GOVERNMENT OF INDIA
(Ministry of Home Affairs)
DIRECTORATE GENERAL
CENTRAL RESERVE POLICE FORCE
EAST BLOCK-7, SEC-1, R.K. PURAM, NEW DELHI-110066
(Email:- comncell@crpf.gov.in   Tele/Fax:011-26107493)

No. B.V-7/2019-20-C (STO)   Dated, the 19ᵗʰ July'2019

To

1. DIG (Comn), ITBP
   Block No. 2, CGO Complex
   Lodhi Road, New Delhi-03

2. DIG (Comn), NSG
   Meharam Nagar
   Palam, New Delhi-37

3. DIG (Comn), SSB
   East Block-V, R.K Puram
   New- Delhi-66

4. AIG (Comn), CISF
   Block No. 13, CGO, Complex
   Lodhi Road, New Delhi-03

5. DIG (Prov), BSF
   Block No. 10, CGO Complex
   Lodhi Road, New Delhi-03

6. Liaison Office, Assam Rifle
   Room No-171, North Block, MHA
   New Delhi -01

Subject: **Regarding QRs/TDs of Studio.**

    Please find enclosed QRs and TDs of Studio as Annexure-A & Annexure-B respectively duly approved by the competent authority is forwarded herewith for further necessary action.

Encl: (QRs & TDs of Studio)

{P.R.Jha, DC (Comn)}
For DIG (Equipment)
Directorate General, CRPF

QRs of Studio

S.N	Parameters/Specifications
1.	**Broadcast Studio Camera** 4K 3-CMOS 1/3" Sensor Broadcast Camera, captures 4K at up to 60p, relying on three 1/3" Exmor R sensors that provide improved low-light capability when compared to standard sensors. The camera integrating a 25x optical zoom lens and an electronic variable ND filter. The camera should supports a variety of codecs.

	1.1	**Image Sensor**: 1/3 type back-illuminated Exmor R3CMOS sensor
	1.2	**Sensor Resolution:** 3840 x 2160
	1.3	**Optical System**: F1.6 prism system
	1.4	**Built-in Optical Filters** ND filters OFF: CLEAR 1: 1/4ND 2: 1/16ND 3: 1/64ND Linear variable ND (Approx. 1/4ND to 1/128ND)
	1.5	**Shutter Speed**: 1/24 sec to 1/8,000 sec
	1.6	**White Balance:** Preset (3200K), Memory A, Memory B/ATW
	1.7	**Recording Format (Video)** <XAVC Long> XAVC-L QFHD mode: VBR, maximum bit rate 150Mbps, MPEG-4 H.264/AVC XAVC-L HD 50 mode:VBR, maximum bit rate 50Mbps, MPEG-4 H.264/AVC XAVC-L HD 35 mode:VBR, maximum bit rate 35Mbps, MPEG-4 H.264/AVC XAVC-L HD 25 mode:VBR, maximum bit rate 25Mbps, MPEG-4 H.264/AVC <DVCAM> DVCAM mode:CBR, 25Mbps, DVCAM

S.N	Parameters/Specifications	
	Recording Format (Audio)	
1.8	<XAVC Long>	
	XAVC-L mode: LPCM 24-bit, 48kHz, 4 channels	
	<DVCAM>	
	DVCAM mode: LPCM 16-bit, 48kHz, 4 channels	
1.9	**Recording Frame Rate**	
	<XAVC Long>	
	XAVC-L QFHD 150 mode:	
	3840x2160/ 59.94P, 50P, 29.97P, 23.98P, 25P	
	XAVC-L HD 50 mode:	
	1920x1080/ 59.94P, 50P, 59.94i, 50i, 29.97P, 23.98P,	
	25P1280x720/59.94P, 50P	
	XAVC-L HD 35 mode:	
	1920x1080/59.94P, 50P, 59.94i, 50i, 29.97P, 23.98P, 25P	
	XAVC-L HD 25 mode:	
	1920x1080/59.94i, 50i	
	<DVCAM>	
	DVCAM mode:	
	720x480/59.94i, 29.97PsF, 720x576/50i, 25PsF	
1.10	**Lens Mount:** Fixed type	
1.11	**Zoom Ratio :** 25X	
1.12	**Iris :** Auto/manual switchable	
	F1.6 to F11 and C(close)	
1.13	**Audio Input :** XLR-type 3-pin (female) (x2), line/mic/mic +48 V	
	selectable.	
	LINE : +4, 0, -3dBu/10kΩ	
	MIC : -80dBu to -30dBu /3kΩ	
	(0 dBu=0.775 Vrms)	
1.14	**Audio Output :** Integrated into Multi/Micro USB jack(x1)	
1.15	**SDI Output:** BNC (x1), 3G/HD/SD selectable	
1.16	**Timecode Input:** BNC (x1) (switchable to TC out) 0.5V-1.8Vp-p,	
	3.3kΩ	

S.N		Parameters/Specifications
	1.17	**Timecode Output:** BNC (x1) (switchable to TC in) 1.0Vp-p, 75Ω
	1.18	**USB:** USB device, Multi/Micro USB jack (x1) Host: USB 3.0/2.0 type A(x1), USB 2.0 type A(x1)
	1.19	**Headphone Output:** Stereo mini jack (x1) -16dBu 16Ω
	1.20	**Speaker Output :** Monaural Output: 500mW
	1.21	**DC Input:** DC jack
	1.22	**Remote:** Stereo mini-minijack (2.5 mm)
	1.23	**HDMI Output :** HDMI connector (Type A)
	1.24	**Wired LAN:** RJ-45 (x1), 1000BASE-T, 100BASE-T, 10BASE-T
	1.25	**Viewfinder:** 1.0 cm (0.39 type) Approx. 2.36M dots
	1.26	**LCD:** 8.8cm (3.5 type) Approx. 1.56M dots
	1.27	**Supported Format** IEEE 802.11 a/b/g/n/ac **Frequency Band** 2.4 GHz bandwidth5.2/5.3/5.6 GHz bandwidth **Security** WEP/WPA-PSK/WPA2-PSK **NFC** NFC Forum Type 3 Tag compliant
2.		**VISION MIXER** 12 HD/SD-SDI inputs, 8 HD/SD-SDI outputs and 1 HDMI output come as standard. Mixed HD/SD input supporting the standard configuration. The 9 outputs can all be freely assigned with frame synchronizers that enable This achieves a fully mixed SD / HD environment with the switcher alone. Mixers must come as standard with 2 keyers, 2 DSKs and 4 powerful 2.5D DVE engines.
	2.1	**VIDEO FORMATS:** 1080/59.94L, 1080/50, 1080/29.97P, 1080/25P, 1080/24P, 1080/23.98p, 1080/24PsF, 1080/23.98PsF,1080/25PsF,1080/29.97PsF,720/59.94p,720/50p,1080/59.94p and 1080/50p level A 525/60(NTSC), 625/50(PAL)

S.N		Parameters/Specifications
	2.2	**VIDEO INPUTS WITH PROCESSING AMPLIFIER:** HD/SDI: 1.5 Gbps or SD-SDI: 270 Mbps, 75Ω, BNC x12 (FSs on 8inputs, resize engine on 4 inputs.)
	2.3	**NUMBER OF VIDEO INPUTS:** HD HDI-1.5 Gbps or SD SDI 270 Mbps X 12 (Auto Select)
	2.4	**NUMBER OF VIDEO OUTPUTS** HD/SDI: 1.5 Gbps or SD-SDI: 270 Mbps, 75 Ω. BNC x 8, HDMI 1
	2.5	**EFFECT:** wipe:100 patterns, border and softness/2.50 dve:56 patterns or more dve wipes
	2.6	**MICRO FUNCTION:** 30 commands (Upto 230 series of operation can be registered for command)
	2.7	**STILL/CLIP STORE:** 2 Channels (with backup feature), each store can hold upto 227 frames of HD video
	2.8	**KEYER/DSK:** 4 Channels (keyer X 2) + DSK x2) includes 2D DVE that can be freely assigned.
	2.9	**MULTI VIEWER:** 2/4/5/7/9/10/11/14/15/16-Waysplit views with title, tally and audio level meter display and 1 frame delay for PGM Output.
	2.10	**GENLOCK INPUT:** BB:NTSC:0.429 Vp-p/PAL: 0.45 Vp-p OR TRI-LEVEL SYNC:0.6 Vp-P,75Ω, BNC x 1, loop through (To be terminated with 75Ω terminated if unused)
3.		**Tripod Dolly** Aluminium or carbon composite tripod system. The head with 100mm or more ball providing smooth pans and tilts. Built-in bubble for horizontal leg, 3-section legs, Double handle.
	3.1	**Folded Height:** 910 mm or less
	3.2	**Max Operating Height:** 1750 mm or more
	3.3	**Min Height:** 570 mm or less

S.N		Parameters/Specifications
	3.4	**Tilt Range:** -85°/+85° or more
	3.5	**Pan Range:** 360°
	3.6	**Ball Size:** 100 mm
	3.7	**Pan Rod:** 2
	3.8	**Load Capacity:** 8 kg or more
	3.9	**Net Weight:** 8.5k g or less
	3.10	**DOLLY:** **Folded Length:**560 mm or less **Net Weight:** 5 kg or less **Load Capacity:** 50 kg or more
4.		**Teleprompter System:** For use in Studio for live as well as recording production.
	4.1	Support multiple languages
	4.2	Dual monitor use
	4.3	Mouse movement speed control
	4.4	User control of scroll speed using the hand controller (optional)
	4.5	Prompts in any window's compatible language
	4.6	Import word file
5.		**Monitor Speakers**
	5.1	2-way bass-reflex bi-amplified near field studio monitor with 5" or more cone woofer and 1" or more dome tweeter
	5.2	Frequency response:- 54Hz - 30kHz
	5.3	45W LF plus 25W HF bi-amp system for high-performance 70W power amplification
	5.4	Room Control and high trim response controls
	5.5	XLR and TRS phone jack inputs to accept balanced or unbalanced signals
6.		**1 x 1 Panel LED Lights** LED 80W panel should have high output, bi-color temperature, long service life and controlled heat dissipation. Easy carrying and simple assembly, with a standalone cable dimmer to help easier dimming, suitable for lighting in video and outdoor image capture.

S.N		Parameters/Specifications
	6.1	**Input Voltage (V):** 12-24V DC(Decoder) DC Adapter
	6.2	**Total Power (W):** 80W
	6.3	**LED:** DIP
	6.4	**Power Factor(PF):** 100%(DC Decoder)
	6.5	**LED Lumen:** 7200 LM or better
	6.6	**Related Color Temperature :** (CCT) 5600K±355K
	6.7	**LUX Define the Exact Range as:** 1800 LUX/2.5M
	6.8	**Color Rendering Index:** (CRI) ≥95+
	6.9	**Average Beam Angle:** 45°
	6.10	**Distribution of Light:** BI COLOR
	6.11	**DMX:** Optional
	6.12	**Working Humidity:** 90%
	6.13	**Storage Temperature:** 25°C
	6.14	**Lifespan for LED Lighting Source:** 50,000 Hours
	6.15	**C Clamp with Safety Chain:** Optional
	6.16	**SIZE:** 14"X14"
7.		**LED SPOT 100W** Continuous Light which gives studio lighting required to get the professional shots. Video requirement with 5600k one should be able to adjust the knob to change the angle of the light, either go spot or flood. Fixture in manual and pole operation.
	7.1	**Voltage:** AC100~240V , 50/60Hz
	7.2	**Power:** 135W
	7.3	**Light Source:** 100W LED
	7.4	**Beam Angle:** 18-58°
	7.5	**Control Mode:** DMX-512, Master/Slave
	7.6	**Channel:** 1 channel
	7.7	**Pan:** 540°/630° **Tilt:** 270°
	7.8	**IP Rating:** IP20
	7.9	**Net Weight:** 5kg or less

S.N		Parameters/Specifications
8.		**Lapel Mic Wireless** Wireless lapel microphone that offers good sound quality, simple mounting and easy to use.
	8.1	All-in-one wireless Lapel mic with high flexibility for broadcast quality sound
	8.2	Excellent sound and construction quality
	8.3	Easy to use and fast setup time
	8.4	Powerful and reliable wireless transmission
	8.5	Range: 100 meters / 330 feet or more
	8.6	Operation time: 8 hours or more
9.		**Handheld Mic Wireless** A broadcast quality sound solution, providing the highest flexibility for video sound and field recording applications. A robust wireless microphone system that offers excellent sound quality, simple mounting and easy to use. The easy wireless solution for moderators or reporters. The rugged microphone resistant to any bad weather or field condition, with receiver mountable to any camera.
	9.1	Rugged all-in-one wireless system with high flexibility for broadcast quality sound
	9.2	Excellent sound and construction quality
	9.3	Easy to use and fast setup time
	9.4	Powerful and reliable wireless transmission
	9.5	Range:100 meters / 330 feet or more
	9.6	Operation time: 8 hours or more
10.		**Earset:** A connector cable, swivel joint and earpiece kit, with a coiled earpiece cable for use with telex assistive listening and IFB products.
11.		**Intercom System** Rack-mountable minimum 8 user wired intercom system with 4 belt packs & 4 headsets. (Quantity as per user requirement)
	11.1	Industry standard 19" 1U rack design, for easy integration.
	11.2	Supports 8-way intercom

S.N		Parameters/Specifications
	11.3	Additional external earphone and microphone interface.
	11.4	Bi-color tally light indicator.
	11.5	Selectable channel talk, broadcast to all or mute.
	11.6	Half-Duplex design for eliminate the environmental noise.
	11.7	Enables communication between the camera crew.
	11.8	Communication distance up to 200 meters
	11.9	Supplied complete with Gooseneck Microphone and Light
12	**Audio Mixer**	
	12.1	16-Channel Mixing Console
	12.2	10 Mic / 16 Line Inputs (8 mono + 4 stereo)
	12.3	GROUP Buses + 1 Stereo Bus
	12.4	AUX (incl. FX)
	12.5	"D-PRE" mic preamps with an inverted Darlington circuit
	12.6	1-Knob compressors
	12.7	High-grade effects: SPX with 24 programs
	12.8	24-bit/192kHz 2in/2out USB Audio functions
	12.9	Includes Cubase AI DAW software download version
	12.10	PAD switch on mono inputs
	12.11	+48V phantom power
	12.12	XLR balanced outputs
	12.13	Internal universal power supply for world-wide use
	12.14	Rack Mount Kit Included
	12.15	Metal chassis
13.	**Phone in Unit**	
	13.1	Separate send level and receive level meters for each hybrid.
	13.2	Place caller on-hold via front panel button.
	13.3	Auto-Answer with selectable ring count.
	13.4	Wide-range AGC and Dynamic EQ by Omnia, with adjustable gain settings.
	13.5	Adjustable caller override to improve performance and allows to individualize the degree to which the announcer ducks the caller audio.

S.N		Parameters/Specifications
	13.6	Digital Dynamic EQ and adjustable smart leveler to keep audio spectrally consistent from call to call.
	13.7	EQ High and EQ Low display meters for each hybrid.
	13.8	Audio Interfaces- Analog
	13.9	Ringing and On-Air status for each hybrid.
	13.10	Input Range : Selectable between MIC and LINE levels
	13.11	Input Level : Adjustable from -10 to +4 dBu (nominal)
	13.12	Impedance : Bridging, > 50K Ohms
	13.13	Analog Clip Point : +21 dBu
	13.14	Analog-to-Digital Converter Resolution : 20 bits
	13.15	Analog Outputs Connector : XLR Male, Pin 3 High
	13.16	Output Level : Nominal at +4 dBu
	13.17	Impedance :<50 ohms
	13.18	Digital-to-Analog Converter Resolution : 24 bits
	13.19	Headroom Before Clipping : 20 dB headroom from 4dBU nominal levels
	13.20	Frequency Response : 200 to 3400 Hz, +/- 1 dB
	13.21	THD+N/Input :< 0.5% THD+N using 1 KHz sinewave
	13.22	Signal to Noise :>90 dB
	13.23	General purpose Input/output : Single 9 pin D-Sub connector with 2 status outputs (Ringing and ON-AIR) and 2 control inputs (ON and OFF) per hybrid
	13.24	Trans-hybrid Loss :> 55 dB
14.		**Video In/ Video Out Card-** Digital cinema capture card with full frame DCI 4K input and output via 12G-SDI. Dual link multi rate 12G-SDI connections that work with SD, HD and Ultra HD even in Ultra HD 60p, as well as full frame DCI 4K at 4096 x 2160 resolution up to 25p. To capture 10-bit YUV or full color bandwidth 12-bit RGB. Includes AES/EBU audio, up, down and cross conversion, plus built in 3D stereoscopic output at full bandwidth 4:4:4:4 RGB.
	14.1	**SDI Video Inputs :** 2 x 12Gb/s SD/HD 2K/4K. Supports single/dual link 4:2:2/4:4:4. 2D/3D switchable.

S.N		Parameters/Specifications
	14.2	**SDI Video Outputs:** 2 x 12Gb/s SD/HD//2K/4K. Supports single/dual link 4:2:2/4:4:4. 2D/3D switchable.
	14.3	**Analog Video Inputs:** 1 x Component YUV on 3 BNCs switchable to S-Video or Composite. Component supports HD and SD.
	14.4	**Analog Video Outputs:** 1 x Component YUV on 3 BNCs switchable to S-Video and Composite. Component supports HD and SD.
	14.5	**Analog Audio Inputs:** 2 Channels of balanced analog audio via XLR connectors.
	14.6	**Analog Audio Outputs:** 2 Channels of balanced analog audio via XLR connectors.
	14.7	**AES/EBU Audio Inputs:** 2 Channels unbalanced with sample rate converter.
	14.8	**AES/EBU Audio Outputs:** 2 Channels unbalanced.
	14.9	**SDI Audio Inputs:** 16 Channels embedded in SD/HD/2K/4K.
	14.10	**SDI Audio Outputs:** 16 Channels embedded in SD/HD/2K/4K.
	14.11	**HDMI Video Inputs:** HDMI type A connector with support for 2160p60.
	14.12	**HDMI Video Outputs:** HDMI type A connector with support for 2160p60.
	14.13	**Sync Input:** Tri-Sync or Black Burst.
15.		**Ingest / Playout Server for 2 SD/HD Ports** Playout solution should provide stability and usability advantages. It should allow for optimum CPU balancing using multi-core systems; the server to control the video output while the client manages the playlist. The media files are to be verified by the client application before being accepted for playout.
	15.1	System should have intuitive user interface for easy ingest and play operation with easy controls.
	15.2	Operator to define source and destination for ingest.

S.N		Parameters/Specifications
	15.3	Operator also preview & browse the content without disrupting the recording process.
	15.4	Automated Play-out system with manual rider
	15.5	The system to support scaling for up to 6 HD ports in future
	15.6	The playback of scheduled clips from the play list without any delay
	15.7	Supported HD/SD
	15.8	Supported types of video files
	15.9	DV in .avi container (four CCd vsd and dsvd
	15.10	LXF, MP4/MOV, MXF, ASF/WMV, MPEG-TS,
	15.11	Mpeg2, Mpeg4
	15.12	GXF, FLV, AVI, DV, MPEG-PS, MKV, WebM,
	15.13	DVCPRO, M-JPEG, MPEG-1, MPEG-2, VC-1
	15.14	Windows Media Video with extension .wmv
	15.15	Two simultaneous ingests
16.		**CG (Character Generator) System** A broadcast graphics playout. Powerful, multilayer, reliable and easy to use. Live titling. Instant operation.
	16.1	**Full NDI implementation in/out** Broadcast Applications for both input and output support and Tricaster's macro automation. NDI sources that can be wrapped to 3D objects, moved and squeezed in real-time with the power of CG template editors.
	16.2	**Media Render implementation** Re-designed and optimized Media Handling layer for simple improved features, backwards compatibility, increased support for media formats and capture devices
	16.3	**Text handing improvements** Vector and bitmap text with additional flexibility to support floating point kerning and spacing.
	16.4	**Docking extended to all main apps** Docking of all Template Editors with comfortable interface

S.N		Parameters/Specifications
	16.5	**Group highlights and Drag & Drop on LB** Groups of contents to be created/assigned by Drag & Drop. Group IDs also to be unlimited and to be assigned automatically. Users should be able to visualize the contents inside a group.
	16.6	**GUI** The Template Preview player, to the Frame Markers editor, to the Media player and NDI previewer, cursor shape change on Drag & Drop, multi-screen user interface consistent GUI across applications
	16.7	**Clip Player** Software capable to play any media file (including MXF, MOV, MP4) to a vast number of supported video devices. Easy to operate. HQ crop/scale, field-polarity-aware with support for mark-in/out, frame resynch, on-air scrub and more.
	16.8	**GPIO interface** GPIO feature which goes down to the hardware and gives control to the single bits of serial ports.
	16.9	**Scripting engine**
	16.10	**Social Server:** To support Facebook, Twitter, Instagram and others API.
	16.11	**Page Recall**
17.		**Sync Generator:** Stabilized video reference outputs for referencing all the video equipment in studio in either high definition Tri-Sync or standard definition Black burst television standards.
	17.1	**Analog Video Outputs:** 6 x common Black burst or Tri Level reference outputs. **SDI Rates:** 270Mb, 1.5G. **Multi Rate Support:** Via mini switches **Updates and Configuration:** Via USB

IJ.N		Parameters/Specifications
	17.2	**Analog Format Support:** 525i29.97 NTSC, 625i25 PAL, 720p50, 720p59.94, 720p60, 1080p23.98, 1080p24, 1080p25, 1080p29.97, 1080p30, 1080PsF23.98, 1080PsF24, 1080i50, 1080i59.94, 1080i60
18.	**Embedder**	Embed audio into any SDI source in SD and HD formats up to 1080p60. Audio input to be balanced analog or AES/EBU using ¼ inch connectors from equipment such as mixers and analog decks.
	18.1	**SDI Video Inputs:** 1 x SD HD or 3G-SDI. 1 x ALT SDI Input for automatic switch over if main input fails. **SDI Video Outputs:** 1 x Embedded SDI Output. **Analog Audio Inputs:** 4 channels of balanced analog audio. **Digital Audio Inputs:** 8 channels of balanced AES/EBU audio. **SDI Redundant Input:** Automatically switches over if main SDI input is lost. **Multi Rate Support:** Auto detection of SD, HD or 3G-SDI. **Updates and Configuration:** Via USB 2.0 high speed. (480 Mb/s) **Re clocking:** Yes
	18.2	**SD Video Standards:** 525i59.94 NTSC, 625i50 PAL **HD Video Standards:** 720p50, 720p59.94, 720p60, 1080p23.98, 1080p24, 1080p25, 1080p29.97, 1080p30, 1080p50, 1080p59.94, 1080p60 1080PsF23.98, 1080PsF24, 1080PsF25, 1080PsF29.97, 1080PsF30, 1080i50, 1080i59.94, 1080i60 **2K Video Standards:** 2K DCI 23.98p, 2K DCI 24p, 2K DCI 25p, 2K DCI 23.98PsF, 2K DCI 24PsF, 2K DCI 25PsF **SDI Compliance:** SMPTE 259M, SMPTE 292M, SMPTE 296M, SMPTE 372M, SMPTE 424M-B, SMPTE 425M, ITU-R BT.656, ITU-R BT.601, SMPTE ST-2036 **SDI Video Rates :** SDI video connections switchable between standard definition and high definition. **SDI Video Sampling:** 4:2:2, 4:4:4 **SDI Audio Sampling :** Television standard sample rate of 48 kHz and 24 bit.

S.N	Parameters/Specifications
	SDI Color Precision : 4:2:2, 4:4:4 Complied **SDI Color Space:** YUV, RGB **SDI Auto Switching:** To automatically selects between SD, HD, and 3G-SDI.
19.	**SDI to HDMI 6G** Mini Converter SDI to HDMI 6G which allows to convert from SDI to HDMI in SD, HD, and Ultra HD formats while de-embedding audio to HDMI, AES/EBU or balanced analog audio. Features such as down conversion for monitoring Ultra HD on HD HDMI monitors as well as built in 3D LUTs plus HDMI instant lock for instant video display when an SDI input is connected.

	19.1	**SDI Video Inputs;** 1 x SD, HD or 6G-SDI. 1 x ALT SDI Input for automatic switch over if main input fails. **SDI Video Outputs:** 1 x SDI Video Loop Output. **HDMI Video Outputs:** HDMI type A out. **Analog Audio Outputs:** 2 channels of balanced analog audio. **Digital Audio Outputs:** 4 channels of AES/EBU digital audio **SDI Redundant Input:** Automatically switches over if main SDI input is lost. **Multi Rate Support:** Auto detection of SD, HD or 6G-SDI. **Updates and Configuration :** USB **Re clocking:** Yes
	19.2	**SD Video Standards :** 625i50 PAL, 525i59.94 NTSC **HD Video Standards:** 720p50, 720p59.94, 720p60, 1080p23.98, 1080p24, 1080p25, 1080p29.97, 1080p30, 1080p50, 1080p59.94, 1080p60 1080PsF23.98, 1080PsF24, 1080PsF25, 1080PsF29.97, 1080PsF30 1080i50, 1080i59.94, 1080i60 **2K Video Standards:** 2K DCI 23.98p, 2K DCI 24p, 2K DCI 25p, 2K DCI 23.98PsF, 2K DCI 24PsF, 2K DCI 25PsF **Ultra HD Video Standards:** 2160p23.98, 2160p24, 2160p25, 2160p29.97, 2160p30 **4K Video Standards:** 4K DCI 23.98p, 4K DCI 24p, 4K DCI 25p

S.N	Parameters/Specifications
	SDI Compliance: SMPTE 259M, SMPTE 292M, SMPTE 296M, SMPTE 372M, SMPTE424M, SMPTE 425M, SMPTE ST-2081 **SDI Video Rates:** SDI video connections to be switchable between standard definition, high definition, Level A or Level B 3G-SDI and 6G-SDI. **SDI Video Sampling:** 4:2:2 and 4:4:4 **SDI Audio Sampling:** Television standard sample rate of 48 kHz and 24 bit. **SDI Color Precision:** 4:2:2 and 4:4:4 **SDI Color Space:** YUV and RGB **SDI Auto Switching:** To automatically detects SD, HD or 6G-SDI. **HDMI Video Standards:** 625i50 PAL, 525i59.94 NTSC,720p50, 720p59.94, 720p60,1080p23.98, 1080p24, 1080p25, 1080p29.97, 1080p30, 1080p50,1080p59.94, 1080p60, 1080i50, 1080i59.94, 1080i60, 2160p23.98, 2160p24, 2160p25, 2160p29.97, 2160p30 **HDMI Color Space:** YUV and RGB **HDMI Color Precision:** 4:2:2 and 4:4:4
20	**SDI Distribution** A single SD or HD-SDI connection to up to 8 different SDI outputs at the same time. It should have 3G-SDI design with fully re-clocked outputs and automatic switching between all SD and HD formats up to 1080p60. Should support for all ASI, ancillary and embedded audio formats.
20.1	**SDI Video Inputs:** 1 x SDI Video Input. Switchable between SD, HD and 3G-SDI. **SDI Video Outputs:** 8 x outputs to automatically match the SDI video input. Multi Rate Support, Auto detection of SD, HD or 3G-SDI. **Re clocking :** Yes
20.2	**SD Video Standards:**525i59.94 NTSC, 625i50 PAL **HD Video Standards:** 720p50, 720p59.94, 720p60, 1080i50, 1080i59.94,1080i60, 80p23.98, 1080PsF23.98, 1080p24, 1080PsF24, 1080p25, 1080PsF25, 1080p29.97, 1080PsF29.97, 1080p30, 1080PsF30, 1080p50, 1080p59.94, 1080p60.

S.N		Parameters/Specifications
		2K Video Standards: 2K DCI 23.98p, 2K DCI 24p, 2K DCI 25p 2K DCI 23.98PsF, 2K DCI 24PsF, 2K DCI 25PsF
		SDI Compliance: SMPTE 259M, SMPTE 292M, SMPTE 296M, SMPTE 372M, SMPTE 424M- B and SMPTE 425M
		SDI Video Rates: SDI video connections are switchable between SD, HD, and DCI 2K.
		SDI Video Sampling: 4:2:2 and 4:4:4
		SDI Audio Sampling: Television standard sample rate of 48 Hz and 24 bit.
		SDI Color Precision: 4:2:2 and 4:4:4
		SDI Color Space: YUV and RGB
		SDI Auto Switching: Automatically detects SD, HD or 3G-SDI.
21	IT Workstations	
	21.1	**Playout & Ingest Workstation** Latest Processor 1 X 1TB or more HDD for OS 2 X 4TB or more HDD 32GB or more RAM 1 X 4GB or more GFX CARD WIN 10 PRO or latest version

S.N	Parameters/Specifications
21.2	**CG Workstation**
	Latest Processor
	1 X 1TB or more HDD for OS
	1 X 1TB or more HDD
	16GB or more RAM
	1 X 4GB or more GFX CARD
	17' or larger Monitor, keyboard, mouse
	WIN 10 PRO or latest version

WO/Copt. A. K. Guleria
Assam Rifles
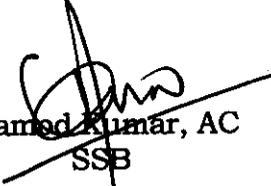
ASI/RM V.K.Yadav
BSF

AC-I A.K. Panday
NSG

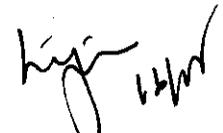Pramod Kumar, AC
SSB

Pardeep Kumar, DC
ITBP

R.K. Meel,DC
CISF

P.R.Jha, DC(Comn)
CRPF

Harjinder Singh, DIG(Eqpt)
CRPF

Ajay Kumar Yadav. IPS,
IGP(Comn &IT),CRPF

Md. Jawed Akhter, IPS,
ADG (Work & Comn),CRPF

Approved/~~Not Approved~~

Rajeev Rai Bhatnagar, IPS

DG, CRPF

Trial Directives of Studio

S.N	Parameters/Specifications	Trial Directives
1.	**Broadcast Studio Camera** 4K 3-CMOS 1/3" Sensor Broadcast Camera, captures 4K at up to 60p, relying on three 1/3" Exmor R sensors that provide improved low-light capability when compared to standard sensors. The camera integrating a 25x optical zoom lens and an electronic variable ND filter. The camera should supports a variety of codecs.	Firm will submit OEM certificate.
1.1	**Image Sensor**: 1/3 type back-illuminated Exmor R3CMOS sensor	Firm will submit OEM certificate.
1.2	**Sensor Resolution:** 3840 x 2160	BOO will check physically.
1.3	**Optical System**: F1.6 prism system	Firm will submit OEM certificate.
1.4	**Built-in Optical Filters** ND filters OFF: CLEAR 1: 1/4ND 2: 1/16ND 3: 1/64ND Linear variable ND (Approx. 1/4ND to 1/128ND)	BOO will check physically.
1.5	**Shutter Speed**: 1/24 sec to 1/8,000 sec	Firm will submit OEM certificate.
1.6	**White Balance:** Preset (3200K), Memory A, Memory B/ATW	Firm will submit OEM certificate.

S.N		Parameters/Specifications	Trial Directives
	1.7	**Recording Format (Video)** <XAVC Long> XAVC-L QFHD mode: VBR, maximum bit rate 150Mbps, MPEG-4 H.264/AVC XAVC-L HD 50 mode:VBR, maximum bit rate 50Mbps, MPEG-4 H.264/AVC XAVC-L HD 35 mode:VBR, maximum bit rate 35Mbps, MPEG-4 H.264/AVC XAVC-L HD 25 mode:VBR, maximum bit rate 25Mbps, MPEG-4 H.264/AVC <DVCAM> DVCAM mode:CBR, 25Mbps, DVCAM	Firm will submit OEM certificate.
	1.8	**Recording Format (Audio)** <XAVC Long> XAVC-L mode: LPCM 24-bit, 48kHz, 4 channels <DVCAM> DVCAM mode: LPCM 16-bit, 48kHz, 4 channels	BOO will check physically and firm will submit OEM certificate.
	1.9	**Recording Frame Rate** <XAVC Long> XAVC-L QFHD 150 mode: 3840x2160/ 59.94P, 50P, 29.97P, 23.98P, 25P XAVC-L HD 50 mode: 1920x1080/ 59.94P, 50P, 59.94i, 50i, 29.97P, 23.98P, 25P1280x720/59.94P, 50P XAVC-L HD 35 mode: 1920x1080/59.94P, 50P, 59.94i, 50i, 29.97P, 23.98P, 25P XAVC-L HD 25 mode: 1920x1080/59.94i, 50i <DVCAM> DVCAM mode: 720x480/59.94i, 29.97PsF, 720x576/50i, 25PsF	Firm will submit OEM certificate.

S.N		Parameters/Specifications	Trial Directives
	1.10	**Lens Mount:** Fixed type	BOO will check practically.
	1.11	**Zoom Ratio : 25X**	BOO will check practically.
	1.12	**Iris :** Auto/manual switchable F1.6 to F11 and C(close)	BOO will check practically and firm will submit OEM certificate.
	1.13	**Audio Input :** XLR-type 3-pin (female) (x2), line/mic/mic +48 V selectable. LINE : +4, 0, -3dBu/10kΩ MIC : -80dBu to -30dBu /3kΩ (0 dBu=0.775 Vrms)	BOO will check physically and firm will submit OEM certificate.
	1.14	**Audio Output :** Integrated into Multi/Micro USB jack(x1)	BOO will check practically.
	1.15	**SDI Output:** BNC (x1), 3G/HD/SD selectable	BOO will check practically.
	1.16	**Timecode Input:** BNC (x1) (switchable to TC out) 0.5V-1.8Vp-p, 3.3kΩ	Firm will submit OEM certificate
	1.17	**Timecode Output:** BNC (x1) (switchable to TC in) 1.0Vp-p, 75Ω	Firm will submit OEM certificate.
	1.18	**USB:** USB device, Multi/Micro USB jack (x1) Host: USB 3.0/2.0 type A(x1), USB 2.0 type A(x1)	BOO will check practically.
	1.19	**Headphone Output:** Stereo mini jack (x1) -16dBu 16Ω	Board will check practically and firm will submit OEM certificate
	1.20	**Speaker Output :** Monaural Output: 500mW	BOO will check practically and firm will submit OEM certificate.

S.N		Parameters/Specifications	Trial Directives
	1.21	**DC Input:** DC jack	BOO will check practically.
	1.22	**Remote:** Stereo mini-minijack (2.5 mm)	
	1.23	**HDMI Output :** HDMI connector (Type A)	
	1.24	**Wired LAN:** RJ-45 (x1), 1000BASE-T, 100BASE-T, 10BASE-T	
	1.25	**Viewfinder:** 1.0 cm (0.39 type) Approx. 2.36M dots	BOO will check the size physically and firm will submit OEM certificate for dots.
	1.26	**LCD:** 8.8cm (3.5 type) Approx. 1.56M dots	
	1.27	**Supported Format** IEEE 802.11 a/b/g/n/ac **Frequency Band** 2.4 GHz bandwidth5.2/5.3/5.6 GHz bandwidth **Security** WEP/WPA-PSK/WPA2-PSK **NFC** NFC Forum Type 3 Tag compliant	BOO will check practically and firm will submit OEM certificate.
2.		**VISION MIXER** 12 HD/SD-SDI inputs, 8 HD/SD-SDI outputs and 1 HDMI output come as standard. Mixed HD/SD input supporting the standard configuration. The 9 outputs can all be freely assigned with frame synchronizers that enable this achieves a fully mixed SD / HD environment with the switcher alone. Mixers must come as standard with 2 keyers, 2 DSKs and 4 powerful 2.5D DVE engines.	BOO will check physically

S.N		Parameters/Specifications	Trial Directives
	2.1	**VIDEO FORMATS:** 1080/59.94L, 1080/50, 1080/29.97P, 1080/25P, 1080/24P, 1080/23.98p, 1080/24PsF,1080/23.98PsF,1080/25PsF,1080/29.97PsF,720/59.94p,720/50p,1080/59.94p and 1080/50p level A 525/60(NTSC), 625/50(PAL)	BOO will check practically and firm will submit OEM
	2.2	**VIDEO INPUTS WITH PROCESSING AMPLIFIER:** HD/SDI: 1.5 Gbps or SD-SDI: 270 Mbps, 750, BNC x12 (FSs on 8inputs, resize engine on 4 inputs).	BOO will check physically firm will submit OEM certificate.
	2.3	**NUMBER OF VIDEO INPUTS:** HD HDI-1.5 Gbps, Or SD SDI 270 Mbps X 12 (Auto Select)	BOO will check practically and firm will submit OEM certificate.
	2.4	**NUMBER OF VIDEO OUTPUTS** HD/SDI: 1.5 Gbps or SD-SDI: 270 Mbps, 75 Ω. BNC x 8, HDMI 1	
	2.5	**EFFECT:** wipe:100 patterns, border and softness/2.50 dve:56 patterns or more dve wipes	BOO will check physically firm will submit OEM certificate.
	2.6	**MICRO FUNCTION:** 30 commands (Upto 230 series of operation can be registered for command)	
	2.7	**STILL/CLIP STORE:** 2 Channels (with backup feature), each store can hold upto 227 frames of HD video	BOO will check practically and firm will submit OEM certificate.
	2.8	**KEYER/DSK:** 4 Channels (keyer X 2) + DSK x2) includes 2D DVE that can be freely assigned.	BOO will check practically.
	2.9	**MULTI VIEWER:** 2/4/5/7/9/10/11/14/15/16-Waysplit views with title, tally and audio level meter display and 1 frame delay for PGM Output.	

S.N		Parameters/Specifications	Trial Directives
	2.10	**GENLOCK INPUT:** BB:NTSC:0.429 Vp-p/PAL: 0.45 Vp-p OR TRI-LEVEL SYNC:0.6 Vp-P,75Ω, BNC x 1, loop through (To be terminated with 75Ω terminated if unused)	BOO will check practically and firm will submit OEM certificate
3.		**Tripod Dolly** Aluminium or carbon composite tripod system. The head with 100mm or more ball providing smooth pans and tilts. Built-in bubble for horizontal leg, 3-section legs, Double handle.	BOO will check physically.
	3.1	**Folded Height:** 910 mm or less	BOO will check practically and also firm submit OEM certificate.
	3.2	**Max Operating Height:** 1750 mm or more	
	3.3	**Min Height:** 570 mm or less	
	3.4	**Tilt Range:** -85°/+85° or more	
	3.5	**Pan Range:** 360°	
	3.6	**Ball Size:** 100 mm	
	3.7	**Pan Rod:** 2	
	3.8	**Load Capacity:** 8 kg or more	
	3.9	**Net Weight:** 8.5 kg or less	
	3.10	**DOLLY:** **Folded Length:**560 mm or less **Net Weight:** 5 kg or less **Load Capacity:** 50 kg or more	
4.		**Teleprompter System:** For use in Studio for live as well as recording production.	BOO will check physically.
	4.1	Support multiple languages	BOO will check practically.
	4.2	Dual monitor use	
	4.3	Mouse movement speed control	
	4.4	User control of scroll speed using the hand controller (optional)	
	4.5	Prompts in any window's compatible language	
	4.6	Import word file	

S.N		Parameters/Specifications	Trial Directives
5.		**Monitor Speakers**	
	5.1	2-way bass-reflex bi-amplified near field studio monitor with 5" or more cone woofer and 1" or more dome tweeter	BOO will check physically and firm will submit OEM certificate.
	5.2	Frequency response:- 54Hz - 30kHz	BOO will check practically and firm will submit OEM certificate.
	5.3	45W LF plus 25W HF bi-amp system for high-performance 70W power amplification	
	5.4	Room Control and high trim response controls	BOO will check practically.
	5.5	XLR and TRS phone jack inputs to accept balanced or unbalanced signals	BOO will check physically.
6.		**1 x 1 Panel LED Lights** LED 80W panel should have high output, bi-color temperature, long service life and controlled heat dissipation. Easy carrying and simple assembly, with a standalone cable dimmer to help easier dimming, suitable for lighting in video and outdoor image capture.	BOO will check practically.
	6.1	**Input Voltage (V):** 12-24V DC(Decoder) DC Adapter	BOO will check practically and firm will submit OEM certificate.
	6.2	**Total Power (W):** 80W	
	6.3	**LED:** DIP	BOO will check practically.
	6.4	**Power Factor(PF):** 100%(DC Decoder)	Firm will submit OEM certificate.
	6.5	**LED Lumen:** 7200LM or better	
	6.6	**Related Color Temperature :** (CCT) 5600K±355K	
	6.7	**LUX Define the Exact Range as:** 1800 LUX/2.5M	
	6.8	**Color Rendering Index:** (CRI) ≥95+	

S.N		Parameters/Specifications	Trial Directives
	6.9	**Average Beam Angle:** 45°	BOO will check practically and firm will submit OEM certificate.
	6.10	**Distribution of Light:** BI COLOR	Firm will submit OEM certificate.
	6.11	**DMX:** Optional	
	6.12	**Working Humidity:** 90%	
	6.13	**Storage Temperature:** 25°C	
	6.14	**Lifespan for LED Lighting Source:** 50,000 Hours	
	6.15	**C Clamp with Safety Chain:** Optional	
	6.16	**SIZE:** 14"X14"	BOO will check practically.
7.		**LED SPOT 100W** Continuous Light which gives studio lighting required to get the professional shots. Video requirement with 5600k one should be able to adjust the knob to change the angle of the light, either go spot or flood. Fixture in manual and pole operation.	BOO will check physically and also firm will submit OEM certificate.
	7.1	**Voltage:** AC100~240V , 50/60Hz	BOO will check practically and firm will submit OEM certificate.
	7.2	**Power:** 135W	
	7.3	**Light Source:** 100W LED	
	7.4	**Beam Angle:** 18-58°	
	7.5	**Control Mode:** DMX-512 ,Master/Slave	BOO will check practically.
	7.6	**Channel:** 1 channel	BOO will check practically.
	7.7	**Pan:** 540°/630° **Tilt:** 270°	BOO will check physically.
	7.8	**IP Rating:** IP20	Firm will submit OEM certificate.
	7.9	**Net Weight:** 5kg or less	BOO will check practically.

S.N	Parameters/Specifications		Trial Directives
8.	**Lapel Mic Wireless** Wireless lapel microphone that offers good sound quality, simple mounting and easy to use.		BOO will check physically and firm will submit OEM certificate.
	8.1	All-in-one wireless Lapel mic with high flexibility for broadcast quality sound	BOO will check practically.
	8.2	Excellent sound and construction quality	
	8.3	Easy to use and fast setup time	
	8.4	Powerful and reliable wireless transmission	
	8.5	Range: 100 meters / 330 feet or more	
	8.6	Operation time: 8 hours or more	
9.	**Handheld Mic Wireless** A broadcast quality sound solution, providing the highest flexibility for video sound and field recording applications. A robust wireless microphone system that offers excellent sound quality, simple mounting and easy to use. The easy wireless solution for moderators or reporters. The rugged microphone resistant to any bad weather or field condition, with receiver mountable to any camera.		BOO will check physically.
	9.1	Rugged all-in-one wireless system with high flexibility for broadcast quality sound	
	9.2	Excellent sound and construction quality	
	9.3	Easy to use and fast setup time	
	9.4	Powerful and reliable wireless transmission	
	9.5	Range:100 meters / 330 feet or more	
	9.6	Operation time: 8 hours or more	
10.	**Earset:** A connector cable, swivel joint and earpiece kit, with a coiled earpiece cable for use with telex assistive listening and IFB products.		BOO will check practically

S.N		Parameters/Specifications	Trial Directives
11.		**Intercom System** Rack-mountable minimum 8 user wired intercom system with 4 belt packs & 4 headsets. (Quantity as per user requirement)	
	11.1	Industry standard 19" 1U rack design, for easy integration.	
	11.2	Supports 8-way intercom	
	11.3	Additional external earphone and microphone interface.	BOO will check practically.
	11.4	Bi-color tally light indicator.	
	11.5	Selectable channel talk, broadcast to all or mute.	
	11.6	Half-Duplex design for eliminate the environmental noise.	
	11.7	Enables communication between the camera crew.	
	11.8	Communication distance up to 200 meters	
	11.9	Supplied complete with Gooseneck Microphone and Light	
12		**Audio Mixer**	
	12.1	16-Channel Mixing Console	BOO will check practically.
	12.2	10 Mic / 16 Line inputs (8 mono + 4 stereo)	
	12.3	Group buses + 1 Stereo bus	BOO will check physically.
	12.4	AUX (incl. FX)	
	12.5	"D-PRE" mic preamps with an inverted Darlington circuit	
	12.6	1-Knob compressor	BOO will check practically.
	12.7	High-grade effects: SPX with 24 programs	BOO will check physically.
	12.8	24-bit/192kHz , 2 in/2 out USB Audio functions	BOO will check physically and firm will submit OEM certificate.

S.N		Parameters/Specifications	Trial Directives
	12.9	Includes Cubase Al DAW software download version	BOO will check physically.
	12.10	PAD switch on mono inputs	
	12.11	+48V phantom power	BOO will check practically.
	12.12	XLR balanced outputs	
	12.13	Internal universal power supply for world-wide use	BOO will check physically.
	12.14	Rack Mount Kit Included	BOO will check practically.
	12.15	Metal chassis	
13.		**Phone in Unit**	
	13.1	Separate send level and receive level meters for each hybrid.	BOO will check practically.
	13.2	Place caller on-hold via front panel button.	
	13.3	Auto-Answer with selectable ring count.	
	13.4	Wide-range AGC and Dynamic EQ by Omnia, with adjustable gain settings.	
	13.5	Adjustable caller override to improve performance and allows to individualize the degree to which the announcer ducks the caller audio.	
	13.6	Digital Dynamic EQ and adjustable smart leveler to keep audio spectrally consistent from call to call.	
	13.7	EQ High and EQ Low display meters for each hybrid.	
	13.8	Audio Interfaces- Analog	
	13.9	Ringing and On-Air status for each hybrid.	
	13.10	Input Range : Selectable between MIC and LINE levels	
	13.11	Input Level : Adjustable from -10 to +4 dBu (nominal)	BOO will check practically and firm will submit OEM certificate.

S.N		Parameters/Specifications	Trial Directives
	13.12	Impedance : Bridging, > 50K Ohms	BOO will check physically and firm will submit OEM certificate.
	13.13	Analog Clip Point : +21 dBu	Firm will submit OEM certificate.
	13.14	Analog-to-Digital Converter Resolution : 20 bits	
	13.15	Analog Outputs Connector : XLR Male, Pin 3 High	BOO will check practically.
	13.16	Output Level : Nominal at +4 dBu	Firm will submit OEM certificate.
	13.17	Impedance :<50 ohms	
	13.18	Digital-to-Analog Converter Resolution : 24 bits	
	13.19	Headroom Before Clipping : 20 dB headroom from 4dBU nominal levels	
	13.20	Frequency Response : 200 to 3400 Hz, +/- 1 dB	
	13.21	THD+N/Input :< 0.5% THD+N using 1 KHz sinewave	
	13.22	Signal to Noise :>90 dB	
	13.23	General purpose Input/output : Single 9 pin D-Sub connector with 2 status outputs (Ringing and ON-AIR) and 2 control inputs (ON and OFF) per hybrid	BOO will check practically.
	13.24	Trans-hybrid Loss :> 55 dB	Firm will submit OEM certificate.
14.		**Video In/ Video Out Card-** Digital cinema capture card with full frame DCI 4K input and output via 12G-SDI. Dual link multi rate 12G-SDI connections that work with SD, HD and Ultra HD even in Ultra HD 60p, as well as full frame DCI 4K at 4096 x 2160 resolution up to 25p. To capture 10-bit YUV or full color bandwidth 12-bit RGB. Includes AES/EBU audio, up, down and cross conversion, plus built in 3D stereoscopic output at full bandwidth 4:4:4:4 RGB.	BOO will check practically and firm will submit OEM certificate.

S.N		Parameters/Specifications	Trial Directives
	14.1	**SDI Video Inputs :** 2 x 12Gb/s SD/HD 2K/4K. Supports single/dual link 4:2:2/4:4:4. 2D/3D switchable.	BOO will check physically.
	14.2	**SDI Video Outputs:** 2 x 12Gb/s SD/HD//2K/4K. Supports single/dual link 4:2:2/4:4:4. 2D/3D switchable.	
	14.3	**Analog Video Inputs:** 1 x Component YUV on 3 BNCs switchable to S-Video or Composite. Component supports HD and SD.	BOO will check practically.
	14.4	**Analog Video Outputs:** 1 x Component YUV on 3 BNCs switchable to S-Video and Composite. Component supports HD and SD.	
	14.5	**Analog Audio Inputs:** 2 Channels of balanced analog audio via XLR connectors.	
	14.6	**Analog Audio Outputs:** 2 Channels of balanced analog audio via XLR connectors.	
	14.7	**AES/EBU Audio Inputs:** 2 Channels unbalanced with sample rate converter.	
	14.8	**AES/EBU Audio Outputs:** 2 Channels unbalanced.	
	14.9	**SDI Audio Inputs:** 16 Channels embedded in SD/HD/2K/4K.	
	14.10	**SDI Audio Outputs:** 16 Channels embedded in SD/HD/2K/4K.	
	14.11	**HDMI Video Inputs:** HDMI type A connector with support for 2160p60.	

S.N		Parameters/Specifications	Trial Directives
	14.12	**HDMI Video Outputs:** HDMI type A connector with support for 2160p60.	BOO will check practically.
	14.13	**Sync Input:** Tri-Sync or Black Burst.	
15.		**Ingest / Playout Server for 2 SD/HD Ports** Playout solution should provide stability and usability advantages. It should allow for optimum CPU balancing using multi-core systems; the server to control the video output while the client manages the playlist. The media files are to be verified by the client application before being accepted for playout.	BOO will check practically and firm will submit OEM certificate.
	15.1	System should have intuitive user interface for easy ingest and play operation with easy controls.	BOO will check practically.
	15.2	Operator to define source and destination for ingest.	
	15.3	Operator also preview & browse the content without disrupting the recording process.	BOO will check practically and firm will submit OEM certificate.
	15.4	Automated Play-out system with manual rider	
	15.5	The system to support scaling for up to 6 HD ports in future	
	15.6	The playback of scheduled clips from the play list without any delay	
	15.7	Supported HD/SD	
	15.8	Supported types of video files	BOO will check physically.
	15.9	DV in .avi container (four CCd vsd and dsvd	
	15.10	LXF, MP4/MOV, MXF, ASF/WMV, MPEG-TS,	
	15.11	Mpeg2, Mpeg4	
	15.12	GXF, FLV, AVI, DV, MPEG-PS, MKV, WebM,	
	15.13	DVCPRO, M-JPEG, MPEG-1, MPEG-2, VC-1	
	15.14	Windows Media Video with extension .wmv	BOO will check practically and firm will submit OEM certificate.

S.N		Parameters/Specifications	Trial Directives
	15.15	Two simultaneous ingests	BOO will check practically and firm will submit OEM certificate.
16.		**CG (Character Generator) System** A broadcast graphics playout. Powerful, multilayer, reliable and easy to use. Live titling. Instant operation.	
	16.1	**Full NDI implementation in/out** Broadcast Applications for both input and output support and Tricaster's macro automation. NDI sources that can be wrapped to 3D objects, moved and squeezed in real-time with the power of CG template editors.	
	16.2	**Media Render implementation** Re-designed and optimized Media Handling layer for simple improved features, backwards compatibility, increased support for media formats and capture devices	BOO will check practically and firm will submit OEM certificate.
	16.3	**Text handing improvements** Vector and bitmap text with additional flexibility to support floating point kerning and spacing.	
	16.4	**Docking extended to all main apps** Docking of all Template Editors with comfortable interface	
	16.5	**Group highlights and Drag & Drop on LB** Groups of contents to be created/assigned by Drag & Drop. Group IDs also to be unlimited and to be assigned automatically. Users should be able to visualize the contents inside a group.	

S.N		Parameters/Specifications	Trial Directives
	16.6	**GUI** The Template Preview player, to the Frame Markers editor, to the Media player and NDI previewer, cursor shape change on Drag & Drop, multi-screen user interface consistent GUI across applications	BOO will check practically and firm will submit OEM certificate.
	16.7	**Clip Player** Software capable to play any media file (including MXF, MOV, MP4) to a vast number of supported video devices. Easy to operate. HQ crop/scale, field-polarity-aware with support for mark-in/out, frame resynch, on-air scrub and more.	
	16.8	**GPIO interface** GPIO feature which goes down to the hardware and gives control to the single bits of serial ports.	
	16.9	**Scripting engine**	
	16.10	**Social Server:** To support Facebook, Twitter, Instagram and others API.	
	16.11	**Page Recall**	
17.		**Sync Generator:** Stabilized video reference outputs for referencing all the video equipment in studio in either high definition Tri-Sync or standard definition Black burst television standards.	BOO will check practically and firm will submit OEM certificate.
	17.1	**Analog Video Outputs:** 6 x common Black burst or Tri Level reference outputs. **SDI Rates:** 270Mb, 1.5G. **Multi Rate Support:** Via mini switches **Updates and Configuration:** Via USB	

S.N		Parameters/Specifications	Trial Directives
	17.2	**Analog Format Support:** 525i29.97 NTSC, 625i25 PAL, 720p50, 720p59.94, 720p60, 1080p23.98, 1080p24, 1080p25, 1080p29.97, 1080p30, 1080PsF23.98, 1080PsF24, 1080i50, 1080i59.94, 1080i60	BOO will check physically.
18.		**Embedder** Embed audio into any SDI source in SD and HD formats up to 1080p60. Audio input to be balanced analog or AES/EBU using ¼ inch connectors from equipment such as mixers and analog decks.	
	18.1	**SDI Video Inputs:** 1 x SD HD or 3G-SDI. 1 x ALT SDI Input for automatic switch over if main input fails. **SDI Video Outputs:** 1 x Embedded SDI Output. **Analog Audio Inputs:** 4 channels of balanced analog audio. **Digital Audio Inputs:** 8 channels of balanced AES/EBU audio. **SDI Redundant Input:** Automatically switches over if main SDI input is lost. **Multi Rate Support:** Auto detection of SD, HD or 3G-SDI. **Updates and Configuration:** Via USB 2.0 high speed. (480 Mb/s) **Re clocking:** Yes	BOO will check practically and firm will submit OEM certificate.
	18.2	**SD Video Standards:** 525i59.94 NTSC, 625i50 PAL **HD Video Standards:** 720p50, 720p59.94, 720p60, 1080p23.98, 1080p24, 1080p25, 1080p29.97, 1080p30, 1080p50, 1080p59.94, 1080p60 1080PsF23.98, 1080PsF24, 1080PsF25, 1080PsF29.97, 1080PsF30, 1080i50,	

S.N	Parameters/Specifications	Trial Directives
	1080i59.94, 1080i60 **2K Video Standards:** 2K DCI 23.98p, 2K DCI 24p, 2K DCI 25p, 2K DCI 23.98PsF, 2K DCI 24PsF, 2K DCI 25PsF **SDI Compliance:** SMPTE 259M, SMPTE 292M, SMPTE 296M, SMPTE 372M, SMPTE 424M-B, SMPTE 425M, ITU-R BT.656, ITU-R BT.601, SMPTE ST-2036 **SDI Video Rates :** SDI video connections switchable between standard definition and high definition. **SDI Video Sampling:** 4:2:2, 4:4:4 **SDI Audio Sampling :** Television standard sample rate of 48 kHz and 24 bit. **SDI Color Precision :** 4:2:2, 4:4:4 Complied **SDI Color Space:** YUV, RGB **SDI Auto Switching:** To automatically selects between SD, HD, and 3G-SDI.	BOO will check practically and firm will submit OEM certificate.
19.	**SDI to HDMI 6G** Mini Converter SDI to HDMI 6G which allows to convert from SDI to HDMI in SD, HD, and Ultra HD formats while de-embedding audio to HDMI, AES/EBU or balanced analog audio. Features such as down conversion for monitoring Ultra HD on HD HDMI monitors as well as built in 3D LUTs plus HDMI instant lock for instant video display when an SDI input is connected.	BOO will check practically.
	19.1 **SDI Video Inputs;** 1 x SD, HD or 6G-SDI. 1 x ALT SDI Input for automatic switch over if main input fails. **SDI Video Outputs:** 1 x SDI Video Loop Output. **HDMI Video Outputs:** HDMI type A out.	BOO will check practically.

S.N		Parameters/Specifications	Trial Directives
		Analog Audio Outputs: 2 channels of balanced analog audio. **Digital Audio Outputs:** 4 channels of AES/EBU digital audio **SDI Redundant Input:** Automatically switches over if main SDI input is lost. **Multi Rate Support:** Auto detection of SD, HD or 6G-SDI. **Updates and Configuration :** USB **Re clocking:** Yes	BOO will check practically.
	19.2	**SD Video Standards :** 625i50 PAL, 525i59.94 NTSC **HD Video Standards:** 720p50, 720p59.94, 720p60, 1080p23.98, 1080p24, 1080p25, 1080p29.97, 1080p30, 1080p50, 1080p59.94, 1080p60 1080PsF23.98, 1080PsF24, 1080PsF25, 1080PsF29.97, 1080PsF30 1080i50, 1080i59.94, 1080i60 **2K Video Standards:** 2K DCI 23.98p, 2K DCI 24p, 2K DCI 25p, 2K DCI 23.98PsF, 2K DCI 24PsF, 2K DCI 25PsF **Ultra HD Video Standards:** 2160p23.98, 2160p24, 2160p25, 2160p29.97, 2160p30 **4K Video Standards:** 4K DCI 23.98p, 4K DCI 24p, 4K DCI 25p **SDI Compliance:** SMPTE 259M, SMPTE 292M, SMPTE 296M, SMPTE 372M, SMPTE424M, SMPTE 425M, SMPTE ST-2081 **SDI Video Rates:** SDI video connections to be switchable between standard definition, high definition, Level A or Level B 3G-SDI and 6G-SDI. **SDI Video Sampling:** 4:2:2 and 4:4:4	BOO will check practically and firm will submit OEM Certificate.

S.N	Parameters/Specifications		Trial Directives
		SDI Audio Sampling: Television standard sample rate of 48 kHz and 24 bit. **SDI Color Precision:** 4:2:2 and 4:4:4 **SDI Color Space:** YUV and RGB **SDI Auto Switching:** To automatically detects SD, HD or 6G-SDI. **HDMI Video Standards:** 625i50 PAL, 525i59.94 NTSC,720p50, 720p59.94, 720p60,1080p23.98, 1080p24, 1080p25, 1080p29.97, 1080p30, 1080p50,1080p59.94, 1080p60, 1080i50, 1080i59.94, 1080i60, 2160p23.98, 2160p24, 2160p25, 2160p29.97, 2160p30 **HDMI Color Space:** YUV and RGB **HDMI Color Precision:** 4:2:2 and 4:4:4	BOO will check practically and firm will submit OEM Certificate.
20	**SDI Distribution**	A single SD or HD-SDI connection to up to 8 different SDI outputs at the same time. It should have 3G-SDI design with fully re-clocked outputs and automatic switching between all SD and HD formats up to 1080p60. Should support for all ASI, ancillary and embedded audio formats.	BOO will check practically and firm will submit OEM Certificate.
	20.1	**SDI Video Inputs:** 1 x SDI Video Input. Switchable between SD, HD and 3G- SDI. **SDI Video Outputs:** 8 x outputs to automatically match the SDI video input. Multi Rate Support, Auto detection of SD, HD or 3G-SDI. **Re clocking :** Yes	BOO will check practically and firm will submit OEM Certificate.
	20.2	**SD Video Standards:**525i59.94 NTSC, 625i50 PAL **HD Video Standards:** 720p50, 720p59.94, 720p60, 1080i50, 1080i59.94,1080i60, 80p23.98,	

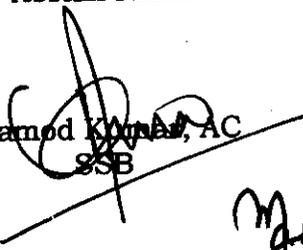| S.N		Parameters/Specifications	Trial Directives
		1080PsF23.98, 1080p24, 1080PsF24, 1080p25, 1080PsF25, 1080p29.97, 1080PsF29.97, 1080p30, 1080PsF30, 1080p50, 1080p59.94, 1080p60. **2K Video Standards:** 2K DCI 23.98p, 2K DCI 24p, 2K DCI 25p 2K DCI 23.98PsF, 2K DCI 24PsF, 2K DCI 25PsF **SDI Compliance:** SMPTE 259M, SMPTE 292M, SMPTE 296M, SMPTE 372M, SMPTE 424M-B and SMPTE 425M **SDI Video Rates:** SDI video connections are switchable between SD, HD, and DCI 2K. **SDI Video Sampling:** 4:2:2 and 4:4:4 **SDI Audio Sampling:** Television standard sample rate of 48 Hz and 24 bit. **SDI Color Precision:** 4:2:2 and 4:4:4 **SDI Color Space:** YUV and RGB **SDI Auto Switching:** Automatically detects SD, HD or 3G-SDI.	BOO will check practically and firm will submit OEM Certificate.
21	**IT Workstations**		
	21.1	**Playout & Ingest Workstation** Latest Processor 1 X 1TB or more HDD for OS 2 X 4TB or more HDD 32GB or more RAM 1 X 4GB or more GFX CARD WIN 10 PRO or latest version	BOO will check practically.

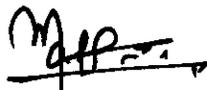| S.N	Parameters/Specifications	Trial Directives
21.2	**CG Workstation** Latest Processor 1 X 1TB or more HDD for OS 1 X 1TB or more HDD 16GB or more RAM 1 X 4GB or more GFX CARD 17' or larger Monitor, keyboard, mouse WIN 10 PRO or latest version	BOO will check practically.

WO/Copt. A.K. Guleria
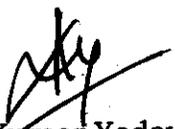Assam Rifles

ASI/RM V.K.Yadav
BSF

AC-I A.K. Panday
NSG

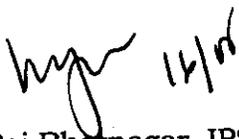Pramod Kumar, AC
SSB

Pardeep Kumar, DC
ITBP

R.K. Meel,DC
CISF

P.R.Jha, DC(Comn)
CRPF

Harjinder Singh, DIG(Eqpt)
CRPF

Ajay Kumar Yadav. IPS,
IGP(Comn &IT),CRPF

Md. Javed Akhtar, IPS,
ADG (Work & Comn),CRPF

Approved/~~Not Approved~~

Rajeev Rai Bhatnagar, IPS

DG, CRPF