoured.		

16.	24 PORT CAT 6 PATCH PANEL			
Sr. No.	Parameter	Specifications	Compliance (Yes/NO)	Remarks
1	Type	24-port, Unshielded Twisted Pair, Category 6,TIA / EIA 568-6.2		
2	Ports	24		
3	Port arrangement	Each port to be modular and be able to remove & plug in from front.		
4	Configuration	The panel configuration shall be of minimum 6 connectors in 19" & maximum 24 connectors in 1U design with rear cable manager design.		
5		The patch panel connector of 6 – port shall be of back removable type for ease of maintenance.		
6	Earthing	The patch panel shall provide through body earthing while installed in cabinet.		
7	Height	1U(1.75 inches)		
8	Port Identification	Labeling provision to be on blank port inbuilt in the jack panel		
9	Number of plug insertion cycles (Endurance)	2500		
10	Max. number of connections and disconnections	5 without refreshing the wiring.		
11	Accessories	Integrated bend-limiting strain-relief unit for cable Entry or other mechanism to reduce the strain and bends at cable entry		
12	Material Housing	Poly-phenylene oxide, 94V-0 rated		
13	Wiring blocks	RAL 9005 polycarbonate		
14	Jack contacts	Gold/nickel, thickness of gold >0.8µm		
15	Panel	DC01 galvanised steel sheet		
16	Approvals	UL/ETL/3P Certified		
17	Termination Pattern	Tool less-TIA/ EIA568 A and B		
18	ROHS Compliant	ROHS/ELV Compliant		

17.		**Fibre Optic LIU 12 Port**		
Sr. No.	**Parameter**	**Specifications**	**Compliance (Yes/NO)**	**Remarks**
1		Modular Rack Mount Fibre Patch Panel, should be of Dimensions: 19" (Width) x……..		
2		Should be able to accept up to 4 fibre optic units, 4 cables and 12 splice cassettes accommodates up to 24 ST and SC connectors and 12 LC connectors		
3		Should have snap-in sub modules with six single fiber or 3 duplex fibre ports maximum up-to 4 optic units.		
4		Should have a fiber management system moulded into the unit structure to effectively route fibers from an incoming cable through to the connector interface.		
5		Should be of Swallow-tail design of rear of drawer for easier cable insertion, Effective depth: 220 mm, Height 1U		
6		Should have knockouts at the rear to enable termination of loose tube or tight buffered Cables as well as blown fibre tubes		
7		Material: Galvanised steel		
8		Fiber unit should be made up of polycarbonate, PC/ ABS.		
9		Should have screws & nuts, washers, cable glands, cable clamps, fiber coiling accessories, Cable gland rings, drawer support etc.		
10		Should have sliding and tamper proof locking mechanism by means of clips supplied with each unit with 30 degree inclination for ease of maintenance and trouble shooting		
11		Should meet EN50173 and ISO / IEC 11801 operating specifications		

18.		**Single mode Pigtails**		
Sr. No.	**Parameter**	**Specifications**	**Compliance (Yes/NO)**	**Remarks**
	CONNECTOR SPECIFICATION			
1	OPTICAL PERFORMANCE	Single mode CONFORMANCE		
2	IL MAX/Master (Acceptance)	0.25dB IEC 61300-3-4		
3	IL Average/Master	0.18dB IEC 61300-3-4		
4	IL Average/Random	0.18dB IEC 61300-3-34		
5	Return Loss	55/65dB IEC 61300-3-6		
	CHARACTERISTICS			
6	SC/LC connectors			
7	UPC Polish			
8	Low smoke zero halogen (LSZH)sheath			
9	900 µm tight buffer or easy strip			
10	OS1/OS2 fibre conformstoIT U- G652.D and TIA/ EIA492CAAA Standards.			
	CABLESPECIFICATION			

11	CHARACTERISTICS	SIMPLEX		
12	Crush resistance	500 (N/100mm)		
13	Operating Temperature	-20 to +60°C		
14	Normal sheath Diameter (2mm,2.4mm&3mm)	900 ± 50 µm		
15	Maximum Tensile Load	6N		
16	Attenuation (dB)/km	2.8 @ 850 nm/ 0.8 @ 1300 nm		
17	OFL band width (MHzx km)	3500 @ 850 nm/ 500 @ 1300 nm/ 4700 @ 850 nm		

19.	Single mode Fiber Optic Patch Cords			
Sr. No.	Parameter	Specifications	Compliance (Yes/NO)	Remarks
	Standards & Approvals			
1	Conform to IEC,EIA- TIA, and Telcordia performances requirements			
2	RoHS, REACH & SvHC compliant			
	CONNECTOR SPECIFICATION			
3	OPTICAL PERFORMANCE	SINGLE MODE (OS1/OS2) CONFORMANCE		
4	ILMAX/Master (Acceptance)	0.15dB IEC 61300-3-4		
5	MAXIL / Random	0.30dB IEC 61300-3-34		
6	Ave / Master*	0.12dB IEC 61300-3-4		
7	Ave / Random *	0.12dB IEC 61300-3-34		
8	Return Loss	55/65dB IEC 61300-3-6		
9	*The change in attenuation for all the above listed criteria shall be a maximum of 0.2dB.			
	MECHANICAL PROPERTIES CONFORMANCE			
10	Mechanical endurance	500 mating IEC 61300-2-2		
11	Vibration	10-55Hz, 0,75 IEC		
12		Amplitude 61300-2-1		
13	Cable retention	Magnitude 90 N IEC 61300-2-4		
14	Cable torsion	1.5 kg – 2.5 kg for 2 mm- 3 mm cable dia.IEC 613000-2-5		

	CONNECTOR TYPE	CONFORMANCE		
15	SC	IEC 61754-4		
16	LC	IEC 61754-20		
	CABLE SPECIFICATION			
17	CHARACTERISTICS	DUPLEX		
18	Cable Material	LSZH or PVC		
19	Strength Member	Aramid		
20	Crush	1000 N		
21	Operating Temperature	-20 to +60°C		
22	Secondary Buffer Diameter (2mm,2.4mm&3mm)	900 ± 50 µm		
23	Minimum Bending Radius (mm)	9 (installed) 20 D (loaded)		

21.		Miscellaneous Specifications		
Sr. No.	Parameter	Specification	Compliance (Yes/No)	Remark
1	Location	CCTV system to be installed inside the Studio Campus of Akashvani in BH & NBH. Necessary cabling shall be done through various horizontal Trenches and Vertical Risers through conduits. No Piercing of walls shall be allowed. Installation shall be done under the supervision Of Akashvani officials.		
2	Site visit	The bidders may visit the site before finalizing their bid.		
3	Multi-storey Cabling	The cabling from one floor to other floor shall be through Vertical risers and Fibre cables shall be used for this purpose.		
4	Inter-Building Cabling	The cabling between BH & NBH shall also be through Fibre cable.		
5	Integration with existing CCTV Camera setups	Akashvani Delhi has 02 (two) existing IP based CCTV Cameras setup in NBH Basement Parking & Rang Bhawan. The proposed CCTV surveillance system shall preferably be integrated with the existing Basement Parking & Rang Bhawan Camera setups after making them fully functional.		
6	Real time Monitoring	The real time monitoring facility on screen need be extended in the existing monitoring room at security wing.		
7	Camera location	Proposed location of Cameras is attached in Annexure-1		

5. CCTV Camera Locations Details in BH and NBH Buildings

Block	Floor	Location	Nos. of 5 MP IP Cameras		
			Dome Camera	Bullet Camera	Dome Camera with Audio Support
NBH Studio Block	GROUND FLOOR	Lift Lobby	2		
		Studio side Corridor	4		
		Stairs Fire Exit	1		
		MSR	1		
		CRR NBH	1		
		DUBBING1	1		
		DUBBING2	1		
		NSD YouTube	1		
		NSD Website	1		
		Reporting Unit	1		
		Monitoring Unit	1		
	First Floor	Studio side Corridors	4		
		Stairs Fire Exit	1		
		ST#01	1		
		ST#02	1		
		ST#03	1		
		ST#04	1		
		ST#04BOOTH	1		
		CMU	1		
		GNR	4		
		HNR	2		
		GNR HNR Lobby	1		
		ST#05	1		
		ST#06 BOOTH	1		

Block	Floor	Location	Nos. of 5 MP IP Cameras		
			Dome Camera	Bullet Camera	Dome Camera with Audio Support
NBH Studio Block	First Floor	ST#06	1		
	Second Floor	Studio side Corridors	4		
		Stairs Fire Exit	1		
		ST#07	1		
		ST#08	1		
		ST#09	1		
		ST#10	1		
		ST#13	1		
		ST#14	1		
		DUBBING 3	1		
		DUBBING 4	1		
		ESD Duty Room 1	1		
		ESD Duty Room 2	1		
		ESD Duty Room 3	1		
		ST#11	1		
		ST#12	1		
	Third Floor	Studio side Corridors	4		
		Stairs Fire Exit	1		
		DUTY ROOM INDRAPRAST	1		
		DUTY ROOM RAJDHANI	1		
		TALK STUDIO	1		
		TALK STUDIO(Booth)	1		
		ST#15	1		
		ST#16	1		
		ST#20	1		

Block	Floor	Location	Nos. of 5MP IP Cameras		
			Dome Camera	Bullet Camera	Dome Camera with Audio Support
NBH Studio Block	Third Floor	ST#19	1		
		ST#19 BOOTH	1		
		ST#18	1		
		ST#18 Booth	1		
		ST#17	1		
	Fourth Floor	Studio side Corridors	4		
		Stairs Fire Exit	1		
		News 24x7 YouTube Duty Room	1		
		ST#21	1		
		ST#22	1		
		ST#26	1		
		ST#25	1		
		ST#24	1		
		ST#23	1		
		Captive Earth Station	1		
		Library	1		
		DUTY ROOM GOLD	1		
		DUTY ROOM RAINBOW	1		
		FM Production Room	1		
NBH Office Block	Ground Floor	Office Block Corridors	4		
		Engineering Store	2		
		Canteen	1		
	First Floor	Office Block Corridors	4		
	Second Floor	Office Block Corridors	4		
	Third Floor	Office Block Corridors	4		

Block	Floor	Location	Nos. of 5MP IP Cameras		
			Dome Camera	**Bullet Camera**	**Dome Camera with Audio Support**
NBH Office Block	Fourth Floor	Office Block Corridors	4		
	Fifth Floor	Office Block Corridors	4		
	Sixth Floor	Office Block Corridors	4		
BH Studio Block	Ground Floor	Music Studio 1	2		
		Music Studio 2	1		
		Music Studio 3	1		
		Music Studio 4	1		
		Talk Studio 1	1		
		Talk Studio 2	1		
		Talk Studio 3	1		
		Talk Studio 4	1		
		Drama Studio 1	1		
		Drama Studio 2	1		
		FM Production Studio	1		
		Yuv-vani Studio	1		
		Dubbing 1	1		
		Dubbing 2	1		
		Dubbing 3	1		
		Dubbing 4	1		
		Dubbing 5	1		
		Dubbing 6	1		
		Dubbing 7	1		
		Dubbing 8	1		
		Dubbing 9	1		
		Dubbing 10	1		

Block	Floor	Location	Nos. of 5MP IP Cameras		
			Dome Camera	Bullet Camera	Dome Camera with Audio Support
BH Studio Block	Ground Floor	Dubbing 11	1		
		CRR /IT UNIT	1		
		AC Plant	1		
		Studio Entrance	1		
		Corridor near DUBBING#11	1		
		Corridor near DUBBING#4	1		
		Corridor near FM PRODUCTION	1		
		Corridor near TALK#3 Studio	1		
		Corridor near DUBBING#10	1		
		Corridor near TALK#1	1		
		FEEDROOM	1		
		Madan Mohan Editing Room-1	1		
		Madan Mohan Editing Room-2	1		
		Madan Mohan Editing Room-3	1		
		Madan Mohan Editing Room-4	1		
		Mellville De Mellow Studio	1		
		Mellville De Mellow Dubbing	1		
BH Office Block	Ground Floor	Central Hall	1		
		Biometric Attendance	1		

Block	Floor	Location	Nos. of 5MP IP Cameras		
			Dome Camera	Bullet Camera	Bullet Camera with Audio Support
BH Office Block	Ground Floor	Transport	1		
		VIP Lounge	1		
		Corridor near Rehersal room	4		
		BH entry point from Reception	1		
		Corridor near Telephone exchange		1	
	First Floor	Corridor near to Room no. 71 (Mann ki Baat)		1	
		Corridor near to Room no. 56 (Vinod Kumar)		1	
		Corridor near to Room no. 47 (Cashier)		1	
	Second Floor	Open Terrace near CCW Civil		1	
		Open Terrace near Coordination		1	
Campus		GATEN O5 (CISF POST)			2
		Electric Parking BH		3	
		Total	**168**	**9**	**2**

6.   Bill of Materials

Item Number	Item Title	Item Description	Item Quantity	Unit Measure	Mode (Purchase/ Rental per year)
1	IP Network Dome Camera	Supply, Installation, Testing, Commissioning & maintenance of IP Camera Dome 1/2.8" Progressive Scan, Backlight illuminated CMOS Sensor 5 Megapixel (2592*1944) H.265 and H.264 Four – stream encoding Shutter speed 1/15s-1/100000s, WDR (120dB), Day/ Night Camera Switching, Motion detection, View Tamper Detection, Tripwire detection, object Intrusion, 2DNR, 3DNRAWB, AGC, BLC 6 mm fixed lens, IR Range of 50 Mtrs., POE (802.3af/ at), 12 V 2A, SD Card.1 Audio In, 1 Audio Out CE, FCC,UL EN/IEC, IP66, IK10,BIS.	168	Nos.	On Rent
2	IP Network Bullet Camera	Supply, Installation ,Testing Commissioning & maintenance of IP Camera Bullet 1/2.8" Progressive Scan, Backlight illuminated CMOS Sensor 5 Megapixel (2592*1944) H.265 and H.264 Four – stream encoding Shutter speed 1/15s-1/100000s, WDR (120dB), Day/Night Camera Switching, Motion detection, View Tamper Detection, Tripwire detection, object Intrusion, 2DNR, 3DNRAWB, AGC, BLC 2.7-13.5mm Varifocal lens, IR Range of 50 Mtrs., POE (802.3af/ at), 12 V 2A, SD Card. CE, FCC,UL EN/IEC,IP66,IK10,BIS.	9	Nos.	On Rent
3	IP Network Bullet Camera with Audio Support	Supply, Installation, Testing, Commissioning & maintenance of IP Camera Bullet 1/2.8" Progressive Scan, Backlight illuminated CMOS Sensor 5Megapixel (2592*1944) H.265 and H.264 Four – stream encoding Shutter speed 1/15s-1/100000s, WDR(120dB), Day/Night Camera Switching, Motion detection, View Tamper Detection, Tripwire detection, objectIntrusion, 2DNR, 3DNR, AWB, AGC, BLC 2.7-13.5mm Varifocal lens, IR Range of 50 Mtrs., POE (802.3af/at), 12 V 2A, SD Card. CE, FCC, UL EN/IEC, IP66, IK10, BIS. Audio Support Feature	2	Nos	On Rent
4	Network Video Recorder	Supply, Installation ,Testing, Commissioning & maintenance of 64-Channel Network Video Recorder, H.265/H.264 dual Video Formats, Support 4K Resolution Up-to 12MP Recording, Manage Multiple Matrix NVRs, 512 Mbps Incoming/ Outgoing B and width, Should support camera video analytics &analytics basedsearch,4 SATA HDDs each 10TB, 3 USB Ports, Support RAID 0, 1, 2 / 1 Alarm In/Out FCC,ROHS,BIS,CE	3	Nos.	On Rent

5	NVR Software Including Mobile Clients	Supply, Installation ,Testing, Commissioning & maintenance of Network Video Recorder software including Mobile clients for viewing Surveillance video over Mobile Phone.	1	Set	On Rent
6	LFD Panel	Supply, Installation, Testing, Commissioning & maintenance of 55" 4K UHD (3840x2160) Ready resolution Android LED display with builtin2.4GhzWi-Fi,1.1GhzBuiltin Quad core processor, 2 GB DDR3 RAM, 16 GB Memory, built in TripleMali600MHzGPU, with 2KHDR, Dolby Audio, Built in Wi-Fi and Chrome cast, Built in web browser, HDMI CEC, HDMI ARC, Built-in Bluetooth Ver.4, 20W built in speakers, HDMI 2.0 X 3, AV X 1, USB 2.0 X 1, RJ45X1,Headphone Outx1,SPDIFOutx1accessories, VGA & HDMI Connectivity complete etc. as required	2	Nos.	On Rent
7	Online UPS	Supply, Installation, Testing, Commissioning & maintenance of 3 KVA UPS with Battery 18AH (8 Numbers) backup of 30 minutes required for central power supply of all CCTV equipment.	2	Nos.	On Rent
8	Networking Rack-42 U	Supply, Installation, Testing & commissioning of Networking-42U-800W-FlatPlainDoor-42U-800W – Cam Lock - Assembly, 3 Inch Castor Set, Four Fan, Monitor Tray -Ventilation, Metal Cable Manager - 01U- Plastic Cable Loop's Mountable, Power Distribution Unit - 06/16 Amp Indian-Standard - 12 Socket - Single Pole / Screw Mountable / 32 Amp MCB / Alternating Current -Industrial Plug 32A with Power Cable 6 sqmm 3 metre Length	1	Nos.	Purchase
9	Networking Rack-06U	Supply, installation, testing, commissioning of Wall Mount - 06U - 600W Double Fan Provision, Single Fan For Wall Mount, Metal Cable Manager - 01U - Plastic Cable Loop's Mountable, Assembly ,Power Distribution Unit - 06 Amp Universal - 06 Socket - 16 Amp Switch with Indicator - 06 Amp Fuse - 06 Amp 3 Pin Plug with Power Cable 0.75 sqmm 1.5 metre Length	14	Nos.	Purchase
10	Networking Rack-15U	Supply, installation, testing, commissioning of Wall Mount - 15U - 600W Double Fan Provision, Single Fan For Wall Mount, Metal Cable Manager - 01U - Plastic Cable Loop's Mountable, Assembly, Power Distribution Unit - 06 Amp Universal - 06 Socket - 16 Amp Switch with Indicator - 06 Amp Fuse - 06 Amp 3 Pin Plug with Power Cable 0.75 sqmm 1.5 metre Length	1	Nos.	Purchase

11	PoE Switch - 24 Port	Supply, installation, testing, Commissioning & maintenance of 24port 10/100/1000 gigabit web managed POE switch with 4 SFP slot	1	No.	On Rent
12	PoE Switch - 8 Port	Supply, installation, testing, Commissioning & maintenance of 8 port 10/100/1000 gigabit web managed POE switch with 2 SFP slot	12	Nos.	On Rent
13	PoE Stackable Access L3 Switch	Supply, installation, testing, Commissioning & maintenance of 24port Stackable Access L3 data Switch PoE ports; not less than 240 W PoE capability ports of auto sensing Ethernet ports 4 SFP 10GbE	1	Nos.	On Rent
14	CAT6 Cable	Supplying and drawing of 4-pair Unshielded twisted pair with across filler(+), meeting Category6 standards as per TIA-568C.2, The cable should be tested till 250 MHz , Shall be Fire-Retardant, Low-Smoke & Zero- Halogen as per IEC 60332-1, IEC 61034-2 & IEC 60754-1 respectively. In the existing surface/ recessed steel /PVC conduit(Quantity as required)	12500	Meter	Purchase
15	OFC Cable	Supplying and drawing of OS1, OS2 Single mode Loose tube Outdoor / Corrugated steel tape – 6 Core Fiber, Attenuation: (of cable with fibres) - IEC 60793-1-40, Armouring: 0.15 mm corrugated steel tape, Sheath: Should be 1.5 mm black MDPE (Drop resistance and shock resistance, less sensitive and higher stress – cracking resistance) sheath, IEC60811, IEC60708 in the existing surface/ recessed steel /PVC conduit with all accessories etc. (Quantity as required)	2000	Meter	Purchase
16	Power Cable	Supplying and drawing of 2 core 1.5 sqmm Armoured cable in the existing surface/ recessed steel /PVC conduit (Quantity as required)	1500	Meter	Purchase
17	SFP Module	Stack able Access L3 data Switch SFP gigabit Mini GBIC transceiver Module	42	Nos.	On Rent
18	Patch Panel	Supplying & Fixing of UTP Jack Panel, loaded with 24 nos. UTP ports for Non-PCB based IO Jacks (RJ45, TIA- 568C Category-6, Shall have integrated bonding bar or other mechanism for grounding, Shall be loaded with individually replaceable 24nos. Category-6 certification by Jacks complying with TIA-568.C.2 , Shall be having a 6 port module construction for better cable dressing at there are, the jacks shall have RJ-45 type connector with bend limiting and strain relief boot for securing IDC contacts from external forces and for maintaining the bend radius of the cable complete in all respect	16	Nos.	Purchase

19	LIU	Supplying, Installation, testing and commissioning of Supplying & Fixing of Fiber Optic LC style fully loaded Patch Panel (FOPP), 19" Rack Mount ,Shall have all accessories including coupler plates pre loaded with 24 Nos. of LC couplers SM with all accessories complete in all respect. Pigtails Should Comply to ITU-G657.B-Bend insensitive fiber complete as per required specifications	20	Nos.	Purchase
20	SC Type Patch Chord	Supplying, Installation, testing and commissioning of Supplying & Fixing of Pigtails.	240	Nos	Purchase
21	SC-LC Patch Cord	Supplying, Installation, testing and commissioning of SC (Subscriber Connector) type LC- single mode Patch cord of each 1 metre length. (Quantity as required)	44	Nos.	Purchase
22	CAT6 Patch Cord	Supplying & Fixing of Category 6, UTP patch cords shall be constructed of 24-27 AWG unshielded twisted pair stranded copper cable with an enhanced performance modular plug at each end. Patch cord cable shall be offered in multiple colored UTP cable for design flexibility with a clear strain relief boot on each modular plug. All patch cords shall be compatible with both T568A and T568B wiring schemes. UTP Cable will be 1.0 mtr. complete in all respect. Jacket - LSZH .	200	Nos.	Purchase
23	PVC Conduit	Supplying and fixing of 25 mm of medium class PVC conduit along with accessories in surface/recess including cutting the wall and making good the same in case of recessed conduit as required.	3500	Meter	Purchase
24	HDPE Pipe	Supplying and fixing of following sizes of medium class HDPE along with accessories in surface/underground including cutting the wall/road and making good the same in case of recessed conduit as required.(a)25mm in existing surface/ recessed steel /PVC conduit (Quantity as required)	500	Meter	Purchase
25	GI Pole	Supply and erection of hot dipped galvanized steel GI Conical Pole with galvanized base plate of size 400mmX400mmX7mm in position including excavation of pit and filling the same with CC of M 10 M 20 from base plate to 50 cm above ground level. Necessary concert in a wire should be wrapped around the pole so that monkeys can't disturb/ damage the cameras.	1	Nos	Purchase

26	Integration of existing cameras with the system	Integration of Cameras already installed in NBH basement & Rang Bhawan	1	Set	One time Service
27	Service	24-hours Monitoring & Operator Charges	1	Job	On Rent

7. INSTALLATION & COMMISSIONING

a) It is to be noted again that Supply, Installation and Commissioning of the system with all accessories, auxiliaries and any item not covered in the specification but essential for proper installation, operation and maintenance of the CCTV system, shall be included and executed by the bidder.

b) The supply will not be deemed complete until the commissioning trial of the entire system is performed by the bidder at Akashvani Delhi site successfully.

c) Installation includes laying and termination of cables (FO / UTP) on switches, ports, I/O and nodes along with tidy wiring through correct size of conduit or pipe / PVC duct/casing/capping as and when required in various studios/rooms on all the floors and galleries of NBH.

d) Laying of cables inside the rooms should be in appropriate size of casing / capping (PVC). The Casing and capping should be tidy and clean.

8. POWER SUPPLY

Electric power will be available at the installation site is of 230VAC, single phase, 50Hz. If the bidder requires any other voltage, then he shall provide the necessary equipment.

9. SAFETY

All items shall be complete with approved safety devices, wherever a potential hazard to personnel exists and with provision for safe access to personnel to and around the Instrument for operational and maintenance functions.

10. TIME FOR COMPLETION

The vendor shall complete supply and commissioning of the instrument **within Two Months** from the placement of order.

11. TEST AND INSPECTION
a) Bidder shall bring all the equipment before start of installation.
b) The bidder shall demonstrate all the features of the equipment claimed by him.
c) The bidder is solely responsible for installation, commissioning and making the complete system operational at user's site.
d) The bidder may be required to demonstrate the features and functioning of the tendered unit during technical evaluation, verification of the performance parameters as may be required during technical evaluation. Non-compliance of equipment demonstration, if asked by the indenter, shall disqualify the tender.

12. OPERATING CONDITIONS

All equipment shall be designed for smooth, efficient and trouble free operation in the climate of Delhi. Ambient temperature may take as 45 Degree Celsius and humidity of 90%.

13. **MAINTENANCE**

   a) The bidder shall be fully responsible for the maintenance of entire system setup including the NBH Basement & Auditorium CCTV system during the warranty and contract period.

   b) The bidder has to provide manpower for 24x7 operations and maintenance for the complete system. The routine checkup and required maintenance may be regularly done so that system upkeep can be maintained.

   c) The office will have no liability whatsoever concerning the persons deployed by the bidder during contract period. Minimum wages and other benefits should be addressed by the bidder as per labour law. The bidder shall be responsible for payment of any compensation/ settlement of any liability arising out of any injury caused to the persons employed for the work by the bidder.

   d) The recording footage is the sole property of Akashvani and no leakage and sharing of footage is admissible.

14. **WARRANTY**

   a) The bidder shall provide warranty/guarantee for the **entire system** for a period of **05 years** from the date of commissioning.

   b) The bidder shall be responsible for **routine and breakdown maintenance** of the entire system during warranty period.

15. **TRAINING**

Bidder shall provide training about the operation and maintenance of CCTV system and the relevant software at the cost of bidder.