### **GOVERNMENT OF INDIA** (Ministry of Home Affairs) **DIRECTORATE GENERAL**

#### CENTRAL RESERVE POLICE FORCE

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No. B.V-7/2019-20-C (STO)

Dated, the 19 July'2019

То

- 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**

1		QRS Of Studio
.N		Parameters/Specifications
•	Broad	cast Studio Camera
•	4K 3-CMOS 1/3" Sensor Broadcast Camera, captures 4K at up to 60p,	
		g on three 1/3" Exmor R sensors that provide improved low-light capability
	relyina	compared to standard sensors. The camera integrating a 25x optical zoom
	when	compared to standard sellsors. The camera should supports a variety of
	lens a	nd an electronic variable ND filter. The camera should supports a variety of
	codec	S. P2CMOS sensor
	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>
		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
	İ	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>
		DVCAM mode:CBR, 25Mbps, DVCAM
_		DVCAM mode.CBR, 20Mopo, 2 · Only C

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.N		Parameters/Specifications
	1.8	Recording Format (Audio)
		<xavc long=""></xavc>
		XAVC-L mode: LPCM 24-bit, 48kHz, 4 channels
		<dvcam></dvcam>
	!	DVCAM mode: LPCM 16-bit, 48kHz, 4 channels
	1.9	Recording Frame Rate
		<xavc long=""></xavc>
		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>
		DVCAM mode:
		720x480/59.94i, 29.97PsF, 720x576/50i, 25PsF
	1.1	0 Lens Mount: Fixed type
	1.1	
	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/ $10k\Omega$
	•	MIC: $-80$ dBu to $-30$ dBu $/3$ k $\Omega$
		(0. dBu=0.775 Vrms)
	\	.14 Audio Output: Integrated into Multi/Micro USB jack(x1)
-		15 SDI Output: BNC (x1), 3G/HD/SD selectable
-		.16 Timecode Input: BNC (x1) (switchable to TC out) 0.5V-1.8Vp-p,
		0.01-0
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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				
	<u> </u>	NFC NFC Forum Type 3 Tag compliant				
2.		N 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					
	syncl	synchronizers that enable This achieves a fully mixed SD / HD environment				
	with	the switcher alone. Mixers must come as standard with 2 keyers, 2				
	DSK	s 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,				
	ļ	1080/23.98PsF,1080/25PsF,1080/29.97PsF,720/59.94p,720/50p,1				
		080/59.94p and 1080/50p level A 525/60(NTSC), 625/50(PAL)				

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[		Parameters/Specifications
+2	2.2	VIDEO INPUTS WITH PROCESSING AMPLIFIER:
		HD/SDI: 1.5 Gbps or SD-SDI: 270 Mbps, 750, BNC x12 (FSs on
	1	8inputs, resize engine on 4 inputs.)
\ri	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
$\mid$	2.5	<b>EFFECT:</b> 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)
ŀ	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 PGI
		Output
	2.10	GENLOCK INPUT: BB:NTSC:0.429 Vp-p/PAL: 0.45 Vp-p OR TR
		LEVEL SYNC:0.6 Vp-P,75 $\Omega$ , BNC x 1, loop through (To be terminate
	i	with $75\Omega$ terminated if unused)
3.	Tri	pod Dolly
	Aluminium or carbon composite tripod system. The head with 100	
	or	more ball providing smooth pans and tilts. Built-in bubble for horizont
		3-section legs, Double handle.
	3.1	
	3.2	Max Operating Height: 1750 mm or more
	3.3	Min Height: 570 mm or less
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S.N		Parameters/Specifications
	3.4	Tilt Range: -85°/+85° or more
	3.5	Pan Range: 360°
	3.6	Ball Size: 100 mm
3	3.7	Pan Rod: 2
3	3.8	Load Capacity: 8 kg or more
3	3.9	Net Weight: 8.5k g or less
[3	3.10	DOLLY:
		Folded Length: 560 mm or less
		Net Weight: 5 kg or less
		Load Capacity: 50 kg or more
4.	Tele	prompter System: For use in Studio for live as well as recording
		action.
	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.	Mor	itor 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 unbalance
		signals
6.	1 2	1 Panel LED Lights
	Set	LED 80W panel should have high output, bi-color temperature, lor vice life and controlled heat dissipation. Easy carrying and simple to help easier dimming, suitable

assembly, with a standalone cable dimmer to help easier dimming, suitable for lighting in video and outdoor image capture.

.N		Parameters/Specifications			
<del></del>	6.1	Input Voltage (V): 12-24V DC(Decoder) DC Adapter			
!	6.2	Total Power (W): 80W			
!	6.3	LED: DIP			
1	6.4	Power Factor(PF): 100%(DC Decoder)			
!	6.5	LED Lumen: 7200 LM or better			
1	6.6	Related Color Temperature: (CCT) 5600K±355K			
1	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°			
		Distribution of Light: BI COLOR			
	1	DMX: Optional			
	1 1	Working Humidity: 90%			
		Storage Temperature: 25°C			
	1 1	Lifespan for LED Lighting Source: 50,000 Hours			
		C Clamp with Safety Chain: Optional			
		SIZE: 14"X14"			
•	LED SPOT 100W				
		Continuous Light which gives studio lighting required to get the			
	1 -	ressional shots. Video requirement with 5600k one should be able to			
		ist the knob to change the angle of the light, either go spot or flood.			
	1	ure in manual and pole operation.  Voltage: AC100~240V, 50/60Hz			
		Voltage: AC100~240V, 50/00H2  Power: 135W			
	7.2				
	7.3				
	1	/01			
	7.5				
	7.7				
	'.'	Tilt: 270°			
	<u> </u>	IP Rating: IP20			
	170	1			
		Net Weight: 5kg or less			

S.N	Parameters/Specifications			
8.	Lapel Mic Wireless			
	Wire	Wireless lapel microphone that offers good sound quality, simple mounting		
,	and	and easy to use.		
8.1 All-in-one wireless Lapel mic with high flexibility f		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.	Han	dheld Mic Wireless		
		A broadcast quality sound solution, providing the highest flexibility for		
1	1	o sound and field recording applications. A robust wireless microphone		
	syst	em 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 con		rophone resistant to any bad weather or field condition, with receiver		
	mou	intable 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		
ŧ	9.5	Range:100 meters / 330 feet or more		
	9.6	Operation time: 8 hours or more		
10.				
		connector cable, swivel joint and earpiece kit, with a coiled earpiece cable		
	for use with telex assistive listening and IFB products.			
11.	•			
	1	k-mountable minimum 8 user wired intercom system with 4 belt packs		
	& 4	headsets. (Quantity as per user requirement)		
	11.1			
	11.2			
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S.N	<u> </u>	Parameters/Specifications		
_	11.3	Additional external earphone and microphone interface.		
	11.4 I	Bi-color tally light indicator.		
	11.5	Selectable channel talk, broadcast to all or mute.		
	11.6 I	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 Al 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		
	Phor	ne in Unit		
	13.1	Separate send level and receive level meters for each hybrid.		
İ	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			
		individualize the degree to which the announcer ducks the caller audio.		
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B.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		
	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	
<b>.</b>		o In/ Video Out Card-	
Digita		al 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	a HD even in Ultra HD 60p, as well as full frame DCI 4K at 4096 x 2160	
	reso	lution up to 25p. To capture 10-bit YUV or full color bandwidth 12-bit	
		. Includes AES/EBU audio, up, down and cross conversion, plus built in	
	3D stereoscopic output at full bandwidth 4:4:4:4 RGB.		

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link 4:2:2/4:4:4. 2D/3D switchable.

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SDI Video Inputs: 2 x 12Gb/s SD/HD 2K/4K. Supports single/dual

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S.N	·	Parameters/Specifications				
<del>- · · · · · · · ·</del>	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				
	3	2160p60.				
	1	Sync Input: Tri-Sync or Black Burst.				
15.	Inges	t / Playout Server for 2 SD/HD Ports				
		Playout solution should provide stability and usability advantages. It				
	shoul	d allow for optimum CPU balancing using multi-core systems; the				
:	serve	server to control the video output while the client manages the playlist. The				
	media	media files are to be verified by the client application before being accepted				
	for pla	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.				

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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		

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S.N	N Parameters/Specifications		
,	16.5	Group highlights and Drag & Drop on LB	
į		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	
	definit	ion Black burst television standards.	
	17.1	Analog Video Outputs: 6 x common Black burst or Tri Level	
		reference outputs.	
	:	<b>SDI Rates:</b> 270Mb, 1.5G.	
		Multi Rate Support: Via mini switches	
		Updates and Configuration: Via USB	

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&.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.	Embed	der				
	E	Embed audio into any SDI source in SD and HD formats up to 1080p60.				
	Audio i	nput to be balanced analog or AES/EBU using ¼ inch connectors from				
	equipm	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				
		<b>HD Video Standards:</b> 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				
		<b>2K Video Standards:</b> 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.				
		<b>SDI Video Sampling:</b> 4:2:2, 4:4:4				
		SDI Audio Sampling: Television standard sample rate of 48				
		kHz and 24 bit.				
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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	IDMI in SD, HD, and Ultra HD formats while de-embedding audio to HDMI,				
	AES/E	ES/EBU or balanced analog audio. Features such as down conversion for				
	monito	nonitoring 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				
į		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				

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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 D	SDI Distribution				
		A single SD or HD-SDI connection to up to 8 different SDI outputs at				
	the sa	he same time. It should have 3G-SDI design with fully re-clocked outputs				
	and a	utomatic switching between all SD and HD formats up to 1080p60.				
	Should	d 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.				
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S.N	Parameters/Specifications				
		<b>2K Video Standards:</b> 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 Wo	rkstations			
	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			
	Lough	le de A you the Kang Grad			

S.N	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

R.K. Meel, DC

CISF

Pramod Kumar, AC

Pardeep Kumar, DC ITBP

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.	Broad	icast Studio Camera	Firm will submit
		4K 3-CMOS 1/3" Sensor Broadcast Camera,	OEM certificate.
	captu	res 4K at up to 60p, relying on three 1/3" Exmor R	
į	senso	ors that provide improved low-light capability when	
	comp	ared to standard sensors. The camera integrating a	
	25x c	ptical zoom lens and an electronic variable ND filter.	
	The c	amera should supports a variety of codecs.	
	1.1	Image Sensor: 1/3 type back-illuminated Exmor	Firm will submit
		R3CMOS sensor	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	BOO will check
		2: 1/16ND	physically.
		3: 1/64ND	
		Linear variable ND (Approx. 1/4ND to	
		1/128ND)	
	1.5	Shutter Speed: 1/24 sec to 1/8,000 sec	Firm will submit
			OEM certificate.
	1.6	White Balance:	
		Preset (3200K),	Firm will submit
		Memory A,	OEM certificate.
		Memory B/ATW	
			^

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S.N		Parameters/Specifications	Trial Directives
	1.7	Recording Format (Video)	Firm will submit
		<xavc long=""></xavc>	OEM certificate.
Ì		XAVC-L QFHD mode: VBR, maximum bit rate	į
		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	
	ļ	XAVC-L HD 25 mode: VBR, maximum bit rate	
		25Mbps, MPEG-4 H.264/AVC	
		<dvcam></dvcam>	
		DVCAM mode:CBR, 25Mbps, DVCAM	
	1.8	Recording Format (Audio)	BOO will check
	 	<xavc long=""></xavc>	physically and
		XAVC-L mode: LPCM 24-bit, 48kHz, 4 channels	firm will submi
		<dvcam></dvcam>	OEM certificate.
		DVCAM mode: LPCM 16-bit, 48kHz, 4 channels	0.23.7 00. 0
	1.9	Recording Frame Rate	
		<xavc long=""></xavc>	
		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	Firm will subm
		XAVC-L HD 35 mode:	OEM certificate.
		1920x1080/59.94P, 50P, 59.94i, 50i, 29.97P,	
		23.98P, 25P	
		XAVC-L HD 25 mode:	
		1920x1080/59.94i, 50i	
		<dvcam></dvcam>	·
		DVCAM mode:	
		720x480/59.94i, 29.97PsF, 720x576/50i, 25PsF	

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	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	BOO will check
	F1.6 to F11 and C(close)	practically and
		firm will submit
		OEM certificate.
1.13	Audio Input: XLR-type 3-pin (female) (x2),	BOO will check
	line/mic/mic +48 V selectable.	physically and
	LINE: +4, 0, -3dBu/10k $\Omega$	firm will submit
	MIC: $-80$ dBu to $-30$ dBu $/3$ k $\Omega$	OEM certificate.
	(0 dBu=0.775 Vrms)	02
1.14	Audio Output: Integrated into Multi/Micro USB	BOO will check
	jack(x1)	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)	Firm will submit
	$0.5V-1.8Vp-p$ , $3.3k\Omega$	OEM certificate
1.17	Timecode Output: BNC (x1) (switchable to TC in)	Firm will submi
	1.0Vp-p, 75Ω	OEM certificate.
1.18	USB: USB device, Multi/Micro USB jack (x1)	BOO will chec
	Host: USB 3.0/2.0 type A(x1), USB 2.0 type A(x1)	practically.
1.19	Headphone Output: Stereo mini jack (x1) -16dBu	Board will chec
	16Ω	practically and
		firm will subm
		OEM certificate
1.20	Speaker Output: Monaural Output: 500mW	BOO will chec
		practically an
		firm will submi
		OEM certificate.
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1.22 I 1.23 I 1.24 I 1.25 I	Remote: Stereo mini-minijack (2.5 mm)  HDMI Output: HDMI connector (Type A)  Wired LAN: RJ-45 (x1), 1000BASE-T, 100BASE-T, 10BASE-T  Viewfinder: 1.0 cm (0.39 type)  Approx. 2.36M dots  LCD: 8.8cm  (3.5 type) Approx. 1.56M dots  Supported Format  IEEE 802.11 a/b/g/n/ac	BOO will check the size physically and firm will submit OEM certificate for dots.  BOO will check
1.23 1 1.24 1 1.25 1 1.26 1	Stereo mini-minijack (2.5 mm)  HDMI Output: HDMI connector (Type A)  Wired LAN: RJ-45 (x1), 1000BASE-T,  100BASE-T, 10BASE-T  Viewfinder: 1.0 cm (0.39 type)  Approx. 2.36M dots  LCD: 8.8cm  (3.5 type) Approx. 1.56M dots  Supported Format	BOO will check the size physically and firm will submit OEM certificate for dots.  BOO will check
1.23 I 1.24 I 1.25 I	HDMI Output: HDMI connector (Type A)  Wired LAN: RJ-45 (x1), 1000BASE-T, 100BASE-T, 10BASE-T  Viewfinder: 1.0 cm (0.39 type)  Approx. 2.36M dots  LCD: 8.8cm  (3.5 type) Approx. 1.56M dots  Supported Format	physically and firm will submit OEM certificate for dots.  BOO will check
1.24 \\ 1.25 \\ 1.26 \]	Wired LAN: RJ-45 (x1), 1000BASE-T, 100BASE-T, 10BASE-T Viewfinder: 1.0 cm (0.39 type) Approx. 2.36M dots LCD: 8.8cm (3.5 type) Approx. 1.56M dots Supported Format	physically and firm will submit OEM certificate for dots.  BOO will check
1.25	Viewfinder: 1.0 cm (0.39 type) Approx. 2.36M dots LCD: 8.8cm (3.5 type) Approx. 1.56M dots Supported Format	physically and firm will submit OEM certificate for dots.  BOO will check
1.25	Viewfinder: 1.0 cm (0.39 type) Approx. 2.36M dots LCD: 8.8cm (3.5 type) Approx. 1.56M dots Supported Format	physically and firm will submit OEM certificate for dots.  BOO will check
1.26	Approx. 2.36M dots  LCD: 8.8cm (3.5 type) Approx. 1.56M dots  Supported Format	physically and firm will submit OEM certificate for dots.  BOO will check
1.26	LCD: 8.8cm (3.5 type) Approx. 1.56M dots Supported Format	submit OEM certificate for dots.  BOO will check
	(3.5 type) Approx. 1.56M dots  Supported Format	for dots.  BOO will check
l [	Supported Format	BOO will check
l	<b>~ -</b>	
1.27	IEEE 802.11 a/b/g/n/ac	
	222 001111 11/10/10/1	practically and firm will
	Frequency Band 2.4 GHz	submit OEM certificate.
	bandwidth5.2/5.3/5.6 GHz bandwidth	
	Security	
	WEP/WPA-PSK/WPA2-PSK	
	NFC	
	NFC Forum Type 3 Tag compliant	
2. VISIO	n mixer	
	12 HD/SD-SDI inputs, 8 HD/SD-SDI outputs	
and 1	l HDMI output come as standard. Mixed	l .
HD/S		
config	uration. The 9 outputs can all be freely	physically
assign	ed with frame synchronizers that enable this	
achiev	ves a fully mixed SD / HD environment with	k
	vitcher alone. Mixers must come as standard	
with 2	2 keyers, 2 DSKs and 4 powerful 2.5D DVE	
engine	es.	

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.N		Parameters/Specifications	Trial Directives
n.	T	1000/50	BOO will check
	2.1	VIDEO FORMATS: 1080/59.94L, 1080/30, 1080/29.97P, 1080/25P, 1080/24P, 1080/23.98p, 1080/24PsF,1080/23.98PsF,1080/25PsF,1080/29.	practically and firm will submit OEM
		97PsF,720/59.94p,720/50p,1080/59.94p and 1080/50p level A 525/60(NTSC), 625/50(PAL)	
		VIDEO INPUTS WITH PROCESSING AMPLIFIER:	BOO will check
	2.2	HD/SDI: 1.5 Gbps or SD-SDI: 270 Mbps, 750, BNC x12 (FSs on 8inputs, resize engine on 4 inputs).	physically firm wil 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
	2.4	NUMBER OF VIDEO OUTPUTS  HD/SDI: 1.5 Gbps or SD-SDI: 270 Mbps, 75 Ω.  BNC x 8, HDMI 1	certificate.
	2.5	<b>EFFECT:</b> wipe:100 patterns, border and softness/2.50 dve:56 patterns or more dve wipes	physically firm wi
	2.6	MICRO FUNCTION:  30 commands (Upto 230 series of operation can be registered for command)	submit OEl certificate.
	2.7		BOO will checonomic practically and firm will submit OE certificate.
	2.8	4 Channels (keyer X 2) + DSK x2) includes 2D DVE that can be freely assigned.	practically.
	2.9	Waysplit views with title, tally and audio level meter display and 1 frame delay for PGM Output.	

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S.N		Parameters/Specifications	Trial Directives
	2.10	GENLOCK INPUT: BB:NTSC:0.429 Vp-p/PAL: 0.45	BOO will check
		Vp-p OR TRI-LEVEL SYNC:0.6 Vp-P,75Ω, BNC x 1,	
		loop through (To be terminated with $75\Omega$	
		terminated if unused)	OEM certificate
3.	Tripo	d Dolly	
		Aluminium or carbon composite tripod system. The	BOO will check
	head	with 100mm or more ball providing smooth pans and	physically.
	tilts.	Built-in bubble for horizontal leg, 3-section legs,	priysically.
	Doub	le 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	
	3.4	Tilt Range: -85°/+85° or more	
	3.5	Pan Range: 360°	BOO will check
	3.6	Ball Size: 100 mm	practically and
•	3.7	Pan Rod: 2	also firm submi
	3.8	Load Capacity: 8 kg or more	OEM certificate.
	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.	Tele	prompter System: For use in Studio for live as well	
	as re	cording production.	physically.
	4.1	Support multiple languages	
	4.2	Dual monitor use	
	4.3	Mouse movement speed control	BOO will chec
	4.4	User control of scroll speed using the hand	practically.
		controller (optional)	
	4.5	Prompts in any window's compatible language	
	4.6	Import word file	
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S.N		Parameters/Specifications	Trial Directives
5.	Mon	itor Speakers	
<b>3.</b>	5.1	2-way bass-reflex bi-amplified near field studio monitor with 5" or more cone woofer and 1" or more dome tweeter  Frequency response:- 54Hz - 30kHz	
	5.3	45W LF plus 25W HF bi-amp system for high- performance 70W power amplification	firm will submit OEM certificate.
	5.4	Room Control and high trim response controls  XLR and TRS phone jack inputs to accept balanced	BOO will check practically.  BOO will check
6.		or unbalanced signals  1 Panel LED Lights	physically.
	temp dissi	erature, long service life and controlled head ipation. Easy carrying and simple assembly, with a dalone cable dimmer to help easier dimming, suitable lighting in video and outdoor image capture.	BOO will check practically.
3		Input Voltage (V): 12-24V DC(Decoder) DC Adapter	BOO will check
	6.2	Total Power (W): 80W	practically and firm will submit OEM certificate.
	6.3	LED: DIP	BOO will check practically.
	6.4	Power Factor(PF): 100%(DC Decoder)	
	6.5		Firm will submit
	6.6		OEM certificate.
	6.7		_
	6.8	Color Rendering Index: (GRI) ≥95+	1
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C	Distribution of Light: BI COLOR  DMX: Optional  Working Humidity: 90%  Storage Temperature: 25°C  Lifespan for LED Lighting Source: 50,000 Hours  C Clamp with Safety Chain: Optional	BOO will check practically and firm will submit OEM certificate.  Firm will submit OEM certificate.  BOO will check
6.1 6.1 6.1 6.1 6.1 7. LI	DMX: Optional  Working Humidity: 90%  Storage Temperature: 25°C  Lifespan for LED Lighting Source: 50,000 Hours  C Clamp with Safety Chain: Optional	OEM certificate.
7. Li	5 <b>SIZE:</b> 14"X14"	POO MIII CHECK
C		practically.
on of	ntinuous Light which gives studio lighting required to the professional shots. Video requirement with 5600k should be able to adjust the knob to change the angle he light, either go spot or flood. Fixture in manual and	BOO will check physically and also firm will submit OEM certificate.
<u> </u>	voltage: AC100~240V, 50/60Hz	BOO will check
7		practically and firm
	3 Light Source: 100W LED	will submit OEM
7	Beam Angle: 18-58°	certificate.
7	Control Mode: DMX-512 ,Master/Slave	BOO will check practically.
7	6 Channel: 1 channel	BOO will check practically.
7	7 <b>Pan:</b> 540°/630° <b>Tilt:</b> 270°	BOO will chec physically.
7	8 IP Rating: IP20	Firm will subm OEM certificate.
7	9 Net Weight: 5kg or less	BOO will checo

NT		Parameters/Specifications	Trial Directives
.N			BOO will check
3.	Wirel	Mic Wireless ess lapel microphone that offers good sound quality, e mounting and easy to use.	Will Submit OEW
			certificate.
		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.	Han	dheld Mic Wireless	BOO will chec
		A broadcast quality sound solution, providing the	physically.
	high	est flexibility for video sound and field recording	
	app	lications. A robust wireless microphone system that	
	offe	s excellent sound quality, simple mounting and easy	7
	to 1	use. The easy wireless solution for moderators or	
	repo	orters. The rugged microphone resistant to any bac	1
	wea	ther or field condition, with receiver mountable to	
		camera.	
	9.1	wireless system with high	n
		flexibility for broadcast quality sound	
	9.2	1 1 anatmiotion quality	
	9.3	1 Ct -ctus time	
	9.4	1 1: 1-la mirolose transmission	
	9.5	Range: 100 meters / 330 feet or more	
	9.6	O heaven or more	
10	). Ea	rset:	
	A	connector cable, swivel joint and earpiece kit, with	a BOO will chec
	co	iled earpiece cable for use with telex assistive listenir	practically
	1	d IFB products.	

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S.N	Ţ	Parameters/Specifications		Trial Directi	ves
11.	Inte	rcom System		•	
		-mountable minimum 8 user wired intercom sys	tem		
		4 belt packs & 4 headsets. (Quantity as per			
		irement)			
	11.1	Industry standard 19" 1U rack design, for	easy		
		integration.			
		Supports 8-way intercom			
•	11.3	Additional external earphone and micropl	one		check
		interface.		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 environment	ental		
		noise.			
	11.7	Enables communication between the camera cre	ew.		
	11.8	Communication distance up to 200 meters			
	11.9	Supplied complete with Gooseneck Microphone	and		
		Light			
12	Auc	lio Mixer			
	12.1	16-Channel Mixing Console	ВО	O will	check
	12.2	10 Mic / 16 Line inputs	pra	ctically.	
		(8 mono + 4 stereo)			
	12.3	Group buses + 1 Stereo bus			
	12.4	AUX (incl. FX)	ВО		check
	12.5	"D-PRE" mic preamps with an inverted	phy	ysically.	
		Darlington circuit		<u> </u>	
	12.6	1-Knob compressor	BO	•	check
	ŀ			actically.	
	12.7	High-grade effects: SPX with 24 programs	BC		check
		. <u></u>		ysically.	
	12.8	3 24-bit/192kHz, 2 in/2 out USB Audio	BC		check
		functions	۱-	ysically and	
			su	bmit OEM ce	rtificate. ——4—f
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3.N	100	Parameters/Specifications			Trial Directives		
	12.9	Includes Cubase Al DAW software download	BOO	will	check		
		version	physicall	y.			
	12.10	PAD switch on mono inputs					
	12.11	+48V phantom power	BOO	will	check		
	12.12	XLR balanced outputs	practical	ly. ———			
	12.13	Internal universal power supply for world-	ВОО	will	check		
	 	wide use	physicall	y			
	12.14	Rack Mount Kit Included	BOO	will	check		
	12.15	Metal chassis	practical	ly.			
3.	Phon	e in Unit					
	13.1	Separate send level and receive level meters	BOO	will	check		
		for each hybrid.	practical	ly.			
	13.2	Place caller on-hold via front panel button.	ĺ				
	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					
		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	1				
	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	BOO	will	chec		
		(nominal)	-				
			submit	OEM ce	rtificate		
		13.1 13.2 13.3 13.4 13.5 13.6 13.7 13.8 13.9 13.10	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.  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	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.  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)	13.1 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.  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		

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 submi
	13.14	Analog-to-Digital Converter Resolution : 20 bits	OEM certificate.
	13.15	Analog Outputs Connector : XLR Male, Pin 3 High	BOO will check practically.
	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	Firm will submi
		from 4dBU nominal levels	OEM certificate.
	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	BOO will chec
		and ON-AIR) and 2 control inputs (ON and OFF)	practically.
		per hybrid	
	13.24	Trans-hybrid Loss :> 55 dB	Firm will subm OEM certificate.
14.	Video	In/ Video Out Card-	
	Digita	al cinema capture card with full frame DCI 4K input	
	and o	output via 12G-SDI. Dual link multi rate 12G-SDI	BOO will chee
	conne	ections that work with SD, HD and Ultra HD even in	practically and fir
	Ultra	HD 60p, as well as full frame DCI 4K at 4096 x	will submit OE
		resolution up to 25p. To capture 10-bit YUV or full	
		bandwidth 12-bit RGB. Includes AES/EBU audio	
	up,	down and cross conversion, plus built in 3D	)
		oscopic output at full bandwidth 4:4:4:4 RGB.	
	1), m	A - A - A - Mar	an I was

	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	BOO will check
14.2	switchable.  SDI Video Outputs: 2 x 12Gb/s  SD/HD//2K/4K. Supports single/dual link	physically.
14.3	4:2:2/4:4. 2D/3D switchable.  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.	BOO will checonomic practically.
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.	
Jul	le a mi	- Liak

15. In u b ti s 15. 15. 15. 15. 15. 15. 15. 15. 15. 15.	ingest  Fusabilitation the vidence in  with support for 2160p60.  Sync Input: Tri-Sync or Black Burst.  / Playout Server for 2 SD/HD Ports  Playout solution should provide stability and ty advantages. It should allow for optimum CPU ing using multi-core systems; the server to control eo output while the client manages the playlist. The files are to be verified by the client application being accepted for playout.  System should have intuitive user interface for easy ingest and play operation with easy controls.  Operator to define source and destination for ingest.  Operator also preview & browse the content without disrupting the recording process.  Automated Play-out system with manual rider  The system to support scaling for up to 6 HD ports	BOO will check practically.  BOO will check practically and firm will submit	
15. In u b t 15. 15. 15. 15. 15. 15. 15. 15. 15. 15.	ingest usabilities balancing the vide media before 5.1 5.2	Sync Input: Tri-Sync or Black Burst.  / Playout Server for 2 SD/HD Ports  Playout solution should provide stability and ty advantages. It should allow for optimum CPU ing using multi-core systems; the server to control eo output while the client manages the playlist. The files are to be verified by the client application being accepted for playout.  System should have intuitive user interface for easy ingest and play operation with easy controls.  Operator to define source and destination for ingest.  Operator also preview & browse the content without disrupting the recording process.  Automated Play-out system with manual rider	BOO will check practically and firm will submit OEM certificate.  BOO will check practically.  BOO will check practically and firm will submit
15. In u b t 15. 15. 15. 15. 15. 15. 15. 15. 15. 15.	ingest  Fusability balancing the vidence of the second of	Playout Server for 2 SD/HD Ports Playout solution should provide stability and ty advantages. It should allow for optimum CPU ing using multi-core systems; the server to control eo output while the client manages the playlist. The files are to be verified by the client application being accepted for playout.  System should have intuitive user interface for easy ingest and play operation with easy controls.  Operator to define source and destination for ingest.  Operator also preview & browse the content without disrupting the recording process.  Automated Play-out system with manual rider	practically and firm will submit OEM certificate.  BOO will check practically.  BOO will check practically and firm will submit
15. In u b t 15. 15. 15. 15. 15. 15. 15. 15. 15. 15.	ingest  Fusability balancing the vidence of the second of	Playout Server for 2 SD/HD Ports Playout solution should provide stability and ty advantages. It should allow for optimum CPU ing using multi-core systems; the server to control eo output while the client manages the playlist. The files are to be verified by the client application being accepted for playout.  System should have intuitive user interface for easy ingest and play operation with easy controls.  Operator to define source and destination for ingest.  Operator also preview & browse the content without disrupting the recording process.  Automated Play-out system with manual rider	practically and firm will submit OEM certificate.  BOO will check practically.  BOO will check practically and firm will submit
15 15 15 15 15 15 15 15 15 15 15 15 15 1	balanci the vidence the vidence the vidence 5.1 5.2	Playout solution should provide stability and ty advantages. It should allow for optimum CPU ing using multi-core systems; the server to control eo output while the client manages the playlist. The files are to be verified by the client application being accepted for playout.  System should have intuitive user interface for easy ingest and play operation with easy controls.  Operator to define source and destination for ingest.  Operator also preview & browse the content without disrupting the recording process.  Automated Play-out system with manual rider	firm will submit OEM certificate.  BOO will check practically.  BOO will check practically and firm will submit
b ti n b 15	balanci the vide media before 5.1 5.2	ing using multi-core systems; the server to control eo output while the client manages the playlist. The files are to be verified by the client application being accepted for playout.  System should have intuitive user interface for easy ingest and play operation with easy controls.  Operator to define source and destination for ingest.  Operator also preview & browse the content without disrupting the recording process.  Automated Play-out system with manual rider	BOO will check practically.  BOO will check practically and firm will submit
b ti n b 15	the vides media before 5.1	ing using multi-core systems; the server to control eo output while the client manages the playlist. The files are to be verified by the client application being accepted for playout.  System should have intuitive user interface for easy ingest and play operation with easy controls.  Operator to define source and destination for ingest.  Operator also preview & browse the content without disrupting the recording process.  Automated Play-out system with manual rider	BOO will check practically.  BOO will check practically and firm will submit
15 15 15 15	the vid media before 5.1 5.2	eo output while the client manages the playlist. The files are to be verified by the client application being accepted for playout.  System should have intuitive user interface for easy ingest and play operation with easy controls.  Operator to define source and destination for ingest.  Operator also preview & browse the content without disrupting the recording process.  Automated Play-out system with manual rider	BOO will check practically.  BOO will check practically and firm will submit
15 15 15 15	media before 5.1 5.2 5.3	files are to be verified by the client application being accepted for playout.  System should have intuitive user interface for easy ingest and play operation with easy controls.  Operator to define source and destination for ingest.  Operator also preview & browse the content without disrupting the recording process.  Automated Play-out system with manual rider	BOO will check practically.  BOO will check practically and firm will submit
15 15 15 15	5.1 5.2 5.3	System should have intuitive user interface for easy ingest and play operation with easy controls.  Operator to define source and destination for ingest.  Operator also preview & browse the content without disrupting the recording process.  Automated Play-out system with manual rider	BOO will check practically.  BOO will check practically and firm will submit
15	5.1 5.2 5.3	System should have intuitive user interface for easy ingest and play operation with easy controls.  Operator to define source and destination for ingest.  Operator also preview & browse the content without disrupting the recording process.  Automated Play-out system with manual rider	practically.  BOO will check practically and firm will submit
1:	5.2	easy ingest and play operation with easy controls.  Operator to define source and destination for ingest.  Operator also preview & browse the content without disrupting the recording process.  Automated Play-out system with manual rider	BOO will checon practically and firm will submit
1:	5.3	Operator to define source and destination for ingest.  Operator also preview & browse the content without disrupting the recording process.  Automated Play-out system with manual rider	practically and firm will subm
1:	5.3	ingest.  Operator also preview & browse the content without disrupting the recording process.  Automated Play-out system with manual rider	practically and firm will subm
1:	15.4	Operator also preview & browse the content without disrupting the recording process.  Automated Play-out system with manual rider	practically and firm will subm
1:	15.4	without disrupting the recording process.  Automated Play-out system with manual rider	practically and firm will submi
1		Automated Play-out system with manual rider	
1			OEM certificate.
	13.3	The system to support bounds of	l .
1		in future	
	15.6	The playback of scheduled clips from the play list	-
1	13.0	without any delay	
-	15.7	Supported HD/SD	-
L		Supported types of video files	
	15.8	DV in .avi container (four CCd vsd and dsvd	_
	15.9	LXF, MP4/MOV, MXF, ASF/WMV, MPEG-TS,	BOO will chec
	15.10		_physically.
	15.11	Mpeg2, Mpeg4	
L	15.12	GXF, FLV, AVI, DV, MPEG-PS, MKV, WebM,	_
	15.13	DVCPRO, M-JPEG, MPEG-1, MPEG-2, VC-1	BOO will chec
1	15.14	Windows Media Video with extension .wmv	practically ar
			firm will subm
			OEM certificate.
			, or the continuate.
-	1 mg	the amount of	wy Vyad

S.N		Parameters/Specifications	Trial Directives
	15.15	Two simultaneous ingests	BOO will check
	10.10		practically and
			firm will submit
			OEM certificate.
6.	CG (C	haracter Generator) System	
	i i	A broadcast graphics playout. Powerful, multilayer,	
	   reliab	le 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	1
		template editors.	
	16.2	Media Render implementation	
		Re-designed and optimized Media Handling layer for	BOO will chec
		simple improved features, backwards compatibility,	1000 11111 4114
		increased support for media formats and capture	Diaconomi, on
		devices	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	L
		comfortable interface	
	16.5	Group highlights and Drag & Drop on LB	7
	· ·	Groups of contents to be created/assigned by	7
		Drag & Drop. Group IDs also to be unlimited and to	
		be assigned automatically. Users should be able to	
	1	visualize the contents inside a group.	

The Template Preview player, to the Frame  Markers editor, to the Media player and NDI  previewer, cursor shape change on Drag & Drop,	BOO will check practically and firm will submit
The Template Preview player, to the Frame Markers editor, to the Media player and NDI previewer, cursor shape change on Drag & Drop,	practically and firm will submit
Markers editor, to the Media player and NDI previewer, cursor shape change on Drag & Drop,	firm will submit
previewer, cursor shape change on Drag & Drop,	
	OEM certificate.
multi-screen user interface consistent GUI across	
applications	
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.	
GPIO interface	
GPIO feature which goes down to the	
hardware and gives control to the single bits of	
serial ports.	
Scripting engine	
O Social Server:	]
To support Facebook, Twitter, Instagram and	
others API.	
1 Page Recall	
c Generator: Stabilized video reference outputs for	
rencing all the video equipment in studio in either high	
inition Tri-Sync or standard definition Black burst	
vision standards.	BOO will chec
Analog Video Outputs: 6 x common Black burs	t practically ar
or Tri Level reference outputs.	firm will subm
<b>SDI Rates:</b> 270Mb, 1.5G.	OEM certificate.
Multi Rate Support: Via mini switches	
Updates and Configuration: Via USB	
e de de de	Parj Vina
_	SDI Rates: 270Mb, 1.5G.  Multi Rate Support: Via mini switches  Updates and Configuration: Via USB

.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,	BOO will chec
8.	Embe	1080PsF23.98, 1080PsF24, 1080i50, 1080i59.94, 1080i60	
.0.	formation AE	Embed audio into any SDI source in SD and HD ts up to 1080p60. Audio input to be balanced analog S/EBU using ¼ inch connectors from equipment as mixers and analog decks.  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	BOO will chec
		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.	practically ar firm will subm OEM certificate.
		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,	

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	BOO will check
		SDI Video Rates : SDI video connections	practically and
		switchable between standard definition and high	firm will submit
		definition.	OEM certificate.
		<b>SDI Video Sampling:</b> 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.	
19.	SDI to	HDMI 6G	
		Mini Converter SDI to HDMI 6G which allows to	
	conver	rt from SDI to HDMI in SD, HD, and Ultra HD formats	
	while	de-embedding audio to HDMI, AES/EBU or balanced	
	analog	g audio. Features such as down conversion for	BOO will check
	monito	oring Ultra HD on HD HDMI monitors as well as built	practically.
	in 3D	LUTs plus HDMI instant lock for instant video display	
	when a	an SDI input is connected.	
	19.1	<b>SDI Video Inputs;</b> 1 x SD, HD or 6G-SDI. 1 x ALT	
	1.	SDI Input for automatic switch over if main input	
		fails.	BOO will check
		SDI Video Outputs: 1 x SDI Video Loop Output.	practically.
		<b>HDMI Video Outputs:</b> HDMI type A out.	
	<u> </u>		
	Λ .	1 0 000 A 100 0 1	1

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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	BOO will check
		if main SDI input is lost.	practically.
		Multi Rate Support: Auto detection of SD, HD or	
		6G-SDI.	
		Updates and Configuration : USB	
		Re clocking: Yes	
	19.2	<b>SD Video Standards:</b> 625i50 PAL, 525i59.94	
	·	NTSC	
		<b>HD Video Standards:</b> 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	
		<b>2K Video Standards:</b> 2K DCI 23.98p, 2K DCI	
	•	24p, 2K DCI 25p, 2K DCI 23.98PsF, 2K DCI 24PsF,	BOO will check
		2K DCI 25PsF	practically and
		<b>Ultra HD Video Standards:</b> 2160p23.98, 2160p24,	firm will submit
		2160p25, 2160p29.97, 2160p30	OEM Certificate.
		<b>4K Video Standards:</b> 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	

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

PSF23.98, 1080p24, 1080PsF24, 1080p25, PSF25, 1080p29.97, 1080PsF29.97, 1080p30, PSF30, 1080p50, 1080p59.94, 1080p60.  Mee Standards: 2K DCI 23.98p, 2K DCI 2K DCI 25p CI 23.98PsF, 2K DCI 24PsF, 2K DCI 25PsF Compliance: SMPTE 259M, SMPTE 372M, SMPTE 424M-d SMPTE 425M  Wideo Rates: SDI video connections are hable between SD, HD, and DCI 2K.  Wideo Sampling: 4:2:2 and 4:4:4  Audio Sampling: Television standard sample of 48 Hz and 24 bit.	practically and firm will submit OEM Certificate.
Color Precision: 4:2:2 and 4:4:4  Color Space: YUV and RGB  Auto Switching: Automatically detects SD, HD	•
G-SDI.	
est Processor  1TB or more HDD for OS  4TB or more HDD  B or more RAM  4GB or more GFX CARD	BOO will check practically.
t 7	tions  rout & Ingest Workstation  est Processor  1TB or more HDD for OS  4TB or more HDD  B or more RAM  4GB or more GFX CARD  10 PRO or latest version

↑ 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	BOO will check
		16GB or more RAM	practically.
		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

Pardeep Kumar, DC

ITBP

**CISF** 

P.R.Jha, DC(Comn) CRPF

Harjinder Singh, DIG(Eqpt) CRPF

Ajay Kumar Yadav. IPS,

IGP(Comn &IT),CRPF

ADG (Work & Comn), CRPF

Approved/Net Approved

Rajeev Rai Bhatnagar, IPS

DG, CRPF