



OSMANIA UNIVERSITY
HYDERABAD – 500007, INDIA

Ten. No 117/DIS/PR/2018/TAC-XVII

Date 09-05-2018

SHORT TENDER NOTIFICATION FOR SUPPLY, INSTALLATION, TESTING &
COMMISSIONING OF TAC-XVII APPROVED EQUIPMENT FOR EMRC, OSMANIA
UNIVERSITY.

On behalf of EMRC, Osmania University, sealed tenders are invited from the OEMs, reputed authorized dealers/ specialized Supplier for Supply, Installation, Testing and Commissioning of “List of Equipment” recommended by TAC-XVII for EMRC, Osmania University, Hyderabad. For further details, visit our website www.osmania.ac.in

Sd/-
REGISTRAR



OSMANIA UNIVERSITY
HYDERABAD – 500007, INDIA

Ten.No 117/DIS/PR/2018/TAC-XVII

Date 09-05-2018

SHORT TENDER NOTIFICATION FOR SUPPLY, INSTALLATION, TESTING & COMMISSIONING OF TAC-XVII APPROVED EQUIPMENT FOR EMRC, OSMANIA UNIVERSITY - HYDERABAD.

On behalf of EMRC, Osmania University, sealed tenders are invited from the reputed bidders/OEMs to execute the work related for procurement of “List of Equipment” recommended by TAC-XVII for EMRC, Osmania University Campus, Hyderabad. Only OEMs/Authorized reputed Dealers/bidders are allowed to submit the tenders. The Tender document can be obtained from the Office of the Registrar, Osmania University, Hyderabad from 10-05-2018 to 05-06-2018 on all working days between 11-00 A.M. to 3.00 P.M. on payment of non-refundable application cost of Rs. 15,000/- (Rupees Fifteen Thousand only) through a Demand Draft drawn in favor of the Registrar, OU. The tender consists of two parts (i) Technical bid (ii) Commercial bid. The complete sealed tenders along with EMD of 5% of the total cost of the equipment at the time of submission of tender bids through Demand Drafts drawn in favor of the Registrar, OU. The sealed tender bids duly superscripted shall be submitted at the Office of the Director, The Registrar, Osmania University, Hyderabad – 500 007 on or before 05-06-2018 by 3.00 P.M. Sealed tenders received after the due date and time will not be entertained. The Tenders will be opened on 05-06-2018 at 4.00 P.M. in the Office of the Registrar, OU, in the presence of the bidding firms. The detailed tender documents can also be downloaded from our website and in that case, Application cost and Tender Document Fee should be submitted along with the Technical Bid. Please note that the Application fee and EMD should be remitted through two separate Demand Drafts drawn in favour of the Registrar, OU and enclosed to the Technical bid, failing which the tender bids are liable to be rejected. For further details, please visit our website www.osmania.ac.in. The bidder must have experience in execution of similar works of Supply, Installation Testing and Commissioning of such Equipment to the Government Organizations.

Registrar,
Osmania University, Hyderabad

NOTE: THE BIDDERS MAY PLEASE NOTE THAT THE ENTIRE PROJECT OF SUPPLY, INSTALLATION, TESTING & COMMISSIONING OF TAC-XVII APPROVED EQUIPMENT AT EMRC, OSMANIA UNIVERSITY SHOULD BE COMPLETED WITH IN 45 DAYS FROM THE ISSUE OF WORK ORDER.



OSMANIA UNIVERSITY
HYDERABAD – 500007, INDIA

Ten.No 117/DIS/PR/2018/TAC-XVII

Date 09-05-2018

SHORT TENDER NOTIFICATION FOR SUPPLY, INSTALLATION, TESTING &
COMMISSIONING OF TAC-XVII APPROVED EQUIPMENT FOR EMRC, OSMANIA
UNIVERSITY - HYDERABAD.

The Registrar, Osmania University hereby invites open sealed tenders from the reputed firms to execute the work related to Supply, Installation, Testing & Commissioning of TAC-XVII approved Equipment at EMRC, Osmania University, Hyderabad. You are requested to submit your competitive price in the sealed covers as per the technical specifications given below. Please note that the bidders are advised to visit the office of the EMRC, OU., before submitting the tender bids for clarifications regarding the supply, installation & commissioning of the equipment at EMRC and the time limitations i.e. the completion of the project within 45 days of issue of work order positively. There will be no further extension of time for completion of total project.

Part – I

TENDER SCHEDULE

1. Name of the Tender : Supply, Installation, Testing & Commissioning of Technical Equipment Approved by TAC-XVII for EMRC, OU.
2. Sale of Tender Schedule : From 10-05-2018 to 05-06-2018 (11 A.M – 3.00 P.M.)
At the O/o The Registrar, Osmania University. (On all working days)
3. Closing date and time : 05-06-2018 by 3.00 P.M.
(For receiving duly filled in tender bids)
4. Submission of Tender bids : Sealed tenders in two parts
(i) Technical bid (Annex-I) &
(ii) Commercial bid (Annex-II) should be Submitted at,
O/o the Registrar,
Administrative Building,
Osmania University
(on all working days)
5. Pre bid queries : Pre bid queries will be received by the University through e-mail only at emmrco@yahoo.co.in & director_is@osmania.ac.in on or before 21-05-2018. Appropriate replies will be hosted on University website by 28-05-2018.

6 . Date, Venue & Time of opening : 05-06-2018 by 4.00 P.M. in
The Committee Room Registrar's Office,
O.U Hyderabad – 500 007

Note: In case of unavoidable circumstances, if the tenders are not opened on the Stipulated date and time, the subsequent date/time will be intimated in due course.

7. Earnest Money Deposit (EMD): EMD of 5% of the Equipment cost, Payable through Demand Draft drawn on any nationalized bank in favour of Registrar, O.U. The Tenders without accompanying demand drafts or insufficient demand drafts will not be considered and will be summarily rejected.
8. Payment Conditions work i) Full payment will be released on completion of 100% of total work based on satisfactory report and Completion certificate issued by the Engineer, EMRC/OU.

Part – A

TECHNICAL SPECIFICATIONS

1. Camcorder:

Digital camcorder system should conform to HDTV 1920x1080/50/I (16:9 aspect ratio) conforming to SMPTE 292M and ITU 709 (CIF) HD-SDI: 1.485 Gb/s and SDTV 625/50 (4:3 aspect ratio) conforming to SMPTE 259M and ITU 601 SDI: 270 Mb/s. Both the signals should have 4:2:2 sampling and 10 bit quantization and embedded audio. The recording should be on a tape less medium of 50 GB or better & capable of recording @ 25 & 50Mbps with all the required standard accessories and optional accessories as needed to enhance the performance of equipment to the optimum level.

The basic specifications are as follows

General Specifications	Detail:
Power Requirements	DC 12 V +5.0 V/-1.0 V
Video Recording Format	MPEG HD422 (MPEG-2 422P@HL) (CBR: 50 Mb/s)
	MPEG HD (MPEG-2 MP@HL):
	HQ mode (VBR, maximum bit rate: 35 Mb/s)
	SP mode (CBR, 25 Mb/s)
	LP mode (VBR, maximum bit rate: 18 Mb/s) (Playback only)
	MPEG IMX (MPEG-2 422P@ML) (50/40/30 Mb/s)
	DVCAM (CBR,25 Mb/s)
Proxy Video	MPEG-4
Recording Frame Rate PAL model	MPEG HD422:
	1920 x 1080/50i, 25P
	1280 x 720/50P
	MPEG HD:
	MPEG IMX: 50i
	DVCAM: 50i
Inputs/Outputs Specifications	Detail:
Genlock In	BNC x1, 1.0 Vp-p, 75 Ω
TC IN	BNC x1, 0.5 to 18 Vp-p, 10 kΩ
SDI IN	BNC x 1
	(HD/SD switchable)
	HD-SDI: SMPTE 292M (w/embedded audio)
	SD-SDI: SMPTE 259M (w/embedded audio)
Audio In	CH-1/CH-2: XLR 3-pin (female) x 2, line/mic/mic +48 V selectable
AES/EBU Input	CH-1/CH-2: XLR 3-pin (female) x 2, AES/EBU selectable
MIC In	XLR 5-pin (female, stereo) x 1
Test Out	BNC x 1
	1(HD/SD Switchable)
	HD Y/SD composite
	SD composite (character On/Off)
	HD-SDI: SMPTE 292M (w/embedded audio)
	SD-SDI: SMPTE 259M (w/embedded audio)
	2 (HD/SD switchable, character On/Off)
Audio Out	CH-1/CH-2: XLR 5-pin (male, stereo) x 1
TC Out	BNC x 1, 1.0 Vp-p, 75 Ω
Earphone	Mini-jack x 2 (front: monaural, rear: stereo/monaural)
Monitor Speaker	YES

DC In	XLR 4-pin (male) x 1, 11 to 17 V
DC Out	4-pin (Female) (for wireless microphone receiver), 11 to 17 V DC, MAX. 500 mA
Lens Conector	12-pin
Remote	8-pin
Light	2-pin, DC 12 V, max. 50 W
Camera Adaptor	50-pin
i.Link	IEEE 1394, 6 pin x 1, File Access Mode
Memory Stick	x 1 (for camera setup files)
Gigabit Ethernet	RJ-45 x 1, 100Base-Tx: IEEE802.3u, 10Base-T: IEEE802.3
USB	x 1 (for version-up)
Audio Performance Specifications	Detail:
Frequency Response	20 Hz to 20 kHz, +0.5/-1.0 dB
Dynamic Range	More than 93 dB
Distortion	Less than 0.08% (at 1 kHz, reference level)
Crosstalk	Less than -70 dB (at 1 kHz, reference level)
Wow & Flutter	Below measurable limit
Headroom	20/18/16/12 dB (selectable)
Camera Section Specifications	Detail:
Pickup Device	3-chip 2/3-inch type CCD / CMOS
Effective Picture Elements	1920(H) x 1080(V)
Optical System	F1.4 prism
Built-In Optical Filters	1: Clear, 2: 1/4ND, 3: 1/16ND, 4: 1/64ND A: CROSS, B: 3200K, C: 4300K, D: 6300K
Shutter Speed (Time)	1080/59.94i: 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000,ECS,SLS
	1080/50i: 1/60, 1/125, 1/250, 1/500, 1/1000, 1/2000,ECS,SLS
	1080/29.97P:1/40, 1/60, 1/120, 1/125, 1/250, 1/500, 1/1000, 1/2000,ECS,SLS
	1080/25p: 1/33, 1/50, 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000,ECS,SLS
	1080/23.98p: 1/32,1/48, 1/50,1/60,1/96, 1/125, 1/250, 1/500, 1/1000, 1/2000,ECS,SLS
	720/23.98p(pull down) : 1/32,1/48, 1/50,1/60,1/96, 1/125, 1/250, 1/500, 1/1000, 1/2000,ECS,SLS
Slow Shutter	1- to 8- and 16-frame accumulation
Sensitivity (2000 lx, 89.9% reflectance)	F11 @ 59.94i, F12 @ 50i (typical)
Minimum Illumination	Approx. 0.016 lx (F1.4 lens, +42 dB, with 16-frame accumulation)
Gain Selection	-6, -3, 0, 3, 6, 9, 12, 18, 24, 30, 36, 42 dB
Smear Level	-135 dB (typical)
S/N Ratio	59 dB (54 dB w/o Noise Suppressor)
Horizontal Resolution	1000 TV lines or more (1920 x 1080i mode)
Registration	Less than 0.02%
Modulation Depth	45% or more at 27.5MHz
Monitoring Specifications	Detail:
Viewfinder	Option
Built-In LCD Monitor	3.5-inch type color LCD monitor
Lens Specifications	Detail:
Lens Mount	2/3-inch type bayonet mount
Lens Mount	2/3-inch-type 48 bayonet mount
Lens	Standard Zoom Lens with 22x zoom and 2x extender

2. HD/SD compatible TV Studio Camera Chain with CCU

a) Studio Camera:

- Pickup Device: 2/3inch type CCD/CMOS
- Spectrum System F1.4 Prism System
- Optical Filter: ND: Clear, 1/4, 1/16, 1/64
- Lens Mount: Bayonet type
- Output standard: SMPTE 292M
- Sensitivity F11 (50 Hz) at 2000 lx (3200K, 89.9%reflectance)
- Horizontal Resolution: 1000 TV lines or better
- S/N: HD: - 60 db (1080i)
- MIC Input: -60 dBu to 4 dBu (XLR 3-pin female x 2)
- Intercom: XLR 5-pin female x 1
- Input: -60 dBu to -20 dBu
- Output: 100 mW max.
- HD,SD-SDI Output: BNC x 2 (HD, SD-SDI 1/HD SD-SDI 2)
- Prompter Output: BNC x 1, VBS signal = 1.0 V [p-p], 75 Ω
- DC OUT: 12 V, MAX. 1A
- RET CONTROL Terminal: Round 6 pin x 1
- Test Output – HD, SD – SDI x 1
- VF: Round 20 pin x 1, D-Sub 29 pin x 1
- Output Selection*1: CAM, BAR, TEST
- White Balance Mode*1: A, B, preset
- Shutter Speed Selection*1:
 - 50 Hz:
 - 1/60, 1/100, 1/125, 1/250, 1/500
 - 1/1000,1/2000 (s) (50i mode)
- Intercom: MIC ON/OFF, receiving level, or PGM level
- MIC Setting: MIC power, MIC gain, MIC1 selection

b) Camera Control Unit (CCU) :

- Video Output: HD SDI/SD SDI: 4 lines
- Analog composite: 1
- Return Input: HD SDI/SD SDI: 2 lines
- VBS: 1 line
- Prompter Input: 1 line, Analog composite
- Reference Input: 1 line (1 loop-through line)
- Black burst/tri-level*3
- Microphone Output: 2 lines (XLR, 3-pin, male), 0 dBm/600 Ω
- Intercom: XLR, 5-pin, female
- COMMUNICATION: Intercom input/output: 2 lines (1/2*2)
- PGM: 1 line, input Tally input: Red, Green, 1 input each
- ROP interface: RS-422, 1 line, 12 V output
- MSU interface: RS-422, 1 line, GPI for control
- LAN port: 1 line (8-pin, RJ45).

c) Remote Operation Panel (RCP)

CCU Control: Control signals (camera, CCU control) Connectivity: Fiber cable/Triax
Tally control signal

d) LCD Color Viewfinder

- Number of Pixels: 1920 x 1080(HD)
- Operation Panel: POWER switch x 1, MENU button x 1
- SELECT dial x1, Function buttons x 3
- Picture adjusting knobs x 3
- ([BRIGHT], [CONTRAST], [PEAKING])
- Connectors: Camera I/F connector (D-Sub 29-pin x 1)

3. PEDESTAL FOR STUDIO CAMERA

Pedestal Specs	
On-Shot Stroke:	41cm
Wheel Lock:	Yes
Tracking Width:	69 cm
Transit Width:	73cm
Wheel Diameter:	10 cm
Steering Ring Diameter	38 cm
Payload capacity	30 Kg
Ground Clearance	1.4 cm
Tripod Head Specs	
Height	15 cm
Length	14.8 cm
Width	17.2 cm
Weight	3.2 kg
Load Capacity Range	7 to 20 Kg
Tilt Range	±90°
Ball Base	100 mm
Pan Bar	Single Telescopic , Extra Pan Bar required
Counter Balance	Fully variable with digital read out
Leveling Bubble	Illuminated

4. TRIPOD FOR HD ENG CAMCORDER

Head Specification	
Capacity Range	5.5 to 14kg
Head weight	3.1kg
Maximum tilt range	±90°
Ball Base	100 mm
Pan Bar	Single fixed length,
Illuminated level bubble	Yes
Counter Balance	Infinitely adjustable, perfect balance
Tripod Specification.	
Maximum Load	25 kg
Tripod Weight	2.6 kg
System Height Range	41.6 cm to 156.2 cm
Ground Spreader	Yes

5. TRIPOD FOR LOW Cost ENG CAMCORDER

Head Load Capacity range	2.1 to 5.5 kg
Ball Diameter	75 mm
Tilt Range	± 90°
Pan Bar	Single fixed Length
Illuminated level bubble	Yes
Tripod Load Capacity	7.9 kg
Bowl Diameter	75 mm
System Height Range	55 to 169.5 cm
Floor Spreader	Yes

6. Studio HD/SD, Recorder Player

To support existing optical Disk format work flow

FEATURES

- Recording Bit Rates: MPEG-2 422p@HL format - Bit rate is 50Mbps for both 1080 and 720 - Audio Format 24 bit x 8ch
- Multi-Format Support: DVCAM, MPEG IMX® 30/40/50 Mbps, MPEG HD 420 18/25/35Mbps should be supported for both recording and playback as standard.
- Record Time: Longer recording time with the Dual Layer and Single Layer Professional Disc Media.
- Power supply: AC / DC / Battery
- Tilt up front panel: 3.5-inch color LCD Widescreen
- Dual Optical Pick-up, Thumbnail Search function, Expand function, Equipped with a Jog/Shuttle Dial
- The conversion in Playback mode: Down conversion from HD to SD, Up conversion from SD to HD, Cross conversion between 1080 and 720 should be possible
- Front panel operation using the function keys & multi-dial 9 pin video control remote, RS-422A control for linear editing player
- Clip Continuous REC

Inputs/Outputs	
HD/SDI IN BNC x 1 (switchable)	HD-SDI: SMPTE 292M (w/embedded audio) SD-SDI: SMPTE 259M (w/embedded audio)
REF.VIDEO IN	BNC x 2 (including loop through), HD Tri-level sync (0.6 Vp-p/75 Ω/negative) or SD black burst/composite sync (0.286 Vp-p/75 Ω/negative)
ANALOG AUDIO IN	XLR 3-pin (female) x 2, +6 dBu, Hi-Z, balanced
DIGITAL AUDIO (AES/EBU) IN	1/2, 3/4 BNC x 2, 4 ch (2 ch each, 1/2 ch and 3/4 ch), AES-3id-1995
TIME CODE IN	BNC x 1, SMPTE time code, 0.5-18 Vp-p/3.3 kΩ/unbalanced
HDSDI OUT 1	BNC x 1, SMPTE 292M (w/embedded audio)
HDSDI OUT 2 (SUPER) On/Off	BNC x 1, SMPTE 292M (w/embedded audio), character
SDSDI OUT 1	BNC x 1, SMPTE 259M (w/embedded audio)
SDSDI OUT 2 (SUPER) On/Off	BNC x 1, SMPTE 259M (w/embedded audio), character
COMPOSITE OUT 1	BNC x 1, 1.0 Vp-p/75 Ω/negative, SMPTE 170M
COMPOSITE OUT 2 (SUPER)	BNC x 1, 1.0 Vp-p/75 Ω/negative, SMPTE 170M,
Character On/Off	
ANALOG AUDIO OUT	XLR 3-pin (male) x 2, +4 dBu, 600Ω, Lo-Z, balanced
AUDIO MONITOR	XLR 3-pin (male) x 2, +4 dBu, 600Ω, Lo-Z, balanced
DIGITAL AUDIO (AES/EBU) OUT	1/2, 3/4 BNC x 2, 4 ch (2 ch each, 1/2 ch and 3/4 ch), AES-3id-1995
TIME CODE OUT	BNC x 1, SMPTE time code, 1.0 Vp-p/75 Ω/unbalanced
PHONES	Stereo phone-jack x 1
i.LINK	6-pin x 1 File Access Mode
HDV	1080i/720P
ETHERNET	RJ-45 x 1, 1000Base-T: IEEE802.3ab, 100Base-TX: IEEE802.3u, 10Base-T: IEEE802.5
REMOTE (9P)	D-sub 9-pin (female) x 1, RS-422A

VIDEO CONTROL	D-sub 9-pin (female) x 1, EIA RS-423
AC IN x 1,	100 to 240 V
DC IN	12V XLR 4-pin (male) x 1
REMOTE	4-pin (female) x 1, DC 12 V, 7.5 W
MAINTENANCE	USB x 2

Video Performance	
Sampling frequency	Y: 74.25 MHz, Pb/Pr: 37.125MHz
Quantization	8 bit/sample
Compression	MPEG-2 4:2:2P@HL
Composite output Frequency response:	0.5 to 5.75 MHz +0.5 dB/-2.0 dB
S/N(Y): (K2T):	53 dB or more Y/C delay: ± 20 ns or less Kfactor
1% or less	
Processor Adjustment Range	
Video level	$-\infty$ to +3 dB
Chroma level	$-\infty$ to +3 dB
Set up/black level	± 30 IRE/ ± 210 mV
Chroma phase	$\pm 30^\circ$
System sync phase	± 15 μ s
System sync phase (fine)	0 to 400 ns

Audio Performance	
Sampling frequency	48 kHz
Quantization	24 bit
Frequency response	20 Hz to 20 kHz +0.5 dB/-1.0 dB
Dynamic range	90 dB or more
Distortion	0.05% or less
Headroom	12/16/18/20 dB (selectable)

Built-in LCD Monitor	4.3-inch type color LCD monitor
----------------------	---------------------------------

7. Channel Audio Mixer

The system has to be professional, compact sound reinforcement console designed for a wide range of applications with installed and portable sound systems. The modular construction, with input modules in blocks of four should provide ease of servicing and configuration to suit individual applications. Frames should include a versatile master section, combining group and main output masters, monitoring, Matrix outputs and two full stereo input channels

Features:

- 4-band EQ
- High Pass Filter
- 6 Auxiliary Sends
- Routing to 4 Sub-Groups, Stereo and Mono outputs

Frequency Response

- Any input to any output 20Hz - 20kHz, +0/-0.5dB

Total Harmonic Distortion:

- (All measurements at +20dBu)
- Line In to Group or Mix out Less than 0.01% @ 1kHz
- Less than 0.025% @ 10kHz Noise
- (22Hz-22kHz bandwidth, unweighted) Less than -128.5dBu
- Mic Input Equivalent Input Noise
- (150 Ohm Source) Mix Noise Less than -84 db Cross Talk
- Mix to Group Output Less than -90 db @ 1 kHz

Input and Output Impedances

- Mic Inputs 1.5 K Ω balanced
- Hi-Z and Stereo Inputs (0.25" Jack) Greater than 10 K Ω balanced
- Insert Points 75 Ω /10 K Ω unbalanced
- Aux Outputs 75 Ω ground compensated
- Group, Mix and Matrix Outputs 75 Ω balanced

Input and Output Levels

- Mic Input Sensitivity (XLR) -12 dBu to -70 dBu
- Line Input Sensitivity (0.25" jack) +10 dBu to -40 dBu
- Insert Send/Return -2 dBu nominal
- Aux Outputs +4 dBu nominal
- Group, Mix and Matrix Outputs +4 dBu for 0 VU
- PFL Output -2dBu

Functional Description Mono Input Module

It should be with XLR and Jack connectors, 48V phantom Power to the input XLR, SENS and RANGE control adjusts, PHASE, Equaliser with four bands, Auxiliary Sends, Routing, etc. Stereo Input Module: It should be with Sensitivity control adjusts, Equaliser, Auxiliary Sends, Routing etc. Matrix Section: It should be with Group Output etc.

Master Section

It should be with Stereo Outputs, Mono Output, Track Return, Monitor and Headphones Outputs, Metering, Talkback, auxiliary Outputs, PFL Outputs etc. Power: AC 220 V/50 Hz

9. 8 Input Digital Video Production Switcher

Processor Specifications
VIDEO INPUT/OUTPUT
Video – Input: Minimum 08 Input conforming to SMPTE292M (HDTV), SMPTE 259 M-C (SDTV) digital Signal.
Reference Input : SDTV Analog black burst/Analog sync, HD Tri-level sync on 75 Ohm.
Video Output : Minimum 04 no. of outputs conforming to SMPTE292M (HDTV), SMPTE 259 M-C (SDTV) digital Signal.
Reference Output with loop through: SDTV Analog black burst/Analog sync, HD Tri-level sync on 75 Ohm
AUDIO INPUT/OUTPUT
Audio input:- XLR: 4 Set (L & R),SDI (BNC)(Embedded Audio):4 Sets,HDMI embedded Audio 2 Sets,1 Pin Jack Aux Input ,1 Microphone Input.
Audio Output:- PGM 1 XLR (L&R), SDI Embedded Audio1PGM .1 PVW & 1 AUX Output,1 Headphone Output.
CONTROL
Remote – D-sub 9 pin
Tally/GPI - D Type or BNC
Serial tally – D-sub 9 pin
System Specifications
HD Mode : HD(1080/59.94i,1080/50i,720/59.94p,720/50p),
SD Mode :SD(480/59.94i,576/50i)

- Having Built in Audio Mixer and Frame Synchronizer.
- Having quantization 16 bit for HDMI Input,24 Bit for SDI Input,20 bit for analog input.
- Having a Built in Multiviewer

10. 8-Input 3G/HD/SD/CVBS + Input DVI/HDMI/VGA Multiviewer

Features:

- Display up to 9 Video channels.
- Support HD/SD-SDI signal with embedded audio, 525i, 625i, 720P, 1080i auto adapting
- Support composite video with analog audio, PAL & NTSC auto adapting
- Output resolutions up to 1920x1080P60
- Flexible output options : 4:3, 16:9, customized aspect ratio, supports 4:# or 16:9 safe maker
- Selectable air timer and countdown timers, analog and digital clocks style
- Any channel can be enlarged to full screen
- Dynamic UMDs & Tally
- Programmable multi-color static UMD
- Supports format display of input signal, AFD information, UV meter
- Alarms for frozen or black video, video loss, and audio silence / loss
- Built-in webserver via RJ45
- SNMP, TSL, GSP serial timing
- Standard 1U frame with dual redundant power supplies
- Professional DSP accelerated image processing

Specifications:

Number of Video Inputs: 8 x 3G/HD/SD/CVBS = 1 DVI (support HDMI)

Video Input Formats:

Supports HD/SD-SDI signals with embedded audio and shows up to 8 audio channels
SD: 480i, 59.94, 576i 50

HD: 720p, 1080i, 1080P
 CVBS: PAL / NTSC

Other Input Format:

DVI interface (female)
 For 3G signal, channel only display UMD
 For other signal sources, channel displays all the elements such as video channels
 Graphic formats: 1280x720, 1920x1080

Number of Video Outputs:

1 x HD-SDI + 1 x DVI/HDMI

DVI Output Format:

DVI interface (female)
 Output resolutions: 1024x768, 1280x720, 1280x768, 1280x1024, 1360x768m
 1400x1050, 1600x1200, 1680x1050, 1920x1080

SDI Output Format:

Duplicate signal with DVI/HDMI output interface
 720p, 1080i, 1080P

Analog Audio Input & Output:

1 x DB26 interface (female)
 8 channel balanced audio input
 1 channel stereo audio output

Control

Ethernet[®] RJ45 interface for web configuration / TSL protocol / SNMP protocol
 RS232 / GPI: DB26
 LTC: XLR, EBU code

Physical

Power: redundant power supplies, 100-250V 50/60Hz 2.5A, maximum 2x120W
 Temperature: operation temperature: 0-40 C, storage temperature: - 30-75 C
 Dimensions: 438x368x44mm

11. 42 inch LED FHD TV

Picture Quality	Display	FHD (1920x1080)
	Sound Quality	Speaker output 2*10 W Media player Yes Surround Mode Yes Dolby Digital Audio.
Energy Data	Rated Power Consumption Standby	>120 W >1W
Terminal	Analogue Tuner	Yes
	HDMI	2
	USB	2
	Component Video Input	1
	Composite Video Input	1
	Digital Audio Output(Optical)	1 (Coaxial)
	PC Input	1

12. Interactive Whiteboard

Specification for Interactive Whiteboard	
Ratio	4:3
Touch Technology	IR(Infrared Technoogy)
Multitouch	Yes
Input	Finger, Pen & any opaque objects.
Resolution	32767*32767
Coordinate Position Accuracy	Less than 2mm
Minimum Response Size	3mm
Cursor Speed	180 dat/second
Board Surface	High quality Matt Surface,Optimized for Low Surface
Interface	USB2.0 or USB3.0
Working Area (mm)	More than 1670x1140
OS Support	Windows 7 and Above,Android,Linux,Mac
Accessories	Pen,Pointer,Eraser,CD,USB Cable,Wall Mount Bracket,User Manual
Temperature	Working Temperature -20C to 45C
Power Supply	USB Power Supply D.C. 4.6V-5V/-<1W(200mA 5V)

13. Ampli Speakers

Specification For Ampli Speakers	
Speaker Type	Bi amp,2 -way powered
Frequency Response	50Hz-40kHz
Components LF	6.5" Cone
HF	1.0" titanium dome
Crossover	2.5 kHz
Output Power	LF:80W,HF:50W
Max Output Level (1m on axis)	106 db
I/O Connectors	XLR-3-31type
Processors	Low cut (Flat/80/100Hz; 12dB/oct), High trim (15kHz; +1.5/0/-1.5dB), Low trim (45Hz; +1.5/0/-1.5/-3dB
Power Consumption	100W
Magnetic Shielding	YES
Flying and Mounting Hardware	2 xM8
Accessories	Owner Manual, AC Power Chord

14. MPEG4 Encoder Decoder

ENCODER:

The encoder should support either SD/HD video formats in a key-enabled architecture. Video input should be SDI or HD-SDI. It should provide a reduced-resolution compressed stream output. It should support up to three stereo pairs of audio.

VIDEO

HD-SDI High-Definition:

Digital Video Input Formats	Sample x Lines @ Rate
1080i30	1920x1080 @ 30/1.001 Hz Standard SMPTE 292M-1998
1080i25	1920x1080 @ 25 Hz Standard SMPTE 292M-1998

720p60	1280x720 @ 60/1.001 Hz Standard SMPTE 292M-1998
Input Line Rate(s)	1.485 Gb/s and 1.485/1.001

SDI Standard-Definition Digital Video Input Formats

480 and 525-Lines Resolutions	720x480, 720x525
Formats	ANSI / SMPTE 259M-C 1997
Input Line Rate	270 Mb/s

Physical Interface

Jitter Tolerance	Meets SMPTE RP184 specifications
Sampling	8-bit
Connectors	75 ohm BNC

Video Compression

Standard	MPEG-4 Part 10 / H.264 / ISO/IEC 14496-10 2003
Profile and Level	Supports main profile at Level 4.0-compatible decoders
HD Horizontal Resolutions	1080i: 1920, 1440, 1280, 960 720p: 1280, 960, 640
SD Horizontal Resolutions	480i: 720, 704, 640, 544, 528, 480, 352 576i: 720, 704, 640, 544, 528, 480, 352
Anchor Frames	2
Macro Block Processing	In-loop de-blocking
Coding	CABAC
Compressed Output (to backplane) Bitrates	0 25-20.0 Mb/s
PIP Resolutions	96 x 96 and 192 x 192 pixels

VBI Input Formats	VBI Standard	MPEG Carriage Standard
Closed Captions	EIA-608	EIA-708 and ETSI EN 301 775
Vertical Interval Time Code	SMPTE 12M	SMPTE 266M ISO/IEC 13818-(GOP Header)
WST Teletext	ETSI EN 300 706	ETSI EN 301 775 and ETSI EN 300 472
Wide Screen Signaling	ETSI EN 300 294	ETSI EN 301 775
Lossless Luma (six lines max)		ETSI EN 301 775
Prestored Test Patterns	Various	Proprietary

Audio Specifications:

Digital Audio Input:

Format	AES (AES3-1992, ANSI S4.40-1992), SMPTE 276M
Sampling	Synchronized to video and re-sampled to 48 kHz at 24 bits
Connectors	75 ohm BNC

Audio Compression and SMPTE 302 Audio Handling

Audio Compression Standards:

Surround Sound	AAC-LC 5.1, HE-AAC 5.1
3-Channel (3 stereo pairs)	Dolby® AC-3 2.0, MPEG-1 Layer 2, SMPTE 302M, AAC-LC 2.0, and HE-AAC 2.0
Compressed Audio Bitrates	32-640 kb/s, and 2.8, 2.4, 2.0 Mb/s (standard-dependent) 32-640 kb/s, and 2.8, 2.4, 2.0 Mb/s (standard-dependent)

GENERAL SPECIFICATIONS

Systems Multiplex

Ad insertion / Splice point signaling	SCTE 104/SCTE 35
Format	MPEG-2 transport stream
PSI formats	ISO (IEC 13818.1 MPEG-2 systems)
Encryption	BISS-1, BISS-E (EBU Tech 3292 rev. 2)
Jitter	<1ms of multiplex jitter <500 ns PCR jitter

DECODER

It should have DVB-S/S2 demodulation capabilities and inputs for DVB-ASI and IP as standard feature. It should support MPEG-2 and H.264 video compression; from the 4:2:2 format to SD and HD formats; as well as MPEG, Dolby® Digital AAC and SMPTE-302 audio systems. It should support vertical ancillary data space (VANC) transport, wide-screen signalling (WSS), active format description (AFD) and other related data signals, as well as DVB fixed-key decryption (BISS) and DVB Common Interface (DVB-CI) descrambling methods.

FEATURES

Bitstream Input / Output Capabilities

- DVB-S, DVB-S2 satellite demodulator (standard)
- Advanced RF demodulator (option) for 16/32 QAM and DSNG
- DVB-ASI input and output (standard)
- Dual IP SMPTE 2022-1 inputs and outputs (standard)
- DVB fixed-key (BISS) decryption (standard)
- DVB common interface module slot (option)

- Smart PID filtering to output selected streams on ASI or IP

Video Compression Formats

- MPEG-2 MP@ML, MP@HL (standard)
- MPEG-2 422P@ML, 422P@HL (option)
- H.264 MP@L3, MP@L4.1 (standard)
- H.264 422P@L3, 422P@L4.1 [8-bit(option)

Audio Compression Formats

- AAC-LC, HE-AAC v2 2.0 and 5.1 decode (standard)
- MPEG-1 Layer II decode (standard)
- Dolby® Digital (AC-3) 2.0 and 5.1 decode (standard)
- SMPTE-302 PCM and Dolby® E pass-through with AVTrack™ (standard)
- One or two Dolby® E integrated decoders (option)

Data/Ancillary Capabilities (standard)

- VANC processing
- ADF and WSS
- Tele text
- VBI

Video/Audio Output Capabilities

- Dual SDI/HDSDI video outputs 1080i/720p/625i,50
- Eight stereo pairs of assignable embedded audio
- Four assignable separate AES outputs

Receiver

Connectors	F-Type (up to 4)
Input Impedance	75 ohms
Baud Rate Range	2 to 45 Mbaud (DVB-S/DSNG), 10 to 30 Mbaud (DVB-S2)
Modulation	QPSK (DVB-S), QPSK/8 PSK/16 APSK (DVB-S2) QOSK/8 PSK (DVB-DSNG/S)
Inner Code	
DVB-S	QPSK 1/2, 2/3, 3/4, 5/6, 6/7, 7/8 8 PSK 2/3, 5/6, 8/9 16 QAM 3/4, 7/8
DVB-S2	QPSK 1/4, 1/3, 2/5, 1/2, 3/5, 2/3, 3/4, 5/6, 8/9, 9/10 8 PSK 3/5, 2/3, 3/4, 5/6, 8/9, 9/10 16 APSK 2/3, 3/4, 4/5, 5/6, 8/9, 9/10 32 APSK 3/4, 4/5, 5/6, 8/9, 9/10
DVB-DSNG	QPSK 1/2, 2/3, 3/4, 5/6, 6/7, 7/8 8 PSK 2/3, 5/6, 8/9 16 QAM 3/4, 7/8
Outer Code	204, 188 Reed-Solomon per EN 300 421
L-Band Frequency Range	0.9400 to 1.7500 GHz (In 0.0005 GHz steps)
Maximum Total Input Power	(-) 25 dBm
Minimum Signal Level	(-) 55dBm

Video Output: Serial Digital Interface

Standard	HD-SDI and SDI (SMPTE 292M/259)	
Connector	BNC (2)	
Formats	1080i/50, 720p/50	

MPEG-2 and H.264 Video Decoding

MPEG-2 Profiles	Main profile at main level (NTSC/PAL) Main profile at high level (HD) 4:2:2 profile at main level (SD) 4:2:2 profile at high level (HD)
H.264 Profiles	Main profile at level 3.1 High profile at level 4.2 (Broadcast HD) 4:2:2 profile at level 4.2 (8-bit only)
Maximum Video Elementary Stream Bitrate	108 Mb/s

Audio

Bitstream Decoding Formats Supported	Dolby® Digital AC-3 2.0 Dolby® Digital AC-3 5.1 MPEG-1 layer 2 SMPTE 302M (Dolby® E compatible), IEC 958 Dolby® E integrated decode (optional) Advanced audio coding low complexity (AAC-LC) 2.0 and 5.1 High-efficiency AAC version 1 (2.0) and version 2 (HE-AAC v2 2.0) HE-AAC 5.1
Digital Audio Output Format	AES/EBU as per SMPTE 276 Embedded as per SMPTE 299 Pass through encoding audio (SMPTE 337) with no restriction

Reference Input

Type	Blackburst composite video
Reference Connector	BNC with passive loop through
Standard	SMPTE RP 154

Control LAN Interfaces

Type	10/100Base-T Ethernet (IEEE 802.1)	
Connector	RJ-45	

Transport Stream Interface

Connector	2 BNCs (1 in/1 out) and 2 RJ45 (bi-directional)	
Physical Layer Interface	DVB-ASI (auto-sensing)	
DVB-ASI Transport Stream Data Rate	0.0 to 214.0 Mb/s	
IP Transport Stream Data Rate	0.0 to 120.0 Mb/s	
IP over Ethernet	10/100/1000Base-T Ethernet (IEEE 802.1)	
FEC	SMPTE 2022	

15. VGA TO PAL CONVERTOR

References:

- Powerful Broadcast Scan Converter with Genlock
- Should Support many outputs formats: HDTV, SDTV, analog and digital
- High Performance image processing with real time conversion
- A «Zoom finder» is provided to preview the part of an zoomed image
- 8 Preset memories for zoom settings

Inputs:

- Workstations, PC, Mac compatible input
- DVI and RGB Computer Input up to 1920x1200
- Genlock: HD/SD-SDI or Analog HD Black and Black Burst
- All Genlock timings meet broadcast ITU/SMPTE standards
- All Video outputs are available simultaneously

Outputs:

- Digital outputs: HD/SD-SDI 10 bits
- Analog outputs: HD/SD-YUV, NTSC/PAL, RGB, S-Video
- SD/HD-SDI 4:2:2 & SD/HDTV Analog Outputs
- Embedded Stereo Audio w/Delay

Features:

- Multi-level anti-flicker
- Horizontal & Vertical filters
- 16/9, 4/3, special sized and cropped output
- Pan & zoom resizing up to 1000%
- Zoom Finder
- Frame & logo memory
- Direct access functions: Freeze, Frame, Under/Over Scan, Aspect
- Ratio, Zoom position and size
- RS232 Upgradable
- Remote Control Software
- Ethernet interface: Optional
- For High Definition and Standard Television Broadcast
- 8 Preset memories for zoom settings

Computer Input:

- For PC, Mac and Workstation
- DVI-D and RGsB, RGSB, RGBHV with Automatic synchronization detection
- Resolution up to 1600x1200/60Hz 1920x1200RB/60Hz
- Horizontal frequency from 31.5 to 130 KHz
- Vertical frequency up to 130 Hz
- Audio Stereo: Unbalanced 44kOhms - +18dB – Adjustable level

Outputs:

HD-SDI (x2): 4:2:2 - 10 bits – 1.5 Gbs - 75 Ohms or SDI (x2): 4:2:2 – 10 bits – 270 Mbs - 75 Ohms
(fs=48Khz@20/24 bit) HD-YUV: HD-YCrCb - 0.7Vp/p + 3 level Sync. +/- 0.3V

DIGITAL GENLOCK:

- Input: HD/SD-SDI Black
- Output: Active loop through

ANALOG GENLOCK:

- Input: 3 level HD Black or Black Burst PAL/NTSC
- Output: Active loop through

USER CONTROLS AND CONNECTORS

FRONT PANEL

- Standby On/Off
- Frame recall
- Freeze
- Under/Over scan
- Aspect ratio: 1/1 – Cropped - Full Screen
- Zoom up to 1000%, linear pan & scan & Finder
- Position and size
- LCD screen and control buttons for:
- Input type and status
- 8 level anti-flicker
- RGB & Black level adjustment, sharpness
- Output format selection
- Genlock phase adjustment

REAR PANEL

Input Connectors

- DVI-I Female: (Digital computer in only)
- HD15 Female (Analog computer in)
- BNC (Genlock in)
- RCA Audio Stereo

Output Connectors

- DVI-I Female: Active loop through
- HD15 Female: Active loop through
- BNC (x2): HD/SD-SDI
- BNC (x4): HD/SD-YUV & RGsB/RGBS
- 4 pin Mini DIN: S. Video
- BNC: NTSC / PAL
- BNC: Genlock Active loop through
- BNC: Analog Luma key out
- BNC (x2): Digital Luma key out
- BNC: Frame lock out

16. Cordless Lapel Mics

- Sturdy metal housing (transmitter and receiver)
- 42 MHz bandwidth: 1680 tunable UHF frequencies for interference-free reception
- Enhanced frequency bank system with up to 12 compatible frequencies
- High-quality true diversity reception
- Pilot tone squelch for eliminating RF interference when transmitter is turned off
- Automatic frequency scan feature searches for available frequencies
- Enhanced AF frequency range
- Increased range for audio sensitivity
- Wireless synchronization of transmitters via infrared interface
- User-friendly menu operation with more control options
- Illuminated graphic display (transmitter and receiver)
- Auto-Lock function avoids accidental changing of settings
- HDX compander for crystal-clear sound

- Transmitter feature battery indication in 4 steps, also shown on receiver display
- Programmable Mute function
- Integrated Equalizer and Soundcheck mode
- Contacts for recharging BA 2015 accupack directly in the transmitter (BA2015 battery pack sold separately)
- Wide range of accessories adapts the system to any requirement

17. Gun Microphone

Technical Specification For Gun Microphone	
Frequency Response (Microphone)	40 - 20000Hz,
Sensitivity in free field, no load(1Khz)	25Mv/Pa + - 1db
Nominal Impedance	25 ohm
Min terminating Impedance	800 ohm
Equivalent Noise Level	13 db
Equivalent Noise Level as per CCIR 468-3	24db
Current Composition	2mA
Maximum Sound Pressure Level (Passiv)	130db
Operating Voltage (Stand Alone Unit)	48 + - 4V Phantom

18. Digital/ Analogue HD/SD Waveform Monitor

SCOPE:

- The specification lays down the performance requirement of Digital/ Analogue (Standard Definition and High Definition) Waveform monitor to be used in TV Studios of Media centers.

ESSENTIAL FEATURES:

- The firm should offer a high precision, single unit color LCD based broadcasting HD and SD waveform monitor having digital signal processing capable of highly accurate measurement
- The waveform monitor should have two selectable inputs to receive two numbers of High Definition and Standard Definition serial digital signals. The formats of the digital signal should comply with SMPTE 292M and SMPTE 259M standards
- The offered product should be able to provide real time LCD display suitable for Live monitoring.
- The offered waveform monitor should have the facility to display the waveform in Overlay and Parade mode in RGB and YPbPr
- The Waveform Monitor should be able to monitor Gamut in RGB and YPbPr
- The waveform monitor offered should have the picture display function of the video signal on the LCD.
- The Waveform Monitor should capable to display four measurements at a time, in any combination such as waveform display, vector display, picture display and status display
- The Waveform Monitor should offer remote access and control with a standard Web-browser
- The offered waveform monitor should facilitate Eye pattern view of the incoming selected digital video signal with Timing cursors with necessary filters
- It should be possible to monitor the serial transmission error of the serial digital signal and analyze for the correct format and status by means of EDH codes.
- It should be possible to measure the level of the serial digital signal and displayed as equivalent length of coaxial cable.
- The offered product should have the feature of Vector/Lightening display of the color difference signals. The vector should display user-selectable graticules, color targets (75% and 100%) and color axis
- The Waveform Monitor should capture and store the video data from an entire video frame and display this data on waveform, vector, gamut and picture displays
- The Waveform Monitor should be able to do trigger capturing that automatically acquires data on the occurrence of specific faults
- The Waveform Monitor should have safe area graticules on the picture display to quickly verify correct placement of graphics, Titles or logos
- The Waveform Monitor should be able to store at least 30 presets

- The Waveform Monitor should have USB Connector at the front to store the presets
- It should have 10/100 Base-T Ethernet connection and offer remote access.
- It should have SNMP interface to allow easy integration with network management software
- All accessories like 19" rack mount kit, cabinet etc, should be quoted separately in this offer
- Only internationally reputed make and model meeting the following specification should be quoted. The firm should enclose the user list of the broadcasters to whom this product has been supplied

TECHNICAL SPECIFICATIONS:

a. HD Input

- Input 2, SMPTE 292M
- Input Type 75 Ω BNC
- Input level 800 mVp-p \pm 10%
- Return Loss > 15 dB from 1 MHz to 270 MHz
- Receiver Equalization Range Up to 100m of type 8281 cable
- Waveform Vertical Characteristics
- Frequency Response: Luminance Channel (Y): \pm 0.5 %, 50 KHz to 30 MHz , Chrominance Channel: \pm 0.5 %, 50 KHz to 15 MHz
- Vertical Measurement Accuracy at 1X: \pm 0.5%; at 5X: \pm 0.2% of 700 mV full scale mode
- Gain X1, X5 and X10

b. SD Input

- Input 2, SMPTE 259M, 625/50
- Input Type 75 Ω BNC
- Input level 800 mVp-p \pm 10%
- Return Loss > 15 dB from 1 MHz to 270 MHz
- Receiver Equalization Range Up to 250m of type 8281 cable
- Waveform Vertical Characteristics
- Frequency Response: Luminance Channel (Y): \pm 0.5 %, 50 KHz to 5.75 MHz , Chrominance Channel: \pm 0.5 %, 50 KHz to 2.50 MHz.
- Vertical Measurement Accuracy At 1X: \pm 0.5%; at 5X: \pm 0.2% of 700 mV full scale mode.
- Gain X1, X5 and X10

c. Serial Digital Output

- Signal format 1.485 Gbps for HD and 270 Mbps for SD
- Output level 800 mVp-p \pm 10% across 75 Ω load
- Return loss 15 dB, 1 – 1.5 GHz

d. Eye Pattern Display (For Eye Pattern configuration)

- Type Equivalent Time sampler
- Bandwidth Supported format SMPTE 292M, 1.485 Gbps and SMPTE 259M, 270 Mbps
- Jitter Filter: 10 Hz, 1 KHz, 10KHz & 100KHz
- Amplitude Accuracy 800 mV \pm 5% for 800 mV input

e. Component Vector Mode

- Vertical Bandwidth 3.4 MHz for HD and 800 KHz for SD
- Vertical Gain Accuracy \pm 0.5%
- Horizontal Gain Accuracy \pm 0.5%
- Vector Display PB is displayed on Horizontal axis and PR is displayed on Vertical axis

f. External Reference

- Synchronization Both, Internal and external synchronization facility
- Input Type Black burst, Tri-level Sync, BNC, 75 Ω
- DC Input Impedance 15 k Ω
- Return Loss \geq 30 dB

g. Display

- Screen Type: Color LCD
- Resolution: 1024 X 768
- Size: 6.3"
- Format: XGA
- Screen: 1 – screen and 4 – screen display

h. Power supply & operating temperature

- Input 230 ± 10% VAC, 50 Hz
- Operating Temperature 0° to 40°C

19. 5 Inputs SD-SDI and 4 inputs HD SDI 3D TRACKLESS VIRTUAL STUDIO SYSTEM

SCOPE:

Trackless 5 cameras SD-SDI or 4 Camera HD-SDI Virtual Studio System is required. The virtual studio system should be easy to operate and user friendly. Vendor/Manufacturer must have supplied the virtual studio systems to reputed government organization as well as private network

Essential features:

- The offered equipment should be fully integrated system with all hardware and software. It should be fully plug and play system and no optional or additional hardware or software should be required to use the system at highest configuration level
- The offered equipment should accept SD-SDI and HD-SDI video inputs in PAL video standard. It should support High Definition (HD) and Standard Definition (SD) resolution simultaneously in a single system. The equipment should be able to switch to any supported resolution with the selection of that resolution
- The equipment should support SMPTE 259M for SD-SDI and SMPTE 292M for HD-SDI video signal for inputs.
- The equipment should handle multiple cameras and switching through computer keyboard and touch screen monitor panel
- The equipment should have user interface designed to work with touch screen monitor panel
- The equipment should have 5 live camera inputs in SD format or 4 live camera inputs in HD format and should be able to simultaneously process, chroma key and display all 5 standard definition live video streams or all 4 high definition live video streams in a virtual set and on the live video output in the single screen.
- The equipment should support three dimensional (3D – non stereoscopic) virtual sets
- The equipment should have advanced chroma keying facility per video input channel for all 5 standard definition live video inputs or 4 high definition live video inputs.
- The equipment should have the built in virtual camera switcher with 10 virtual camera positions.
- The equipment should have overlay (swipe) transition between two virtual cameras. It should display channel logo or program id during this transition
- The equipment should have a separate media switcher to switch to any video clip or live video source or network input to full screen. This should work as a standalone basic switcher with mix transition without loading the virtual set.
- The equipment should have Depth of Field (Defocus) facility where the backdrop behind the anchor can be blurred to achieve the realistic look like in the optical camera lens.
- The equipment should have the facility to integrate external CG through downstream keyers – video fill and key (DSK) inputs utilizing the same video inputs. The CG graphics so integrated should be part of the virtual set environment and move with the virtual camera movement
- The equipment should have real time preview facility to provide the look-ahead preview of the virtual camera motions and angles on VGA monitor.
- The equipment should have in-built gallery for organizing video clips & graphic image files to be used in the virtual studio system

- The equipment should have in-built 2 digital disk players to play video clips which can be changed dynamically by drag and drop operation on air. The digital disk players should have Cue facility to automatically play and pause the video clips while playing them from these players.
- The equipment should have the facility to replace pre-defined media images and videos used in the virtual sets from the software application by simple drag and drop operation to do last minute changes in the virtual sets.
- The equipment should have in-built automation with dissolve transition between two video or image files
- The equipment should have in-built playlist generator for playing video clips in sequence with the Mark in and Mark out facility for video clips to do simple last minute editing.
- The equipment should have in-built graphic overlay support to display images with cut and fade transition and it should support 32 bit alpha image in TGA, BMP and PNG file formats
- The equipment should support one bi-directional scroll line overlay with variable speed
- The equipment should have built in software capability and Ethernet input to support display of VGA screen from client computer system or laptop
- The equipment should have in-built software module of audio mixer for 2 live audio input channels and 2 video clips
- The equipment should have in-built virtual camera switcher with cuts and virtual motion capability like zoom in, zoom out, pan, tilt, and trolley and jib motions
- The equipment should support reflections of virtual set and shadows of live anchors in real time
- The equipment should have built in motion designer software for creating and modifying virtual camera motion such as zoom, pan, tilt and dolly
- The equipment should have built in global camera software support for creating and modifying virtual camera angles and motions
- The equipment should have built in image compositing software for creating images for the use in image overlay facility in the virtual set
- The equipment should have mechanical and logical bypass facility. SDI input 1 should be routed to SDI output 1 in case of power failure
- The equipment should have built in audio delay facility to synchronize incoming audio and video inputs to processed video at synchronized output
- The equipment should have Shader materials supports like glass & metal to give realistic look to the virtual set.
- The equipment should support 3D animated object in the virtual set and it should retain its original animation and should play continuously in loop irrespective of the virtual camera angles and motions
- The equipment should have built-in Genlock input and reference loop output for synchronizing video inputs
- The equipment should have GPI, RS 232 and RS 422 interface ports
- The equipment should have tally facility for all its camera inputs
- The equipment supplier should offer minimum 25 virtual sets free with the equipment
- The equipment supplier should design, create and provide 1 custom virtual set free as per our requirement
- The equipment should function with standard AC230 VOLT, 50Hz power supply. If the offered product function on DC supply than the firm should offer the necessary standard power adapter with required cables
- The offered equipment should have the standard warranty of 2 years from the date of supply and installation of equipment.
- The equipment supplier should provide onsite training free of cost for operation of equipment at their expenses
- The equipment supplier should provide onsite training free of cost for creating virtual set at their expenses
- The equipment supplier should do installation and commissioning of supplied equipment free of charge at our studio

HARDWARE SPECIFICATIONS:

Computer System

- 4 RU rack mount cabinet with minimum 700 watts power supply
- Motherboard: Super micro or Intel or Asus

- Processor: Intel i7 or Intel Xeon
- RAM: DDR IV – 16 GB or more
- Hard Disk Drive: 500 GB (2 nos.) or greater
- Graphic display card: Radeon HD RX 470 with 8 GB RAM or better
- DVD writer
- Computer keyboard
- Optical mouse
- 21.5” or higher size touch screen monitor panel
- Operating System: Microsoft Windows 7 – 64 bit - Licensed version

External breakout box with the following specification for audio and video inputs and outputs with necessary cables to connect to the main system)

Video Inputs

- 5 x SD-SDI Inputs via BNC connectors or
- 4 x HD-SDI Inputs via BNC connectors

Video Outputs:

- 2 x SDI (SD or HD) via BNC connectors
- 1 x CVBS for SD via BNC connector
- All outputs should be simultaneously visible and available for further utilization

Audio Inputs

- 1 x Analogue Balanced (XLR) stereo inputs

Audio Output

- 1 x Analogue balanced (XLR) stereo output

Genlock input and output

- Analog or digital reference in and loop out via BNC

Tally

- 15 Pin Tally Input connector for all video inputs

Deck Controls

- 9 Pin RS 232 connector for external VTR or digital disk player
- 9 Pin RS 422 connector for external VTR or digital disk player

20. Non-Linear Editing System (FCP Latest Version)

FEATURES

- HD/SD SDI input and output with embedded audio and time code
- HDMI output for full-resolution, real-time monitoring
- Embedded HDMI audio output for high-quality audio monitoring
- Video and audio output should stay perfectly in sync with editing windows for accurate editing and trimming
- Reference input supports black burst or tri-level sync
- Edit any mix of SD and HD resolution video content together in real time
- Work with different native video formats

- Real-time SD/HD resolution, aspect ratio, and frame rate conversion and output – including 16:9
- to 4:3 and NTSC to PAL
- Real-time editing performance with Min of 2 Full HD Layer and 2 Graphics Layer OR 4 SD Uncompressed Layer and 2 Graphics Layer
- Supports newer file-based formats, including Infinity™ JPEG 2000, XDCAM, XDCAM EX
- Based on Compatible PC or MAC Platform

SPECIFICATIONS

Video Formats (Output) (HDMI)

- 1920x1080i50
- 1280x720p50
- 720x576i50
- 720x576p50

Video Formats (Input/ Output)(HD/SD-SDI)

- 1920x1080i50
- 1920x1080psf23.98/25
- 1280x720p50
- 720x576i50

Video Output Connector HD/SD-SDI

- Video: SMPTE 292M, SMPTE —259M-C
- Audio: SMPTE 299M, SMPTE —272M-A
- Time code: LTC/VITC Packet (HD), —D-VITC (SD)
- HD-SD/HDMI 1 port : —Video: YCbCr 4:2:2 or RGB 4:4:4 —(8-bit) fro Monitoring
- Audio: LPCM 8-channel —(24-bit/48 kHz)

Video Input Connector HD/SD-SDI

- Video: SMPTE 292M, SMPTE —259M-C
- Audio: SMPTE 299M, SMPTE —272M-A
- Time code: VITC Packet (HD), —D-VITC (SD)

Audio Formats

- LPCM 24-bit/48 kHz

Machine Control

Must support Sony Recorder PDW- F1600, Panasonic Digital Video Cassette recorder AJ-SD965E, Sony Multi format Player –Model No.- J30, & Sony Recorder- MSW 2000.

Processors

6 core, 3.5GHz, 6-Core or upgraded, Intel Xeon E5 with 12MB L3 cache, Turbo Boost up to 3.9GHz

Keyboard with numeric keypad , Mouse

Memory : 32 GB, 1866 MHz, DDR3 ECC memory – 4 x 8GB

Storage : PCIe-based flash storage of 256 GB or better (Internal)
5TB (External)

Display : Display 27 inch
SD/HD - SDI VIDEO Broadcast Monitor

External breakout box:

Dual Link 6G- SD/HD-SDI, HDMI, Analog (XLR Balanced In/Out), 4:4:4, 3D & 4K

Graphics:

Dual AMD Fire Pro D700, each with 6GB of GDDR5 VRAM each, 2,048 stream processors, 384-bit-wide memory bus, 264GB/s memory bandwidth and 3.5 teraflops performance.

Audio

- Combined optical digital audio output/analog line out mini-jack.
- Headphone mini-jack with headset support.
- HDMI port supports multi-channel audio output.
- Built-in speaker

Video Editing Software Specification

A.	Video Editing Software with latest Patches
	Mix frame sizes, frame rates, and formats in the same Timeline in real time Edit at 23.976, true 25, 50 fps Multicam Editing .
	Trimming: Ripple, Roll, Slip and slide, Lift and ripple delete, Asymmetric, multitrack, trimming, Dynamic trimming, JKL trimming, Trim window, Timeline trimming, Keyboard and numeric trimming
	Effects: FxPlug support, Real-time software-based audio normalization, RT Extreme for scalable software-based, multi stream real-time effects in DV, SD, and HD formats,, Real-time effects playback on main display and on NTSC/PAL or HD monitor with perfect synchronization, Dynamic RT for automatically adjusting playback quality and/or frame rate based on hardware capabilities Key frame graphs and editing in Viewer or Timeline, More than 200 transitions, effects, and filters, Import multilayered Photoshop files with layers and alpha support
	Tools: High-quality real-time video vectorscopes and waveform monitors, Multitrack Audio Mixer, Keyboard and user interface customization tool, Voice Over tool for adding narration directly to Timeline, Frame Viewer for shot comparisons, Source timecode overlays in Viewer and Canvas, QuickView for RAM-based previews of complex multilayered sequences
	Editing support for Audio, Colour correction, Film Cinema Tools
	Native editing for DV, DVCAM, DVCPRO, DVCPRO 50, and DVCPRO HD, FireWire device control, Still images: PSD, BMP, JPEG, PICT, PNG, SGI, TARGA, TIFF
	Standard Software for System
B.	Sound Recording & Editing Software with latest Patches
	Support for AIFF, WAV, MP3, CAF, BWF, SDII, NeXT, QuickTime
	Non-destructive, sample-accurate editing of audio files, Support for up to 24-channel files, including mono, stereo, and surround
	Multitake recording with take editing in Multitake Editor
	Discrete 5.1 mixing, bussing, and routing
	Included Effects: Dynamics, Distortion, EQ and Filter, Modulation, Reverb/Delay, Metrics and Diagnostics,
C	Colour Correction software with latest Patches on Date of Supply
	Colour Grading, Real-time grading controls for SD / HD.

D	Encoding Software with latest Patches
	High-Performance Encoding
	H.264 Apple devices, web, mobile devices, and HD DVD, Compatible I-frame insertion, Full QuickTime support, MPEG-2 encoding, MPEG-1 encoding, MPEG-4 encoding.
E	DVD Authoring Software with latest Patches on Date of Supply
	Professional DVD authoring software
F	Character Generator Software with latest Patches on Date of Supply
	English/ Hindi -Devnagri font support Title software for NLE system
G	Latest Photoshop After effects software for NLE system.

21. e-Content Hardware and Software

1. High End Computer with i-7, 8GB RAM, 1TB HDD
 - a. Windows 8 – 64 bit, Dual Processor, Graphic Card
extra Hard Disk of 500 GB for OS 2 Nos
 - b. Windows 8 – 64 bit, Single Processor, Graphic Card
extra Hard Disk of 500 GB for OS 2 Nos
2. LED Monitor-24” – 4 No’s
3. Laser Printer with Scanner, 16-20 pages per minute – 1 No
4. Adobe Creative Cloud full suit 3 Users
5. MS Office 4 No’s

22. Still Camera

- 24.3 megapixel
- FX Format
- 3.2" tilting LCD monitor
- Lens 24-120 mm
- Full HD Video Recording

23. Studio Lighting Equipment

Features

- 96 Control Channels
- 96 Programmable Scenes(4 Pages containing 24 Scenes each)
- 24 Chaser Sequence in 64 steps
- Audio Control
- Cross Fade
- Memory Card(Optional)
- Power : AC 90-240 Volts, 45-63Hz

24. 40 inch LCD Monitor

	Display	FHD (1920x1080)
Picture Quality	Sound Quality	Speaker output 2*10 W
		Media player Yes
		Surround Mode Yes
		Dolby Digital Audio.

Energy Data	Rated Power Consumption Standby	>120 W >1W
Terminal	Analogue Tuner	Yes
	HDMI	2
	USB	2
	Component Video Input	1
	Composite Video Input	1
	Digital Audio Output(Optical)	1 (Coaxial)
	PC Input	1

25. Transmitter and Receiver unit (Backpack)for Live Transmission

General Features

- The offered unit and associated equipment should be from an internationally reputed manufacturer and the quoted model should be field proven and in use by leading broadcasters.
- The bidder should essentially submit the list of the broadcasters to whom the quoted model has been supplied. The tenders without the proper user list Shall liable to be rejected.
- The system should be capable of working both in SDTV (4:3 aspect ratios) and HDTV (16:9 aspect ratio). The SDTV standard is 625 line(4:3 aspect ratio) conforming to SMPTE 259M and ITU-R BT 60 1 (amended up to date) (SD-SDI 270Mbps) and HDTV standard is 1920x1080/50/I conforming to SMPTE 292M and ITU-R BT.709(CIF)(amended up to date)(HD-SDI:1.485G b/s).
- During news gathering, the audio and video feed in the native SDTV or HDTV standard is required to be captured , streamed to Cellular Mobile News Gathering Unit through suitable interface with auto audio & video detection facility and to be made available at Receiver Unit
- The bidder is required to ensure completeness of the system and offer all essential accessories such as batteries, adapter, and interface for IFB facility, power supply adapter/charger cables, connectors, display monitors, keyboard and mouse, carrying case for easy use in the field etc.along with the system. Make and model of all the offered item should be mentioned in the bill of material(BOM)

ESSENTIAL FEATURES OF SYSTEM

- The Mobile News gathering Unit should have low boot time, low latency, portability and specialized antennas to provide robust HD/SD news feed from any location in which cellular connectivity / Wi-Fi internet is available.
- The system should consist of portable field transmitting unit in the form if backpack and rack mount type server as receiver unit.
- The system should use 3G/4G/LTE cellular technology of a single Telecom operator to combination of multiple telecom operators for newsfeed either in live or near real time mode from fixed point or on the move.
- The system should automatically detect and aggregate all the cellular wireless connectivity available and utilize bandwidth efficiently.
- It should support Wi-Fi 802.11 b.g.n & ac standards to wireless access the internet while in the field,
- It should have Gigabit Ethernet adaptor to access the internet
- Live Transmission from all field units to Receiver unit should be possible without any restriction and desire feed can be selected from any of the field units which are simultaneously available in the receiving unit.
- The system should have interruptible feedback (IFB) capability to communicate directly to cameraman or talent in the field.
- It should support simultaneously live transmission over IP and recording for future retrieval and transmission. Necessary storage feature is also required.

- The unit should put forward error correction for secure transmission of video packets, especially the noisy urban environment.
- Transmission from the field units should be secured in the form of encryption and should reach receiver Unit directly.
- The system should employ efficient encoding for stable and reliable live transmission considering bandwidth availability.
- It should be possible to select the latency and the control should be available at field unit.
- The system should be easy to configure and operate with friendly GUI it should be possible to monitoring all parameters of the field unit by LCD touch screen.
- Critical parameters/ settings of transmitter unit should be tamper proof; system should not lose critical settings under any circumstances.
- The system should be so designed that there should not be any loss of data packets at destination
- It should be possible for any person to setup and operate the system easily and quickly for fast paced news reporting environment.
- The transmitter unit may be powered with industry standard internal battery for uninterrupted operation with efficient power management system.
- One additional external battery that can be addition to the integral battery to increase continuous operation time, without any interruption in service due to connecting/ disconnecting battery.
- Battery charger and adaptor will also be required to supply along with each field unit.
- The system should have complete remote management, control of the system and active monitoring of the unit.
- Remote system should be able to display current physical location of the field unit on a map using GPS / or any other reliable tracking system.
- The bidder should offer the receive unit with complete hardware and software
- The system should have variable presets of variable bitrates for transmission to optimize according to available bandwidth.
- The receiver should be able to easily assign and change assignment of incoming stream to allocated output interface.
- The receive unit should be able to provide one or more HD/SD-SDI outputs. It should also be genlockable.
- The receiver unit should be upgradable to act as distribution point of the live video directly to remote slave terminal at different Centers.
- The Offered product should have built in cooling system for continuous operation and optimal performances, in both receive unit & backpack.
- The system should be compliant with international electromagnetic compatibility requirement and Indian regulations & standard for emission requirement.
- Receiver must be capable of being upgraded to an public IP-based video transmission system, which must have been proven reliable in the field with network of over 100 nodes, with at least two years of customer experience.

HARDWARE CONFIGURATION OF SYSTEM:

The offered system should meet the following minimum configuration

Transmitting Unit

1.	Cellular Mobile Network Interface	Six or more internal cellular modems supporting 3G/4G/LTE Mini SIMs(2FF).
	Encoding Bandwidth	Selectable from 100 kbps to 10 Mbps or better
3.	Transmission Latency(Trans-	Not more than 2 seconds
4.	Operating System	Windows/Linux/Mac OS or similar
5.	System Storage	64 GB
6.	I/O Interface	HD/SD SDI, 0.8Vp-p,75Ω on BNC
		HDMI 1.4 or better

		10/100/1000 Base-T Ethernet
		Internal WI-FI adaptor
		USB ports
		IFB Interface
		Headphone jack
7.	Battery	Internal battery should be capable of atleast two hours of continuous operation with functionality.
8.	Display	LCD Touch Screen
	Weight	≤ 2Kg with battery

Receive Unit

1.	Receive Server	19" rack ousted server with mounting accessories
2.	Stream	Should be able to receive all streams from the backpack units on the same server simultaneously and output the selected stream.
6.	I/O Interface	(i) One or more HD/SD SDI out, 0.8Vp-p,75Ω on BNC,
		(ii) Reference(black burst, Tri level sync) on BNC
		(iii) IFB Interface
		(iv) 10/100/1000 Base-T Ethernet, RJ-45
		(v) Other I/Os, USB for connecting peripheral devices such as mouse, keyboard, display monitor etc.
7.	Software	Server should be loaded with recommended OS, anti-virus and all management & monitoring application required for complete functionality of the system.
8.	Hardware	Intel I7 &-4790 Processor (8M Cache,3.6GHz), 2x4GB RAM, 500GB HDD, SD HD SDI I/O with Genlock input, Windows 7 pro 64Bit with Security Essential, Fully loaded Trans receiver software.

PART – II

TERMS & CONDITIONS OF THE TENDER

1. The reputed firms/contractors should submit their tenders duly enclosing two separate Demand Drafts drawn in favour of Registrar, Osmania University, Hyderabad, towards (i) Non-refundable application cost of Rs.15,000/- (Rupees Fifteen Thousand only) and ii) EMD of 5% of the Equipment cost,
2. Only reputed firms/contractors who have the expertise in the similar field of execution of works pertaining to Supply, Installation Testing & Commissioning of Tac-XVII Approved Equipment for EMRC, Osmania University – Hyderabad are permitted to quote against the requirements.
3. The bidders are advised to quote the prices plus taxes as applicable as per government norms. The discretion is vested with the University to decide as per the requirements. However, the University shall invite the L-1 bidders for negotiations.
4. The Bidder shall strictly adhere to all the terms and conditions stipulated in the tender and the Special Conditions specified therein, with regard to Supply, Installation, Testing & Commissioning Of Tac-XVII Approved Equipment For EMRC, Osmania University - Hyderabad.
5. The bidders shall follow scrupulously all the stipulated conditions for the prescribed specifications of all the specified items, so that the Supply, Installation, Commissioning Of Tac-XVII Approved Equipment For EMRC, Osmania University - Hyderabad. Any damages caused while executing and commission of the equipment by the bidders shall be rectified and make good at their own costs.
6. The bidders shall, subject to the provision of the contract and with due care and diligence, execute and maintain the specific works in accordance with specifications stipulated in the tender as per the requirement of EMRC, OU.
7. The following information has to be filled by the tenderer with evidence (Documentary proof to be enclosed).
 - a) Registration Certificate issued by Govt. of TS
 - b) TSGST/CST/CGST Registration Certificate
 - c) Annual Turn Over Rs. 5 Crores per Annum in the last three financial years (2014-15, 2015-16 and 2016-17)
 - d) Documents of technical competence of the tenderer
 - e) Detailed profile of the firm Recent Purchase Orders for Supply, Installation , Testing & Commissioning of Broadcast Equipment.
 - f) Recent Purchase Orders of Supply, Installation of Technical Equipment & Commissioning Of Broadcast Production Equipment in Government/Public Sector undertakings/Universities, Reputed Pvt Limited companies etc...
 - g. The Firm should have authorization Certificate issued by OEMs
8. The offers must be in English. The rates should be quoted in INR and indicated both in figures and in words against each item inclusive of taxes. The bidder shall indicate the break-up of each individual items of work clearly indicating the basic cost and taxes including Warranty (Defective Liability) Period of two years, another Three (3) years of Comprehensive AMC which includes repairs, replacements and all items of work executed and completed.
9. Warranty (Defective Liability) Period will be of two years.
10. Comprehensive AMC for 3 years after completion of Warranty (Defective Liability) Period Quoted separately as Non comprehensive warranty.
11. The rates shall be fixed and constant throughout the entire period of the Contract and will not be modified under any circumstances.

12. COMPLIANCE:

A point-by-point compliance statement from the principal manufacturer in respect of all the points laid down in this specification is to be enclosed along with the offer in the format given below. Mere signature on the copy of our specification shall not be accepted as a compliance statement. Compliance statement in the format mentioned below shall only be accepted. The manufacturer should also record the performance figures of their equipment offered in the quote for which the compliance statement is enclosed. The figures so mentioned should be supported by record of these in the technical literature enclosed with the tender and reference to the page number of enclosed literature for all features and technical specifications should be mentioned in the relevant column. Offers without the compliance statement or incomplete compliance statement will be rejected with the sole responsibility of the tenderer. Any deviation from the specification detailed in the compliance statement is to be highlighted separately

Sl. No of EMRC-OU. Specs.	EMRC-OU. Specs.	Compliance (Yes/No)	Performance Fig. of eqpt. Offered.	Reference to the Page Number of enclosed literature	Deviations, in case of non-compliance	Optional items if any Reqd. to make the sys. Compliance to EMRC-OU. Specs.	Features in the Sys. Offered Which exceed EMRC-OU. Specs.

13. ACCESSORIES: All the accessories such as Power cables, connectors etc. required to complete the system should be offered by the firm and the firm should certify the completeness of the system in all respect. All the optional items should be quoted separately. Firm must provide enough details about such optional items to decide its utility.

14. TRAINING: 2 days training on operation and maintenance of the offered system for Engineers at EMRC. OU, Hyderabad, India, should also be offered with the bid.

15. DOCUMENTATION: One set of user guide and Technical Manual (soft & hard copies) for operation and Maintenance should be provided along with the tender for technical evaluation purpose, on non-returnable basis. Offers without the technical manuals for evaluation, are liable to be rejected with sole responsibility of the bidder. The successful bidder has to supply one set of Technical Manual for operation and Maintenance along with the equipment. The cost, if any, for these manuals may be indicated in their offer.

16. DEMONSTRATION: The equipment offered may be required to be demonstrated at EMRC.,OU, Hyderabad, India for compliance of the required features, as a part of tender evaluation process. The firm should arrange the necessary equipment required for the demonstration within a stipulated period.

17. PRICE: The tenderer must quote separately item wise price of all the items that constitute the system. Prices of all the optional items should also be quoted separately.

18. GUARANTEE: The equipment should be guaranteed for at least two years of trouble free operation from the date of supply. In case of any failure within the guarantee period the equipment should immediately be replaced/repaired free of cost.

19. ENCLOSURES: The firm must submit the following enclosures along with the tender to facilitate technical evaluation:

13.1 Point to point compliance statement duly signed by the OEM. The OEM should essentially fill the performance figure of the offered product in the compliance statement. The reference to the page number of enclosed literature for all features and technical

specifications should be essentially mentioned in the relevant column of the Compliance statement.

13.2 Technical manuals/Detailed technical literature/catalogues for all the offered products for substantiating the technical specification.

13.3 Product specific user list of the offered product/system.

13.4 Any other document mentioned elsewhere in the tender document.

The tender is liable to be rejected in the absence of the above enclosures with the sole responsibility of the tenderer.

20. Offers received after the bid closing date/time shall be rejected. Only those bids will be evaluated which are found to be fulfilling the eligibility and qualifying requirements of the RFP, Both technically and Commercially. The compliance of technical bids would be determined on the basis of parameters specified in the RFP. The price bids of only those bidders will be opened whose technical bids would clear the technical evaluation.
21. Telex/Tele fax/E-Mail Tenders will not be accepted and the University takes no responsibility for delay/loss or non-receipt of tenders by post/couriers.
22. Any offer containing incorrect statement and incomplete information will be summarily rejected and no unsolicited correspondence shall be entertained.
23. Osmania University reserves the right to accept /reject any offer in full or in part or accept any offer other than the lowest without assigning any reasons thereof.
24. All disputes or differences whatsoever arising between the parties relating to the contract shall be settled by the arbitration in accordance with the rules of arbitration of Indian Council of Arbitration and the Award made in pursuance thereof shall be binding on the parties. The venue of arbitration shall be Hyderabad, and the Registrar, Osmania University, Hyderabad – 500007, will make the appointment of the arbitrator on behalf of the University.
25. The Tenders of those reputed firm shall only be accepted, who have remitted the prescribed non-refundable Tender Application fee of Rs.15,000/- (Rupees Fifteen Thousand only) along with EMD of 5% of the cost of the Equipment Payable through Demand Draft drawn on any nationalized bank in favour of Registrar, OU.
26. Before quoting the rate, the firm is advised to visit of EMRC/OU for Technical survey/information of the Supply, Installation Of Technical Equipment & Commissioning Of TAC-XVII Approved Equipment.
27. The E.M.D of the unsuccessful tenderers will be refunded without any interest.
28. The firm must have valid TSGST/CST/CGST Registration Certificate. (Please attach copies of valid certificates).
29. The Successful bidder must submit the bank guarantee for amount equivalent to 10% of the total tender value for a period of 5 years from the date of execution of the order and subsequently EMD will be returned on written request. In addition to the bank guarantee the L-1 Vendor should also execute an agreement at the time of taking the Purchase order.
30. The O.U. is empowered to recover from the Bank Guarantee any sum due and for any other sum that may be fixed by the O.U. as being the amount or loss or losses or damages suffered by it due to delay in performance and / or non-performance and / or partial performance of any of the conditions of the contract and / or non-performance of guaranteed obligations.
31. Failure to comply with the terms of security deposit shall result into cancellation of work order and termination of the contract without any further reference to the tenderer and the EMD shall be forfeited.
32. The bidder should have the experience of the Supply, Installation Of Technical Equipment & Commissioning Of TAC-XVII Approved Equipment For EMRC, Osmania University – Hyderabad/ Hyderabad / in Government/Public Sector undertakings/Universities, Reputed Pvt Limited companies etc.

33. The University reserves the right to cancel the tender or terminate the contract with L-1 vendor without assigning any reasons thereof.
34. The University shall however invite the L-1 bidder for negotiations, if it feels the lowest prices quoted are on the higher side.
35. The Tenderer should be experienced in Hyderabad / in Government/Public Sector undertakings/Universities, Reputed Pvt Limited companies etc. and the project cost could be with minimum capacity of 5 Crores.
36. The Osmania University reserves the right to evaluate technically, the equipment and samples offered by the bidders during technical evaluation.
37. The bidders should have experience of similar works. All the items supplied should be of standard make/manufacturer to ensure compatibility of the items and better functioning of the system.
38. Authorization certificate for providing test reports complying specifications at the time of Technical scrutiny.
39. Technical and trained manpower shall be employed/deployed to complete the work as per the methodology for as per manufacturer standards.
40. The manufacturer and guarantee certificate shall be handed over to University after the completion of total project work.
41. The bidder shall test the equipment supplied after erection, testing and commissioning shall got approved by the University.

REGISTRAR,
OSMANIA UNIVERSITY

Annexure -I
TECHNICAL BID

(To be submitted in a separate sealed envelope)

1. Name of Tendering Company/Contractor with Registration No. & Date
(Please enclose copy of certificate of Registration)
2. Do you possess trade license issued by Competent Authorities, if so, please enclose a copy.
3. Name of Proprietor / Director
4. Furnish following particulars of the Registered Office
 - a. Complete Postal Address
 - b. Telephone No.
 - c. Fax. No.
 - d. E-Mail Address
5. Furnish following particulars of the Operating office, if different from above
 - a. Complete Postal Address
 - b. Telephone No.
 - c. Fax. No.
 - d. E-Mail Address
6. Are you Authorized/ Reputed firm,
If yes, please attach a copy of the relevant certificate issued by the competent Authority.
7. PAN No. (Attach Attested Copy)
8. TIN No. (Attach Attested Copy)
9. TSGST/CST/CGST Registration Certificate
(Attach Attested Copy)
10. Financial turnover for last three financial Years.
(Please attach copies of audited Balance Sheet and IT returns) (2014-15, 2015-16 and 2016-17)
Attach separate sheet if space provided is insufficient
11. Give details of the major clients –
Government, Educational Institutions, Universities etc.
Where similar works have been executed by the Bidder during the last three years. Copies of the Orders should be attached for proof.
 - a. Sl. No
 - b. Name & address of the Client with details
 - c. Name of the contact person,
Telephone no., Fax no., and E-mail ID

12. Whether your annual turnover was
 Rs. 5.0 Crores per Annum , in the last three financial years
 (2014-15, 2015-16 and 2016-17)
 (Please attach relevant copies).

13. Details of

(i) Application fee Rs. _____ DD No. _____ Dt. _____ Bank _____

(ii) EMD fee Rs. _____ D.D.No. _____ Dt. _____ Bank _____

TECHNICAL COMPLIANCE

S.No	Name of the Equipment	Complied Yes / No
1.	Camcorder	
2.	HD/SD compatible TV Studio Camera Chain with CCU	
3.	PEDESTAL FOR STUDIO CAMERA	
4.	TRIPOD FOR HD ENG CAMCORDER	
5.	TRIPOD FOR LOW Cost ENG CAMCORDER	
6.	Studio HD/SD, Recorder Playe	
7.	Channel Audio Mixer	
8.	8 Input Digital Video Production Switcher	
9.	8-Input 3G/HD/SD/CVBS + Input DVI/HDMI/VGA Multiviewer	
10.	42 inch LED FHD TV	
11.	Interactive Whiteboard	
12.	Ampli Speakers	
13.	MPEG4 Encoder Decoder	
14.	VGA TO PAL CONVERTOR	
15.	Cordless Lapel Mics	
16.	Gun Microphone	
17.	Digital/ Analogue HD/SD Waveform Monitor	
18.	5 Inputs SD-SDI and 4 inputs HD SDI 3D TRACKLESS VIRTUAL STUDIO SYSTEM	
19.	Non-Linear Editing System	
20.	e-Content Hardware and Software	
21.	Still Camera	
22.	Studio Lighting Equipment	
23.	40 inch LCD Monitor	
24.	Transmitter and Receiver unit (Backpack)for Live Transmission	

Annexure -II
Commercial Bid

S.No	Name of the Equipment	Amount (Per Unit)
1.	Camcorder	
2.	HD/SD compatible TV Studio Camera Chain with CCU	
3.	PEDESTAL FOR STUDIO CAMERA	
4.	TRIPOD FOR HD ENG CAMCORDER	
5.	TRIPOD FOR LOW Cost ENG CAMCORDER	
6.	Studio HD/SD, Recorder Playe	
7.	Channel Audio Mixer	
8.	8 Input Digital Video Production Switcher	
9.	8-Input 3G/HD/SD/CVBS + Input DVI/HDMI/VGA Multiviewer	
10.	42 inch LED FHD TV	
11.	Interactive Whiteboard	
12.	Ampli Speakers	
13.	MPEG4 Encoder Decoder	
14.	VGA TO PAL CONVERTOR	
15.	Cordless Lapel Mics	
16.	Gun Microphone	
17.	Digital/ Analogue HD/SD Waveform Monitor	
18.	5 Inputs SD-SDI and 4 inputs HD SDI 3D TRACKLESS VIRTUAL STUDIO SYSTEM	
19.	Non-Linear Editing System	
20.	e-Content Hardware and Software	
21.	Still Camera	
22.	Studio Lighting Equipment	
23.	40 inch LCD Monitor	
24.	Transmitter and Receiver unit (Backpack)for Live Transmission	
	Total Amount	
	GST as Applicable	
	(A) Total Amount Incl. of all Taxes	
	1 st Year Defect Liability Period (Warranty)	FOC (Free of Cost)
	2 nd Year Defect Liability Period (Warranty)	FOC (Free of Cost)
	AMC for 1 st Year	
	AMC for 2 nd Year	
	AMC for 3 rd Year	
	(B) Total Amount Incl. of Taxes	

	Total Amount (A+B)	
--	--------------------	--

Note: The vendors are advised to quote prices exclusive of taxes as applicable as per government norms and show the tax component separately followed by Grand Total prices. The discretion is vested with the University to decide as per the requirements. Tenders will be finalized even if one bidder is qualified and the contract will be awarded to the respective lowest bidder. the bidder should complete the entire work within Four weeks. Any delay in the execution of the work the bidder shall have to forfeit the EMD and penalty will be levied by the University. The bidder must have experience in execution of similar works in Broadcast Production Equipment Supply, Installation, Testing, Commissioning & Servicing of the supplied equipment.

ANNEXURE-IV

PERFORMANCE BANK GUARANTEE FORMAT ON SECURITY DEPOSIT

This deed of Guarantee made on..... day of Month & Year by Name & Address of the bank (hereinafter called the "GUARANTOR") on the one part, on behalf of M/s Name & address of the Firm (hereinafter called the "FIRM") in favour of The Registrar, Osmania University, Hyderabad on the following terms and conditions.

Whereas the FIRM is entering into a agreement with The Registrar, OSMANIA UNIVERSITY for works of Supply, Installation, Testing & Commissioning of TAC XVII approved equipment at EMRC, Osmania University and this guarantee is being made for the purpose of submission of Security money required to be deposited at the time of signing of the agreement between Osmania University and FIRM.

Know all people by these presents that the GUARANTOR, hereby undertake to indemnify and keep The Registrar, Osmania University indemnified up to the extent of Rs.....(Rupees in words)during the validity of this bank guarantee and authorize The Registrar, Osmania University to recover the same directly from the GUARANTOR. This bank guarantee herein contained shall remain in full force and effect till the expiry of its validity or till any extended period (if extended by the bank on receiving instructions from FIRM.). The liability under the guarantee shall be binding on the GUARANTOR or its successors.

Whereas the GUARANTOR further agrees that their liability under this guarantee shall not be affected by any reason of any change in the offer or its terms and conditions between the FIRM and Osmania University with or without the consent or knowledge of the GUARANTOR.

Whereas the GUARANTOR further agrees to pay guaranteed amount hereby under or part thereof, on receipt of first written demand whenever placed by The Registrar, Osmania University during the currency period of this guarantee. The GUARANTOR shall pay The Registrar,Osmania University immediately without any question, demure, reservation or correspondence.

Whereas the GUARANTOR hereby agrees not to revoke this guarantee bond during its currency period except with the previous consent of The Registrar, Osmania University in writing.

Notwithstanding anything contained herein

- Our liability under this bank guarantee shall not exceed Rs... (Rupees in words)
- This Bank guarantee shall be valid up to
- We are liable to pay the guaranteed amount or any part thereof under this bank guarantee only and only against the written claim or demand on or before

Sealed with the common seal of the bank on thisday of (Month) and (Year).

Witness:

1.....

2.....

(Signature and seal of the bank)

SIGNATURE AND STAMP OF THE TENDERER