PAKISTAN TELEVISION CORPORATION LIMITED
INVITATION OF BID

CORRIGENDUM

Ref No.ENG/PLG/D-807/319

PTV Tender No. ENG/PLG/D-807/305 titled as ***FABRICATION OF FHD OUTDOOR BROADCAST EQUIPPED TRUCK WITH ALL ALLIED EQUIPMENT "REVAMPING OF PTVC"*** scheduled to be opened on November 11, 2026.

02. Tender specifications/documents have been amended, and the updated specifications are available on the PTVC and PPRA websites. All participating firms/suppliers are requested to prepare and submit their technical proposals in accordance with the revised specifications. All other terms and conditions shall remain unchanged.

03. **Rescheduling of Technical Bid Opening:** The date of opening of technical bids has been rescheduled to **25.11.2026**.

(Khawaja Salahuddin)
Director Engineering Projects
PTV Headquarters Office
Constitution Avenue-F5/1, Islamabad
Tel: 051-9077322

PAKISTAN TELEVISION CORPORATION LIMITED

Ref No. ENG/PLG/ D-807/305

TENDER INVITATION

Pakistan Television Corporation Limited (PTVC) invites technical proposals in accordance with PPRA Rules [2004, 36I] [2026, 27I] – Two Stage Bidding Procedure from registered and reputed firms authorized by Original Equipment Manufacturer (OEM) or foreign bidders for the procurement and fabrication of OB Van/Truck titled as ***"FABRICATION OF FHD OUTDOOR BROADCAST EQUIPPED TRUCK WITH ALL ALLIED EQUIPMENT"*** under the PSDP project "Revamping of PTVC".

02. Specifications of equipment along with terms and conditions can be downloaded from PPRA (https://ppra.gov.pk) and PTVC (https://ptv.com.pk) websites or can be collected from the office of the undersigned during the office hours.

03. Original Bid Security, as specified in the bidding documents, shall be submitted along with the sealed hard copy of the Technical Proposal. The participating firms must ensure submission of tender documents/proposals addressed to Controller Audit **Chairman, Senior Tender Committee, PTV Headquarters Office, Constitution Avenue, F-5/1, Islamabad,** latest by **1100 Hours on Wednesday, November 11, 2026.** The "Technical Proposal" in a sealed envelope should clearly mention **"*FABRICATION OF FHD OUTDOOR BROADCAST EQUIPPED TRUCK WITH ALL ALLIED EQUIPMENT*" (REVAMPING OF PTVC)**",

04. The received Technical Proposals shall be opened after 1130 Hours on the same day in the presence of bidders or authorized representative, who may wish to attend.

05. Financial proposal will be invited from the pre-qualified firms at second stage.

06. PTVC reserves the right to reject all the bids or proposals in the light of PPRA Rules [2004, Rule 33] [2026, Rule 45].

s/d

(Khawaja Salahuddin)
Director Engineering Projects
PTV Headquarters Office
Constitution Avenue-F5/1, Islamabad
Tel: 051-9077322

FABRICATION OF FHD OUTDOOR BROADCAST EQUIPPED TRUCK WITH ALL ALLIED EQUIPMENT

"Revamping of PTVC"

"Bidding Document"



PAKISTAN TELEVISION CORPORATION LIMITED

2026-27

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PAKISTAN TELEVISION CORPORATION LIMITED
HEADQUARTERS, ISLAMABAD
Ref No. ENG/PLG/ D-807/305

TENDER TITLE:	
FABRICATION OF FHD OUTDOOR BROADCAST EQUIPPED TRUCK WITH ALL ALLIED EQUIPMENT	
NAME OF SUPPLIER:	Qty-01 (Job)

TERMS OF REFERENCE (TOR) & TECHNICAL SPECIFICATIONS FOR TURNKEY DESIGN, FABRICATION, SUPPLY, SYSTEM INTEGRATION, TESTING, TRAINING, AND COMMISSIONING OF ONE (01) "MAIN OB (8–10-CAMERAS) FHD EQUIPPED TRUCK WITH ALLIED EQUIPMENT".

SECTION 1: PROJECT SUMMARY

7.5 Project Intent and Execution Methodology.

Pakistan Television Corporation Limited (PTVC) invites comprehensive technical proposals from eligible international System Integrators and local suppliers for the turnkey solution such as design, engineering, fabrication, supply, configuration, integration, testing, commissioning, training, and deployment of one (1) Rack-Ready 8–10 Camera FHD/UHD Outdoor Broadcast (OB) Van/Truck, preferably built on a Hino or equivalent rigid truck chassi**s**, with local warranty, after-sales service, technical support, and spare parts availability in Pakistan.

Bidders shall submit proposals outlining their technical solution, project execution plan, implementation schedule, logistics strategy, system integration approach, and commercial offer for the successful completion of the project.

The proposed execution methodology shall clearly describe the overall implementation strategy, including engineering, fabrication, transportation, installation, system integration, testing, commissioning, acceptance, and handover. The methodology shall demonstrate compliance with applicable international standards, industry best practices, operational reliability, quality assurance, safety requirements, and project delivery milestones.

PTVC will evaluate the proposed execution methodology and technical solution as part of the technical evaluation process. The successful bidder shall execute the project in accordance with its approved proposal, the Contract, and the agreed implementation schedule, delivering a fully integrated, tested, commissioned, and operational turnkey OB Truck.

1.2 Legal, Financial & Commercial Requirements:

Shipping, Logistics & Delivery Responsibility:

The bidder shall assume full responsibility for the turnkey delivery of the OB Van/Truck and all associated systems to Pakistan Television Corporation Limited (PTVC), Islamabad. The scope shall include transportation, logistics, shipping documentation, delivery, installation, system integration, testing, commissioning, operator training, and final handover.

The Financial Proposal shall include a detailed commercial breakdown, including item-wise pricing, delivery schedule, applicable Incoterms, scope of supply, allocation of responsibilities, and logistics arrangements for each stage of project execution.

Where international shipment is involved, the bidder shall be responsible for all shipment-related compliance and shall nominate an authorized local representative to coordinate on-site delivery, installation, testing, commissioning, operator training, acceptance testing, and final handover in accordance with the Contract.

Execution & Local Support Responsibility:

The successful bidder shall arrange all necessary resources, including authorized local support personnel or approved partners, for execution of the project. The bidder shall be responsible for all required local fabrication, installation, integration, system validation, testing, commissioning, and operational handover activities as proposed in its approved technical offer.

SECTION 2: BIDDER ELIGIBILITY & REQUISITE EXPERIENCE

- **Coach-building Pedigree:** The bidding entity or their primary international system integration house must possess a minimum of **05 years of proven track record and verifiable expertise along the list of clients** in custom coach-building, vehicle weight distribution engineering, and the technical integration of HD, 4K, and Multi-Camera Outside Broadcast vehicles.

- **Eligibility / Experience:** The bidder must have successful prior experience in the supply, delivery, and integration of at least two (2) Outside Broadcast (OB) vans/vehicles. Bidders must submit documentary proof (such as completion certificates, client references).

SECTION 3: SYSTEM SCOPE & WORKFLOW SPECIFICATIONS

3.1: Mechanical, Coach-building & Layout Architecture:

- The completed assembly shall transform a standard commercial vehicle into a purpose-built, broadcast-grade Outside Broadcast (OB) production unit, providing a structurally reinforced, vibration-isolated, climate-controlled, acoustically insulated, and ergonomically designed technical environment suitable for reliable live production operations.
- **Internal Modular "OB Equipment Shell" Frame:** The core broadcast environment must be engineered as an isolated, rigid structural subframe. This frame must absorb localized kinetic energy via specialized heavy-duty rubber shock mounts, isolating the 19-inch equipment racks and consoles from the physical warping or vibrations of the truck frame.
- **Insulation & Environmental Protection:** The outer body shell must feature a minimum of 50mm fire-retardant, high-density insulation (e.g., Armaflex, Rockwool, or specialized PU foam) sandwiched between panels. The shell must maintain an internal acoustic threshold below **45dB (NC-35 rating)** and prevent moisture condensation under extreme Pakistani climatic conditions (+55°C ambient summer temperatures, high humidity, or intense monsoon rains).

- **Quality Standard:** The bidder/fabricator shall comply with applicable international quality, safety, environmental, welding, and electrical, EMC and automotive standards. Valid **ISO 9001:2015** certification is preferred.

- **Space Allocation & Structural Layout:**

Total Capacity: Accommodation for five (5) operational seats configured with professional technical chairs, integrated structural seats. The body enclosure shall be (8.0–8.2) feet wide, and its height shall comply with the applicable road regulations of Pakistan.

- **Production Command Console:** Four (4) technical seats positioned at the main multi-viewer monitoring wall, providing ergonomic access to the Video Switcher, Audio Mixer, and Production Director.
- **Engineering Desk Station:** One (1) separate, structurally isolated desk area dedicated to the engineering operations.
- **Equipment Service Bay:** A dedicated, rear-accessible technical area housing two (2) 42U 19-inch structural equipment racks with dynamic air extraction.
- **Internal Layout Diagram:** A specimen for lay out diagram has been provided in the tender document for reference. However, participating firms can submit improved layout diagram.

3.2: Power Distribution, Backup & Climate Control (HVAC):

- **Power Source Selection & Changeover:** A heavy-duty Manual Supply Transfer / Changeover Unit for managing input routing between External Shore Power (Mains L1, L2, L3) and an On-Board Generator.
- **Power Isolation & Regulation:** All inbound technical power feeds must pass through an isolation transformer before reaching the UPS. The system requires a dedicated copper grounding/earth spike terminal with a 50-meter heavy-duty ground trailing cable.
- **Power Generation System:** Provide an integrated, ultra-quiet diesel generator of minimum 25–30 kVA capacity (final capacity to be calculated by the bidder based on the total connected load with a 30% safety margin). The generator shall be mounted on a heavy-duty trolley sliding mechanism with anti-vibration mounts and vibration-proof jacks for easy maintenance and stable operation. It shall be installed behind the driver's cabin, between the OB body enclosure, in a properly enclosed and ventilated compartment. The generator installation shall not reduce the usable operational space inside the OB body enclosure.
- **Uninterruptible Power Supply (UPS):** One (1) **15–20 kVA online double-conversion UPS** system. The battery bank must sustain the complete technical broadcast load, including all 10 CCUs, routers, switchers, multiformat monitoring walls, and command consoles, for a minimum of **15–20 minutes** during sudden power disruptions. Air conditioning units are excluded from the UPS circuit.
- **Dual-Zone Redundant HVAC System:** The enclosure must be Split-Type three or more separate, independently controlled thermal zones as per required:
  - **(Main Control & Gallery Area):** Dedicated air conditioning unit configured to maintain human operator comfort at 21°C–23°C.
  - **(Rack/Service Bay Area):** Dedicated heavy-duty cooling configuration blowing conditioned air directly into the enclosed rear air intake of the 42U equipment racks, maintaining equipment temperatures below 20°C.
  - **(Other Area):** As per proposed design requirement.

3.3: Cable Management & Tailboard Interfaces.

- **Cable Deployment Infrastructure:** The rear under-chassis or dedicated low-slung compartments must house **ten (10) SMPTE hybrid fiber cable reels**:
  - Six (6) reels must be permanently fixed horizontally on structural brackets with smooth manual or motorized rewinding assists.
  - Four (4) portable, standalone deployable reels must be secured in a dedicated storage locker accessible via the lower side panels.
- **External Input/Output Wall Box:** A weatherproof, recessed, lockable exterior tailboard interface panel constructed from powder-coated aluminum, pre-terminated with the following minimum broadcast handoffs:
  - Five (5) BNC HD/3G/12G-SDI Inputs
  - Five (5) BNC HD/3G/12G-SDI Outputs
  - Eight (8) XLR Female Balanced Audio Inputs
  - Four (4) XLR Male Balanced Audio Outputs
  - Two (2) Heavy-Duty RJ45/etherCON Dante Network Connectors
  - One (1) Set of high-amperage 3-phase power inlets with matching phase-rotation indicator meters.
  - Any other items to complete the inventory.

SECTION 4: PROJECT EXECUTION, FACTORY TESTING & HANDOVER

4.1: System Documentation Requirements.

Prior to the physical cutting, framing, or ordering of equipment, the vendor must submit full technical drawings for PTVC approval. Final handover documentation must include:

- As-Built schematics detailing comprehensive single-line video, audio, network, intercom, and power routing paths.
- Complete mechanical construction drafts, including calculated axle-load weight distribution profiles and 3D architectural interior/exterior renderings.

The integrator/supplier shall provide comprehensive as-built cable documentation, including cable run lists with origin and destination details, unique cable identification tags, equipment and cable labeling schedules, final as-built wiring drawings, and certified signal loss test reports for all installed cable paths.

4.2: Letters of Authorization (LOA).

Bidders must submit formal **Manufacturer's Letters of Authorization (LOA)** directly from the Original Equipment Manufacturers (OEM) for the following core equipment classes:

1. Complete Broadcast Camera Systems and Digital CCU Chains
2. Professional Broadcast Optical Lenses
3. Main Video Production Switcher
4. Master Audio Mixing Console
5. Central Video/Audio Routing Matrix
6. Master Sync Pulse Generator (SPG) & Clock System

4.3: Testing Protocols & Acceptance Criteria

- **Site Acceptance Testing (SAT):** Following local integration of the OB body onto the selected truck in Pakistan, a comprehensive Site Acceptance Test (SAT) shall be conducted under field conditions. The system shall be tested under high ambient temperatures, power supply fluctuations, and continuous 24-hour multi-camera live production to verify stability, reliability, and compliance with the specified requirements.
- **Solution Training:** The vendor must deliver a rigorous, structured training program covering workflow topology, routine maintenance, emergency power management bypasses, and system configuration techniques for PTVC's technical crew.

4.4: Warranty Obligations

- **Local Technical Support:** International bidders must formally nominate and attach legal documentation authorizing a **registered Local Support Agent/Representative** based inside Pakistan. This local entity must provide immediate on-site technical support, handle spare part routing, and act as the principal legal touchpoint for warranty claims.
- **Warranty and Spares:** Provide a standard comprehensive system-wide warranty along with an **Essential Spares Kit** containing critical high-wear items (e.g., alternative fuses, spare system, power modules, backup cooling fans, BNC/XLR adapters, and patch cords and assorted tools for general maintenance of equipment and OB infrastructure).

SECTION 5: TECHNICAL COMPLIANCE MATRIX

Bidders must respond to every line item below by stating **Compliant (YES)** or **Non-Compliant (NO)**. Any partial compliance must be explained in the Remarks column.

Item No.	PTVC Technical & Structural Specification Requirement	Bidder Compliance (Yes / No)	Bidder Reference & Remarks
TC-1.1	**Procurement Model:** Core workflow, rack layout, and wiring executed internationally & Project execution methodology.		
TC-1.2	**Isolation Subframe:** Equipment racks and operator desks mounted into an independent structural frame isolated from truck chassis warping via heavy-duty rubber shock mounts.		
TC-1.3	**Enclosure Insulation:** Structural body built as a specialized broadcast shell with minimum 50mm fire-retardant insulation. External acoustic penetration kept below 45dB (NC-35 rating).		
TC-1.4	**Interior Layout:** 5 separate seats provided with adequate legroom (4 at the main gallery console, 1 at the separate engineering shading desk).		
TC-1.5	**Power Changeover:** Manual L1, L2, L3 transfer changeover mechanism installed to isolate and switch between incoming shore power and the onboard generator.		
TC-1.6	**Power Quality & Earth:** Dedicated isolation transformer coupled with a copper earth-grounding spike and 50-meter heavy-duty ground cable reel.		
TC-1.7	**Onboard Generation:** Ultra-quiet diesel generator integrated into an acoustic chassis bay, rated at calculated load with an active safety capacity buffer.		
TC-1.8	**Online UPS System:** 15-20 kVA online double-conversion UPS supporting all technical hardware (excluding HVAC) for 15-20 minutes of runtime.		
TC-1.9	**SMPTE Reel Storage:** 10 total hybrid fiber reel provisions; 6 reels mounted horizontally at the rear chassis, 4 loose portable reels stored in under-table accessible external hatches.		
TC-1.10	**External Wall Box:** Pre-installed exterior I/O board with minimum 5x SDI in, 5x SDI out, 8x XLR in, 4x XLR out, and 2x etherCON Dante network ports.		
TC-1.11	**Experience Prerequisite:** Primary bidder or systems integration vendor demonstrates 05 years of experience in multi-camera OB truck coach-building and delivery.		
TC-1.12	**OEM Documentation:** Submission of Manufacturer's Letters of Authorization (LOA) for the Camera chains, Lenses, Video Switcher, Audio Mixer, Router, and SPG.		
TC-1.13	**Local Representation:** Legal designation and authorization of a resident Local Support Agent inside Pakistan to fulfill warranty obligations and provide field engineering support.		

SECTION 6: BILL OF QUANTITIES (BOQ) STRUCTURE.

Line Item	Broad Category Component Description	Unit	Required Base Qty	Offered Make / Model
BOQ-1.1	International System Design, CAD 3D Drafting, Structural Box Frame Engineering.	Lot	1	
BOQ-1.2	Heavy-Duty Coach-building, Panel Fabrication, Integration, Thermal/Acoustic Body Insulation, and Commissioning onto Truck Chassis	Job	1	
BOQ-1.3	Automated / Manual Hydraulic Leveling Jack System with Central Controls	Set	1	
BOQ-1.4	On-board Ultra-Quiet Diesel Generator with integrated fuel line pull and exhaust routing	Unit	1	
BOQ-1.5	Online Double-Conversion Intelligent Broadcast Grade UPS (15-20 kVA) with matching internal battery enclosure rack	Unit	1	
BOQ-1.6	Split-Type Climate Control Units for Operator Area / Forced-Air Technical Rack Area and other areas.	Set	1	
BOQ-1.7	Professional Ergonomic Technical Operator Seats with matching structural tie-down rails	Unit	5	
BOQ-1.8	Structural 19-Inch Equipment Racks (42U Capacity) complete with forced extraction fan arrays	Set	1	
BOQ-1.9	Rear Mechanical Cable Reel Mechanism (6 Fixed Drum Chassis Mounts)	Set	1	
BOQ-1.10	Recessed External I/O Multi-Pin Tailboard Connection Box (Weatherproofed Entry Panels)	Unit	1	

SECTION 7: DETAILED CORE BROADCAST EQUIPMENT SPECIFICATIONS.

	Technical Features:	Make/Model Compliance Remarks
7.1	**Outdoor Broadcast Camera System (Qty:10)**	
7.1	2/3" 3-CMOS camera with global shutter image sensor, Native 3840×2160 resolution, F11 sensitivity at 2000 lux, 62 dB SNR. Camera system shall provide 12G-SDI Signal transmission for uncompressed UHD (3840×2160/50p), supports ITU-R BT.2020 broadcast colorimetry and HDR workflow natively, without dependence on internal conversion (up-scaling) and SMPTE hybrid fiber interface with CCU enabled with IP connectivity. Camera shall support all UHD and HD formats natively and perpetually without reliance on optional software licenses, up conversion, or interpolation. Camera Control Unit (CCU) shall enable 720p and 1080p video output through 3G/HD/12G-SDI interfaces, with capability up to 12G-SDI, return video I/O, BBS or Tri-Level Genlock, 4-wire Clear-Com/RTS intercom, tally integration, and AC 100–240V, 50/60Hz operation. Minimum 500 m CCU-to-camera operating range over hybrid fiber cable, including power, video and control. *Note:* *CCU-based internal up conversion to UHD is not acceptable; the camera must support native UHD/HD formats* ***Required OCP*** Provide 10 independent physical hardware control panels, each dedicated to a respective camera chain, offering a tactile 1-to-1 control layout. The system shall also include an optional accessories master control panel with dedicated software/application for centralized monitoring, configuration, and management of all camera chains. **Accessories:** Viewfinders (7"), Eye View Finder, Rain covers, Shock-Mounted Shotgun Microphone, OCP-CCU Cable as per length/design and Tripod Mount Plate, Tally System etc. ***Optical Lens Assemblies & Servo Kits*** i. **4K UHD Ultra-Wide Lens 14X (Qty: 1 Unit)** **Compatibility:** Designed for 2/3-inch image sensors. **Optical Range:** Zoom ratio of 14X with a focal length spanning 4.3mm to 60mm (extending from 8.6mm to 120mm using the built-in multiplier). **Operational Features:** Integrated Auto/Manual selectable Iris spanning F1.8 to F16 and C (Closed), switchable Macro mode, and a built-in 2X optical extender. Minimum Object Distance (M.O.D.) from front element must be 0.3mm. Includes an LCD user configuration menu. **Control Integration:** Complete Remote Controller Lens Kit featuring standard 3 x 20-pin connectors enabling complete dual Focus Servo and Zoom Servo control loops. ii. **4K UHD Standard Lens 25X (Qty: 4 Units)** **Compatibility:** Designed for 2/3-inch image sensors. **Optical Range:** Zoom ratio of 25X with a focal length spanning 7.6mm to 190mm (extending from 15.2mm to 380mm using the built-in multiplier). **Operational Features:** Selectable Servo/Manual Focus and Zoom channels, an Auto/Manual Iris tracking F1.9 to F16 and Closed, switchable Macro mode, and a built-in 2X optical extender. M.O.D. target is 0.80 meters. Includes an LCD user configuration menu.	Make/Model Compliance Remarks

	Control Integration: Complete Remote Controller Lens Kit featuring standard 3 x 20-pin connectors enabling complete dual Focus Servo and Zoom Servo control loops. iii. **18X Portable Telephoto Servo Zoom Lens (Qty: 5 Units)** **Compatibility:** Designed for 2/3-inch image sensors. Compact, lightweight, portable form factor. **Optical Range:** Zoom ratio of 18X with a focal length spanning 7.6mm to 137mm. **Operational Features:** Built-in 2X optical extender. Shooting field dimensions at M.O.D. must encompass 65.5x36.8 cm at 7.6mm wide angle, shifting to 3.8x2.1 cm at 137mm telephoto. **Control Integration:** Equipped with 3 x 20-pin control interfaces for Zoom, Focus. Features an onboard LCD menu screen supporting Shuttle Shot, Frame, and Speed profile presets. Includes matching operational servo kit hardware. iv. **Professional Broadcast Box-Type Zoom Lens (25× and 70×) – Qty: 2 Units Each (Quote as Optional)** Professional broadcast box-type zoom lenses in 25× and 70× optical zoom configurations, featuring 2/3-inch B4 mount, suitable for HD/4K UHD OB production, with appropriate focal-length range, built-in 2× extender, servo-controlled zoom, focus and iris. Complete with heavy-duty lens support/sled, universal lens supporter, servo control cables, mounting accessories and all necessary accessories for seamless integration with professional broadcast cameras and tripod systems.	
7.2	**Fiber cables with Spool**	**Make/Model Compliance Remarks**
	i. **150-Meter Cables (Qty: 7):** SMPTE hybrid camera fiber cable assemblies. Professional heavy standard pre-terminated with specialized optical connectors, wound on rugged deployment drums. ii. **200-Meter Cables (Qty: 3):** Professional heavy-duty SMPTE hybrid camera fiber cable assemblies (standard or equivalent) pre-terminated with specialized optical connectors, wound on rugged deployment drums. iii. **150-Meter Cables (Qty: 2):** Spare Professional heavy-duty SMPTE hybrid camera fiber cable pre-terminated with specialized optical connectors.	

7.3	**Structural Camera & Cable Accessories**	**Make/Model Compliance Remarks**
	• **External Signal Entry Interface Panel:** Wall box structure containing 5 x isolated SDI pass-through connectors and 5 x XLR structural connections for local analog field injections. • **SMPTE Technical Patch Panel:** Centralized studio rack patch panel equipped with ten (10) 5-meter SMPTE hybrid patch cords designed to route incoming lines safely to the respective CCU inputs. • **Communication Headsets:** Ten (10) robust, dynamic, double-sided intercom communication headsets matching the truck's main matrix intercom system. • **Protective Camera Hard Case:** Ten (10) heavy-duty, Aluminum Flight Case with Custom Foam, weather/rain covers fitted to the camera bodies, matching weather-resistant flight cases for the 10 camera heads, rugged lens transit flight cases, and specialized protective foam inserts for field microphones storage. • **Wide-Angle Lens:** Compatible wide-angle lens adapter assembly. (**Qty: 1**) • **SMPTE Fiber:** Cable cleaning / Fiber Optic Cleaner Tool. (**Qty: 1**)	
7.4	**Professional Support Tripod Systems (Qty: 10 Sets)**	**Make/Model Compliance Remarks**
	Heavy-duty, 2-stage, mid-level or ground-level spreader assembly. ***Head Mounting Interface:*** Standard 100-150mm bowl level fitting. ***Weight & Balance Handling:*** Continuous payload window handling up to 15kg. Features a multi-step dynamic counterbalance. ***Pan-Tilt Dampening System*****:** True hydraulic fluid dampening head architecture with independent 8 horizontal and 8 vertical drag adjustment steps. Tilt mechanics must cleanly articulate from +90° to -75° across a certified operating thermal envelope of -40°C to +60°C. ***Quick Release & Transit Accessories:*** Features a quick-locking camera wedge plate assembly and includes an industrial heavy-duty folding studio dolly wheel base tracking set.	
7.5	**Digital Wireless and Wired Microphone System with Lavalier, Handheld, and Gooseneck Modules & Allied Accessories.**	**Make/Model Compliance Remarks**
	Operating within a secure, high-density UHF tuning bandwidth (470–636 MHz). Digital RF transmission must utilize proprietary high-order modulation to guarantee drop-out-free operations under dense RF environments common during VVIP events. ➢ ***Sennheiser or equivalent:*** • ***Set-1: Digital Wireless Handheld System - QTY 2x*** Digital wireless handheld set. Includes (1) EW-DX EM 2 receiver (2) EW-DX SKM-S handheld transmitter, (2) MMD 835 capsules and (2) BA 70 batteries R1-9 520 – 607.8 MHz or equivalent. • ***Set-2: Digital Wireless Lavalier System, - QTY 4x***	

	Digital wireless lavalier set. Includes (1) EW-DX EM 2 receiver, (2) EW-DX SK bodypack transmitter, (2) MKE 2 lavaliers and (2) BA 70 batteries R1-9 520 – 607.8 MHz or equivalent. • Network enabled charger featuring two individual charging bays (compatible with EW-DX SKM, SK or BA 70) or equivalent. - **QTY – 3x** • Active antenna splitter (dual 1:4) with DC power distribution for EW-D receivers. Includes (1) NT 12-35 CS power supply and (8) BNC cable (470-706 MHz) or equivalent. - **QTY – 1x** • **4x** Passive, directional external paddle antenna, UHF range (470 – 1075 MHz) • **4x** ULTRA LOW-LOSS 50 Ω LMR 400 RF CABLE, terminated BNC (10dB LOSS PER 100m @ 500MHz • **Set-3: Miniature Lavalier Wired Microphone (SONY or equivalent) QTY – 6x** Miniature omnidirectional electret condenser lavalier microphone (ECM-77B or equivalent), with a frequency response of at least 50 Hz to 16 kHz, a balanced XLR output, and dual powering from phantom power or an AA battery. Supplied with a 3 m cable and power module, windscreen, clips, carrying case. • ***Wireless In ear monitoring:*** - **QTY 2x** Wireless stereo monitoring set. Includes (1) SR IEM G4 stereo transmitter, (1) EK IEM G4 stereo bodypack receiver, (1) pair of IE4 earbuds and (1) GA3 rackmount kit, frequency range: G (566 – 608 MHz) or equivalent. • 1x Active antenna combiner with DC power distribution for IEM transmitters. Includes (1) NT 3-1-EU power supply and (4) BNC cables or equivalent. • **1x** ULTRA LOW-LOSS 50 Ω LMR 400 RF CABLE, terminated BNC (10dB LOSS PER 100m @ 500MHz). **7.5.1. Parabolic Microphone System: QTY 2x** Minimum 22-inch professional parabolic reflector microphone system.	
7.6	**Digital Video Switcher with all accessories & allied equipment: (QTY -1)**	**Make/Model Compliance Remarks**
	Technical Specifications – Production Switcher (OB Van) ○ <u>2 M/E Broadcast Video Switcher with Dedicated Control Panels:</u> • Native 12G-SDI-capable professional 2 M/E broadcast-grade hardware production switcher featuring FPGA/ASIC-based real-time processing, ultra-low latency and 24/7 continuous operation. • **Main Control Panel:** Minimum 22 active illuminated crosspoint buttons per M/E row, with integrated OLED/LCD/LED source-name displays (minimum 8 characters). • **Video Inputs/Outputs:** Minimum 24 active 3G/HD-SDI inputs, 10 configurable SDI outputs and 04 additional dedicated Multiviewer outputs in HD mode. UHD/4K-ready architecture supporting single-link 12G-SDI inputs. • **Reference:** 01 Reference Input and 01 Output supporting Tri-level Sync and Black Burst. • **M/E & Keyers:** Minimum 04 keyers per M/E, supporting Chroma, Luma, Linear, Self and DSK modes; minimum 04 independent sub-M/Es in HD or equivalent manufacturer-supported processing architecture. • **Processing:** Minimum 04 media stores with video and alpha channels; 2D DVE supporting PIP, scaling, cropping, borders, shadows, rotation and perspective effects. • Assignable frame synchronizers and format converters with colour correction and Proc Amp.	

	• **Scenes:** Independent background/scene architecture supporting 04 backgrounds with 02 key layers each, 02 backgrounds with 04 key layers each, or 01 background with 08 key layers in HD mode. • **Multiviewer:** Minimum 02 independent outputs supporting Tally, UMD, clocks and audio metering, expandable to 04. • **Interfaces:** Integrated GPIO/GPI/O, RS-422, Ethernet and minimum 24 contact-closure tally outputs, compatible with cameras and monitoring systems. • **Auxiliary Control Panels:** 02 compatible AUX control panels, each having minimum 16 active physical buttons, with independent AUX bus control. • **Power:** Redundant power supplies for the mainframe and control panels wherever supported by the offered manufacturer's architecture. • **Note:** Note: All specified resources, licences and accessories shall be included, fully operational, with tally fully integrated and configured with cameras and monitoring systems. ***Allied accessories:*** Professional Broadcast-Grade SRT Streaming Encoder.	
7.7	**Digital Audio Mixer – (Outdoor Broadcast Grade) QTY 1**	**Make/Model Compliance Remarks**
	Audio Mixer with all accessories & allied equipment: Professional digital audio mixing console featuring 24 channel faders plus 1 master fader (25 motorized faders total), with high-performance digital audio processing engine. Minimum 64×64 Dante audio connectivity with primary/secondary network ports, either integrated or through an expansion card (included). Minimum 24 analogue XLR/TRS combination mic/line inputs, including at least 16 XLR-compatible inputs, 2 stereo pairs of unbalanced RCA auxiliary inputs and 16 balanced XLR analogue outputs. Individual +48V phantom power with independent ON/OFF control for each microphone input. All necessary accessories and allied equipment shall be included. • **<u>Stage Box</u>** • 16-Ins &16-Outs, Dante Analog Converter • Control Software • 16 XLR Mic/Line Input Channels • 16 XLR Bus / Outputs • Dante Domain Manager Support • AES67 Interoperability • 96 kHz / 32-Bit AD/DA Converters • Floor Installation and 3 RU Rackmount • Includes Rack Kit and Mounting Hardware • **<u>Audio ADC/DAC Standalone:</u>** DANTE-12GAM or Equivalent Single-channel 12G/3G/HD/SD-SDI Dante audio embedder/ disembedder with AC 100–240V power supply included.	

7.8	**50” 4K LED Multi-viewer Monitoring - QTY 2**	**Make/Model Compliance Remarks**
	• Display & Duty: 50-inch 4K UHD (3840x2160) commercial LCD display with 500 nits brightness, non-glare panel, and 24/7 continuous operation rating. Design & Build: Ultra-slim chassis with a maximum depth of 28.5 mm, symmetric slim-bezel design, and integrated clean cable management channels.,IP5X dust-proof certification, integrated Wi-Fi/Bluetooth, and multi-input connectivity (HDMI, DP, USB, RJ45). With wall mount and remote control • ***2 X SDI to HDMI Converter:*** Connections: SDI Video Inputs: 1 x SD, HD or 3G-SDI., SDI Compliance SMPTE 259M, SMPTE 292M, SMPTE 296M, SMPTE 424M, SMPTE 425M SDI Video Outputs: Automatically matches the HDMI video input.	
7.9	**Dual-Channel Frame Synchronizer and Converter - QTY-1**	**Make/Model Compliance Remarks**
	Processing Channels: Dual-channel HD/SD/3G frame synchronizer completely independent up/down/cross-conversion and frame-sync paths. • **Color Correction:** Integrated software-activated RGB color correction control per channel. • **Audio & Ancillary:** Dedicated inputs/outputs for AES and balanced analog audio alongside embedded SDI audio. • **Local Control**: Built-in front-panel LCD display and navigation buttons for direct hardware management. • **Power Redundancy**: Includes an external, secondary power module for dual-cord hardware redundancy.	
7.10	**PGM-PVW and CCU Monitoring**	**Make/Model Compliance Remarks**
	• **2 unit of:** 24-inch 10-bit IPS LCD, 3840×2160 resolution, 1200 cd/m² brightness, 1000:1 contrast, 178°(H/V) viewing angle, 12-bit zero-delay video processing. **Inputs:** 2×12G-SDI, 2×3G-SDI BNC with loop-out, 1×HDMI 2.0 with loop-out, 1×SFP+ optical interface, supporting 4K single-link and quad-link (SQD/2SI) up to 4K60p; dual DC 12V and AC 100–240V power supply. Supports Rec.709, DCI-P3, Rec.2020 color spaces, HLG and ST2084 PQ HDR with VPID/Payload ID auto-recognition, built-in camera log conversion, 3D LUT calibration compatible with ColourSpace and Calman, quad-view mode, 608/708 closed caption, and 4K HDR to HD SDR down-conversion. Built-in waveform, vectorscope, false color, zebra, focus assist, 16-channel audio meters, tri-color tally, UMD/IMD, RS-422/GPI/Ethernet control; built-in speakers, 3.5mm headphone jack, aluminum alloy chassis, ≤110W • **5 units of:** Dual 8-inch IPS LCD, 19” 3RU EIA rackmount, 1920×1200 resolution, 290 cd/m² brightness, 900:1 contrast, 160°(H/V) viewing angle, 8-bit color depth; independent single-screen scopes display with Normal, L-Mode, and Quad-Mode. Each screen: 2×12G/6G/3G/HD/SD-SDI inputs with loop-out, 1×HDMI 2.0 up to 4K60p, supporting 3 independent 4K signal links per screen; DC 12V and AC 100–240V dual power; ≤35W. Supports Rec.709, DCI-P3, Rec.2020; HLG and ST2084 PQ HDR; built-in camera log conversion (Arri, Sony, Canon, Panasonic, DJI); 3D LUT calibration (ColourSpace/Calman); VPID/Payload ID auto-recognition. Built-in waveform, vectorscope, false color, zebra, focus assist,16-channel audio meters, tri-color tally, UMD/IMD, LTC/VITC timecode, GPI/RS-422 TSL3.1/TSL4.0, Ethernet control; aluminum alloy chassis.	

7.11	**Powered Audio Monitors - QTY – 1 Pair**	**Make/Model Compliance Remarks**
	Active Near-field DSP Monitor 2-way, 4”” + 1”” drivers, analog in –XLR / Jack, 6.7 liters, 120 + 70 W, 108.8 dB SPL, 57 – 21kHz, 100-240 VAC. **Audio Level Monitor Rack Mount QTY 1** Audio monitor in a compact 1 rack unit size! Features dual subwoofer design, 2110 IP and 12G-SDI inputs for SD, HD and Ultra HD support, balanced XLR, AES/EBU and HiFi audio inputs	
7.12	**CCU Camera Matching (WFM & Scope): QTY – 1**	**Make/Model Compliance Remarks**
	Features: • 3RU height, half-rack width, under 5.5-inch depth, integrated 9” touchscreen. • Inputs: 4x BNC inputs supporting 12G-SDI baseband; Tri-level/Black Burst reference loop. • Formats: SD, HD, 3G, 12G-SDI standard; 4K/UHD. Video • Tools: Waveform, Vector, Lightning, Diamond, False Color, and CIE charts. • Audio Tools: 16-channel embedded metering, loudness monitoring, and phase display. • Control & Remote: Front-panel knobs and full-frame-rate WebRTC remote access. • Power: Dual AC/DC power options with broadcast battery mount capability	
7.13	**Recording/Playback**	**Make/Model Compliance Remarks**
	i. Multi-Channel File-Based Recorder/Player – OB Van Grade (Recording of PGM) - QTY 1 ➢ **Grass ValleyT3 Pro *or equivalent*:** • Chassis Architecture: Max 2RU ruggedized mainframe designed for 24/7 OB van operation, highly compact and robust for mobile environments with front panel control and hot-swappable redundant PSU. • The offered system shall be a professional broadcast-grade clip recorder, playback server, or integrated video server platform designed for studio, production, ingest, playout support, and file-based broadcast workflows. • The offered system shall support operation as a dedicated appliance, an integrated recorder/player platform, or an equivalent server-based architecture. • The offered system should support at least two channels in UHD operation for record and/or playback in configurable combinations, and at least three channels in HD operation for record and/or playback in configurable combinations. • The offered system should support key/fill or alpha-capable playback, synchronized dual-channel playback, or equivalent paired-channel output functionality for graphics, branding, compositing, display wall, or similar production applications. • Storage & Density: Dual hot-swap SSD bays and dual internal SD card slots, including dual 2TB broadcast-compatible SSDs pre-installed. • I/O Connectivity: Native 12G/3G/HD/SD-SDI inputs and outputs with dual 10G Ethernet ports for high-speed network transfers. • Operational Channels: 2x playback & 2x recording channels featuring a native NAS parallel mirror dual-write recording function for real-time redundancy. • Tactile Control: Must include dedicated remote-control panel for traditional VTR-style Jog/Shuttle wheel physical control.	

	ii. **Hardware-Based ISO Recorder – Qty: As per Proposed Workflow** **Technical Features:** Hardware-based recording system capable of ISO recording of all major video sources and Program Output in HD/4K UHD resolutions, with a complete recording, storage, playback and media management solution. Shall support broadcast-standard recording formats/codecs, including H.264, Apple ProRes and DNxHD (or equivalent), dual UHS-II SD card slots and/or external USB-C SSD recording media, synchronized timecode, multiview monitoring, playback and media management. Complete with compatible high-speed media reader and all necessary accessories.	
7.14	**Video Router** **QTY - 1**	**Make/Model Compliance Remarks**
	32x32 or higher 12G UHD/HD/SD Re-clocking SDI Routing System with RCP. • 2 RU frame with 32x32, 1 display port, redundant 14thernet control. Includes external power adapter. Multiview license and redundant power supply. • 2x Ethernet Enabled 40 Luminated Button Panel with Backlight Ultra-Flexible Configuration.	
7.15	**GLUE EQUIPMENT.** **QTY – 1 LOT** (as per proposed work flow/system design)	**Make/Model Compliance Remarks**
	• Frame, includes advanced frame controller, SNMP pre-installed with AC 220/50hz redundant power supply • Analog Video Utility Distribution Amplifier 1 in / 8 out • 12G/6G/3G/HD/SD re-clocking Distribution Amplifier 1 In / 10 Out • Balanced Analog audio 1x8 or 2x4 stereo analog audio distribution amplifier or AES • UHD 12G-SDI 8-channel analog audio Embedder / De-Embedder • Up/down cross converter • Sync distribution amplifier • ***Any other items to complete the inventory and proposed workflow.***	
7.16	**TALKBACK & INTERCOM SYSTEM** **QTY – 1**	**Make/Model Compliance Remarks**
	Intercom and Commentary System Specifications: • Matrix-Free IP: Must utilize a peer-to-peer server less architecture. Systems requiring a centralized matrix server or hardware framework will be disqualified • Security: Native, secure encrypted audio transmission across all IP network endpoints. • 10 programmable illuminated physical keys, with dedicated display areas per key-pair for real-time destination labels. • Must support up to two daisy-chained hardware expansion panels to scale up to 30 physical keys, or digital paging up to 20 destinations. • Audio I/O: Built-in loudspeaker, professional XLR gooseneck mic port, headset jack, and line-level I/O. • Native integration of exactly ten independent 4-wire analog audio circuits into the IP network. • CCU Routing: Exactly 10 analog line outputs mapped directly to 10 Camera Control Units via dedicated physical ports. • Wired IP-based intercom belt packs with a 2-key physical interface. • IFB Logic: Multi-channel distribution using a strict Mix-Minus architecture to prevent audio feedback. ***Walky Talky***: Full-duplex long range up to 1 km (license free) wireless headset systems designed for communication and coordination among multiple crew members, operating within an extensive 'line-of-sight' range.	

7.17	**SYNC PULSE GENERATOR SYSTEM QTY – 1**	**Make/Model Compliance Remarks**
	• Equipped with exactly six (6) independent analog sync outputs supporting NTSC/PAL black burst, HD tri-level sync, or 1PPS with discrete timing offsets per port. • Dual redundant hot-swappable power supplies utilizing an asymmetric aging load profile to ensure modules wear at different rates, avoiding simultaneous power-rail failure. ❖ **CLOCK DISPLAY: QTY -1** • NTP/SNTP-driven digital clock featuring a 2.3-inch 6-digit LED display with up to 100 feet of visibility. It supports flexible Ethernet RJ45 connectivity with POE, IEC AC, or 24VDC power options in a 17-inch black metal chassis ❖ **Backup SPG: QTY – 1** • AJA GEN10 or equivalent HD/SD Sync Generator	
7.18	**NETWORK CONNECTIVITY & ALLIED ACCESSORIES**	**Make/Model Compliance Remarks**
	Web GUI-Based Centralized Control: A complete Web GUI-based monitoring and control system must be supplied, installed and configured. It should provide centralized access, monitoring and control of all installed equipment, including cameras/CCUs, video switcher, router, tapeless recording systems and other integrated broadcast equipment, with appropriate HMI support. **Integrated Dante, IP Video & HMI Solution:** Complete solution for Dante audio networking, IP video and HMI connectivity, including a Web GUI-based centralized monitoring and control system for cameras/CCUs, video switcher, router, tapeless recording systems and other integrated broadcast equipment, fully supplied, installed, configured and commissioned with all necessary hardware, software, interfaces and licenses.	
7.19	**UPS & ACCESSORIES QTY – 1**	**Make/Model Compliance Remarks**
	• 15KVA-20KVA UPS • Online double-conversion UPS with minimum 15-20 minutes battery backup under full load. • Rack-mount or standalone form factor for integration within OB van power systems. • Pure sine wave output for stable power to sensitive broadcast equipment. • Automatic bypass and surge protection for uninterrupted operation. • Compatible with vehicle generator and shore power input. • LCD status display and remote monitoring capability for operational safety. • AVR: Servo-controlled Automatic Voltage Regulator (20 kVA, ±1% accuracy) for stable, regulated power in fluctuating field conditions, with surge, spike, and over/under-voltage protection.	
7.20	**COMPLETE INSTALLATION & COMMISSIONING QTY – 1 LOT**	**Make/Model Compliance Remarks**
	The OB Van shall include complete system integration, internal 12G-SDI wiring, testing and commissioning, with all necessary infrastructure and accessories. Automatic Audio Routing: At least two (2) incoming external SDI signals with embedded audio shall be automatically de-embedded and routed to the digital audio mixer without separate manual audio connections. External Signal Inputs: Minimum four (4) external SDI inputs	

	supporting different compatible SDI formats and integration into the internal broadcast workflow. **This shall cover:** • Supply and installation of audio/video cables and connectors, including BNC, XLR as required. • **Patch Panels:** Dedicated and properly labeled patch panels shall be provided for audio, video, intercom, and SMPTE fiber connectivity, enabling seamless interconnection of all respective signals and systems while ensuring ease of operation, maintenance, and troubleshooting. Drum reels for deployable audio, video and SMPTE fiber cables, ruggedized for outdoor use. • **Electrical Distribution System:** Complete AC power distribution, UPS, AVR, and circuit protection for all broadcast and support equipment. • **Breakout Panels:** External breakout panels for audio, video, data, intercom, SMPTE fiber, and power connectivity.	
7.21	**VEHICLE & COACH BUILDING (OB TRUCK)**	
	• **Fabrication:** i. Fabricator must design and manufacture a custom, fully integrated broadcast cabin/coach, while their registered local partner in Pakistan handles all chassis mounting, structural coupling • **Power System:** i. The OB Truck shall be equipped with an **ultra-quiet, vibration-isolated diesel generator** of adequate capacity, supported by detailed **electrical load, power demand, and heat-load calculations**, and sized to meet the total power consumption of the proposed system with a minimum **30% spare capacity** for future expansion and reliable continuous operation. ii. 3-cylinder, 230 V, 50 Hz, super-silent diesel generator with remote control panel, quick-stop feature, safety switch, and ground fault circuit interrupter. iii. Mains distribution panel and AC power panel with selector switch (mains–off–generator–automatic standby), overvoltage protection, phase-sequence indicator, isolation transformer (3×240 V / 20 kVA), UPS bypass switch, 12 V junction points, and main 12 V accessories switch. iv. Heavy-duty broadcast-grade design with digital metering, wide input range, and robust copper-wound transformer for OB van equipment safety. v. Power system with proper earthing for all sources and equipment. • **Climate Control & Lighting:** i. Manage able AC System with redundant operations with flexible ducts to rack and operational areas. ii. Interior decorative LED lighting with multiple color options; 1× external roof light above rear door. • **Allied Accessories:** i. Roof ladder, spares tools box, fire extinguisher and first aid kit, technical and operational manuals. ➢ Any other items to complete the solution. **Note:** All equipment, features and technical requirements specified in Section 7 (Detailed Core Broadcast Equipment Specifications) shall be provided as proposed or equivalent/higher specifications, ensuring full compatibility and integration with the overall OB Van broadcast system.	

8.0	PROJECT-SPECIFIC GUIDELINES AND REQUIREMENTS FOR BIDDERS
8.1	**Operational Enclosure Zoning** The operational enclosure shall be divided into functional zones. The final layout shall be prepared by the bidder, but the zoning philosophy shall follow the requirements below so that heat, noise, cabling, storage and maintenance activities remain controlled and serviceable. The enclosure shall include a generator/power support zone, an isolated rack/service bay, a main control area, and rear cable reel/storage bay and under-table outside-access storage skirt compartments. The arrangement shall be optimized during detailed engineering to maintain safe loading, practical cable deployment, short service paths and operator comfort. • Generator / Power Support Zone: Generator, shore/generator interface and power support equipment - Externally serviceable; ventilated; acoustically treated; safe exhaust and fuel handling; separated from the operator comfort zone. During operation, the generator shall remain securely installed on a properly supported mounting arrangement with suitable vibration transfer to the ground instead of the chassis, exhaust routing, fuel safety and electrical isolation. The bidder shall show the proposed generator service access and removal method in the engineering drawings. • Rack / Service Bay: Two 42U equipment racks and technical service space - Dedicated AC; isolated technical bay; internal door from the main control area for front rack access; external service door for rear rack access; and comfortable working space at both the front and rear of the racks. • Main Control Area: Five operator positions: four operators at the main production table and one separate OCP/RCP operator position. - Dedicated AC; under-table storage; separate, concealed, accessible and serviceable cable paths for power and signals; comfortable operator workspace; clear sightlines to monitor displays; and sufficient space around the separate OCP/RCP position. • Rear Cable Reel / Storage Bay: Six fixed horizontal SMPTE cable reels and camera-box storage above - Direct cable pull-out from fixed reels; rear main door can close; smaller weather-protected cable exit hatch. • Under-Table Outside-Access Storage: Four portable SMPTE hybrid cable reels - Lockable and weather-protected external access; reels removed from storage for field use.
8.2	**Rack / Service Bay** The rack/service bay shall be a physically defined technical area separated from the main control area. The purpose of this bay is to house critical technical equipment, provide controlled airflow and allow maintenance without disturbing the operational room. Two 42U equipment racks shall be provided. The racks shall be 19-inch EIA standard and suitable for broadcast/mobile equipment installation. The tender requirement is for two racks only. Additional racks shall not be proposed unless the bidder provides a clear technical justification and receives written approval. • Rack quantity: 2 racks, 42U each. • Front rack access: Accessible from inside through an internal door from the operational/control area. • Rear rack access: Accessible from outside through a dedicated external service door. • Working clearance: Working space shall be provided at both front and rear of the racks. Bidder shall declare proposed clearance in mm. • Rack fixing: Racks shall be rigidly and securely fixed to the enclosure floor and structural members. • Cable management: Front/rear vertical cable managers, horizontal managers, lacing bars, brush panels and service loops shall be provided. • Ventilation: Rack airflow shall be coordinated with the dedicated rack/service bay AC system. • Lighting: Rack front and rear maintenance lighting shall be provided. General ambient lighting shall also be provided to support safe service work and a professional interior finish. • Power: Each rack shall have labeled technical PDUs and separately protected circuits. • Earthing: Each rack shall be bonded to the technical earth bar.
8.3	**Rack / Service Bay Air-Conditioning** The rack/service bay shall have its own individual air-conditioning system. This system shall be separate from the vehicle driver-cabin air-conditioning and separate from the main control area air-conditioning. It shall be sized on the basis of the actual rack-mounted technical equipment heat load. The rack AC system shall supply filtered cool air to the rack intake side and provide a defined return-air path from the rack exhaust side. The bidder shall submit heat-load calculations at the design stage. The system shall include easily cleanable filters suitable for dusty field environments. • Rack/service bay AC shall be serviceable without dismantling racks. • Condensate drainage shall be routed safely outside the enclosure and away from electrical equipment. • The rack bay shall include temperature monitoring or a visible temperature indicator/alarm. • The rack/service bay shall remain thermally controlled during normal OB operation.

8.4	**Main Control Area** The main control area shall be the operator workspace for live production. It shall be separated from the rack/service bay and shall have its own independent air-conditioning system. The area shall be designed for five operators, clear monitor viewing, console equipment, under-table storage, safe movement and clean cable management. Four operators shall be accommodated on the main production table, while the OCP/RCP operator shall be provided with a separate dedicated table/work position away from the main row of operators. The main production table shall accommodate the ingest/playout operator, vision switcher operator, director and audio mixer operator. The OCP/RCP operator position shall be arranged as a separate dedicated table with suitable space for the required OCP/RCP panels, monitor, control cabling and operator chair. Equipment positions shall be finalized during detailed engineering and shall provide proper viewing angles, legroom, service access and clean cable routing. • Dedicated AC: Main control area shall have its own AC system, independent from vehicle cabin AC and rack/service bay AC. • Operator capacity: Five operational seats: four at the main production table and one separate engineering operator table, with sufficient legroom, chair movement and service access. • Under-table storage: Under-table/outside-access storage compartments shall be built into the console/control area without reducing operator knee space or blocking cable paths. • Power cable path: Dedicated power cable trays/ducts shall be provided and physically separated from signal cable paths. • Signal cable path: Dedicated signal/control/network/audio/video cable trays/ducts shall be provided and physically separated from power cable paths. • Service access: Removable panels, cable access covers and brush grommets shall be provided. • Surface finish: Non-reflective, durable, anti-scratch tabletop with rounded front edge. • Noise control: Main control AC shall be low-noise and distributed to avoid direct drafts on operators.
8.5	**Main Control Area Air-Conditioning** The main control area shall have its own individual air-conditioning system. The system shall not rely on the driver cabin AC and shall not share the rack/service bay AC as its only cooling source. The objective is to maintain operator comfort without compromising rack cooling or allowing rack heat to enter the operator area. The main control area AC shall be sized considering operator load, monitor heat, console equipment heat, lighting load, solar load, insulation quality and Pakistan ambient conditions. The bidder shall declare the proposed cooling capacity and guaranteed internal operating temperature. • Air distribution shall be quiet and suitable for long broadcast operation. • AC filters shall be easy to clean or replace. • Condensate drainage shall be routed safely outside the vehicle. • The control area shall have independent temperature control from the rack/service bay.
8.6	**SMPTE Hybrid Cable Reel Storage and Rear Cable Bay** The OB truck shall carry ten SMPTE hybrid fibre cable reels. The cable storage and deployment arrangement shall be divided into two groups: six fixed rear cable reels and four portable cable reels stored in under-table outside-access compartments. The six fixed rear cable reels shall be stored horizontally in a dedicated rear cable reel bay. The reels shall be stacked in a robust structure so that each cable can be pulled directly out without removing the reel from its storage position. The reel axis, cable guides and pull-out direction shall be arranged to avoid cable twisting, sharp bends or connector damage. • Fixed rear cable reels: 6 - Horizontally stored in rear cable reel bay; cables can be directly pulled out while reels remain fixed in place. • Portable under-table reels: 4 - Stored in outside-access under-table compartments; these reels shall be taken out of storage and used externally when required. • Total SMPTE hybrid reels: 10 - All ten reels shall be suitable for SMPTE hybrid camera cable storage and field deployment.
8.7	**Rear Main Door and Weather-Protected Cable Exit** The rear cable reel bay shall have a main rear door that can be completely closed and sealed. A smaller cable exit door, hatch or protected flap shall be integrated within the main rear door. During outdoor operation, deployed cables shall pass through this smaller hatch while the main rear door remains shut. This is required to protect the cable reels from rain, dust and accidental impact during operation. The small cable exit hatch shall include smooth rounded edges, brush seal or rubber seal, weather protection, drainage and strain relief/guiding arrangement so that cables do not rub against sharp metal edges. The hatch shall

	be large enough to allow the required number of deployed SMPTE cables to exit without excessive pressure or bend-radius violation. • Rear reel bay shall include internal lighting for night setup and maintenance. • Reel bay shall include lockable rear access and secure travel latches. • Reel mounting structure shall include cable guide rollers or low-friction guides. • SMPTE connector ends shall be protected during storage and transport. • Cable path from reel to exit hatch shall maintain proper bend radius. • Water should not enter the reel bay through the cable exit hatch during moderate rain conditions.
8.8	**Camera Box Storage Above Rear Reels** A storage shelf or compartment shall be provided above the six stacked rear cable reels. This upper storage section shall be used for camera boxes, camera accessories or approved lightweight field items. It shall include retaining straps, latches or barriers to prevent movement during travel. Heavy items shall not be stored high unless the weight-and-balance calculation confirms safe loading. Camera box storage shall be designed to avoid loading directly on the cable reels and shall not block access to the cable reel structure.
8.9	**External I/O Termination Panel** A wide external I/O termination panel shall be provided for temporary external feeds, audio, video, Dante/network and field interconnections. The panel shall be mounted in a weather-protected recessed enclosure with a lockable door, lighting, permanent labels and internal service loops. The following minimum connector complement shall be provided. The bidder may propose additional connectors if required by final system design, but the minimum count below shall be mandatory. • XLR output connectors: 4 - Balanced audio outputs / program, aux, IFB or assigned outputs as per final audio design. • XLR input connectors: 8 - Balanced audio inputs for external microphones, feeds or field audio sources. • SDI input connectors: 5 - External SDI feed inputs to the OB system. • SDI output connectors: 5- Assignable SDI outputs such as PGM, PVW, clean feed, aux or router outputs. • Network Dante connectors: 2 - RJ45 or etherCON style connectors for Dante/audio-over-IP connectivity. • Connector labels shall be engraved or permanently printed; temporary adhesive labels shall not be accepted for final handover. • Panel door shall allow cable egress while maintaining weather protection as far as practical. • All external connectors shall have dust caps or protective covers. • Internal terminations shall have strain relief and service loops. • I/O panel shall be documented in the cable schedule and as-built drawings.
8.10	**Operational Enclosure Structure and Materials** The enclosure shall be designed for long service life in mobile broadcast use. It shall be suitable for road vibration, outdoor weather, high ambient temperature, dust, repeated setup/pack-up cycles and continuous technical operation. The bidder may propose aluminum, steel-aluminum hybrid or approved composite construction, provided the proposed method is supported by structural calculations, material datasheets, corrosion protection method, fire safety information, repair method and weight calculation. • Subframe / chassis interface: Engineered steel or approved equivalent subframe, corrosion protected, designed for selected local chassis. • Main body frame: Aluminum/steel/composite structure with reinforcements at racks, doors, monitor wall, console and cable reel bay. • Outer skin: Weatherproof, smooth, corrosion-resistant exterior finish suitable for outdoor OB use. • Floor: Structural floor with anti-static, anti-skid technical flooring and access panels where required. • Walls and roof: Thermally and acoustically insulated; reinforced at mounting points. • Doors and access panels: Weather-sealed, lockable and serviceable, with travel latches. • Dissimilar metals shall be isolated to prevent galvanic corrosion. • All water paths shall be drained away from electrical panels, cable reels and storage compartments. • Body shall include proper dust sealing and weather sealing for doors and service panels. • Exterior finish shall include primer and polyurethane automotive-grade paint or approved equivalent. • Floor, wall and roof insulation shall consider both thermal and acoustic performance.
8.11	**Safety, Lighting and Serviceability** The enclosure shall be designed for safe operation in outdoor broadcast environments, including night setup, rain, dust, generator operation and public-event deployment. Safety features shall be treated as part of the core design and not as optional accessories.

	• Fire extinguishers shall be provided in operational area, electrical/generator area and as required by final safety plan. • First aid kit shall be provided. • Emergency lighting shall be provided inside the operational area and at exit points. • Rear cable bay, I/O panel, rack front and rack rear shall have service lighting. • Entry steps shall be anti-slip and include handrails. • ON-AIR light shall be provided above the entry door where required. • All electrical areas shall include warning labels and safe access procedures. • All doors, lockers and storage bays shall have secure travel latches.
8.12	**Other External Storage, Access, Chair Restraint and Stabilization** Side skirt / near-wheel storage compartments shall be provided on both sides of the enclosure wherever permitted by chassis clearances, wheel movement, axle position and local road regulations. These compartments shall be lockable, weather-sealed, drained and suitable for approved field accessories without interfering with tires, suspension, chassis service points, generator ventilation or cable reel access. Operator chairs shall not be permanently fixed in a manner that prevents ergonomic working movement. The bidder shall provide broadcast/operator chairs with lockable castors and a positive travel-restraint arrangement, such as floor straps, storage latches or approved chair-securing points, so that chairs cannot move during vehicle movement. All enclosure-mounted indicators, marker lamps, turn indicators, brake/reverse lamps, hazard indicators, service lights and any required ON-AIR or operational indicators shall be integrated with the chassis electrical system and installed in accordance with applicable road-safety and operational requirements. Manual stabilizing / leveling jacks shall be provided at suitable points to balance and stabilize the enclosure during operation. The jacks shall include load-rated foot plates, secure stowage for travel and visible operating instructions. The jacks are intended for operational stabilization and leveling, not for lifting the complete vehicle for maintenance.

9.0) **Specimen of Internal Layout Diagram**

For "FABRICATION OF FHD OUTDOOR BROADCAST EQUIPPED TRUCK WITH ALL ALLIED EQUIMENT"



PAKISTAN TELEVISION CORPORATION LIMITED

Ref No. ENG/PLG/ D-807/305

TERMS-CONDITIONS

For "FABRICATION OF FHD OUTDOOR BROADCAST EQUIPPED TRUCK WITH ALL ALLIED EQUIMENT"

1. The OEM authorized International and national bidders/Integrators are required to submit their company profile, certificate of incorporation, complete bidding documents with duly filled compliance sheet, product literature, evidence of relevant experience, undertaking of non-blacklisting and written confirmation of technical support through national representative in case of foreign bidder and warranty commitment.

   In addition, local firms shall submit:

   Company profile, including Certificate of Incorporation/Registration (under the Companies Act, 1984 or applicable law), NTN and Sales Tax Registration Certificates, copy of CNIC of the authorized signatory, and a certificate declaring that the firm is not a defaulter or blacklisted by any Government/Public Sector Organization in Pakistan.
2. Bidders shall highlight the required features/specification of the equipment quoted for pre-qualification on the technical literature proposed by OEM.
3. Duly signed and stamped Compliance Sheet indicating compliance with each technical specification.
4. Compliance remarks on the equipment specification sheet must be filled in with the company's signature and seal.
5. Bidder shall submit a verifiable Manufacturer's Authorization Certificate issued by the Original Equipment Manufacturer (OEM) in favor of the bidder (local agent, foreign bidder). The certificate shall clearly establish the principal–agent/commercial relationship (trade link) between the OEM and the bidder and specifically authorize the bidder to participate in this tender.
6. Evaluation criteria for pre-qualification of equipment and firms would be compliance of published technical specifications, tender terms & conditions and quoted prices.
7. Supplier/Contractor also warrants that the equipment/items supplied under the contract are brand new and free from any manufacturing defect.
8. No advance payment is admissible.
9. Bids will be as per Two Stage Bidding Procedure according to the PPRA Rules 2004, 36(C) [PPRA Rules 2026, 27(C)].
10. Bidders are required to provide the solution in accordance with the given specification of equipment both for international and local fabrication options. The validity of the bids shall be for a minimum period of 120 days from the date of opening of bids.
11. Nos. of OB Van can be increased subject to provision of funds. The inventory and quantities of sub-components may vary to meet the Purchaser's operational requirements. Ex-Works (EXW) prices shall not be accepted.
12. An Earnest Money Deposit of PKR 3,600,000 (Pak Rupees Three Million Six Hundred Thousand Only), or its equivalent amount in a freely convertible foreign currency, shall be furnished in the form of a Banker's Cheque, Pay Order, or verifiable Bank Guarantee issued by any scheduled bank in Pakistan (or an internationally recognized schedule bank in the case of foreign bidders), valid for six (06) months from the date of bid submission. Bids submitted without the required bid security shall not be considered. PTVC NTN: 0711560-1.
13. Earnest money of second lowest bidder will be retained till the issuance of purchase order to the lowest firm & Earnest money of 1st lowest bidder will be retained till the opening of L/C.
14. Payment will be made through irrevocable Letter of Credit (IRLC) at Sight which will be established in favor of Original Equipment Manufacturer (OEM) or OEM authorized firm.
15. The bidder has to sign an agreement with PTVC besides providing 10% bank guarantees (BG) against shipment and 5% performance guarantee (PG) at the time of delivery. The shipment guarantee shall be discharged after the consignments are received in PTV's stores without any discrepancy.
16. All proposed OEMs shall be internationally recognized manufacturers of professional broadcast equipment, especially complying with SMPTE/ITU/EBU standards, and valid necessary certifications.
17. Expedited completion of the turnkey fabrication of an OB Van/Truck would be considered as eligibility for prequalification.
18. Conditional bids shall not be accepted. Cutting, overwriting, erasures, or unauthorized alterations in the bid documents are not permitted.
19. The performance guarantee shall be discharged after completion of one year with satisfactory performance of equipment. During the warranty period all expenses are to be borne by the supplier in case of replacement of the unit/faulty parts of equipment.
20. Participating firms shall provide documentary proof of having executed projects or supplied broadcast equipment with a value of at least USD 3.5 million.
21. The supplier is responsible for supply of spare parts at least for 10 years post warranty period and provision of essential spare parts list along with base prices of the items. Escalation charges up to 5% annually on the base price may be charged after warranty period.
22. PTV reserves the right to reject all the bids or proposals as per PPRA Rules 2004 Rule 33 [PPRA Rule 2026, Rule 45].
23. Defaulter/black listed firms will not be allowed to participate in the bidding process and those firms in litigation with PTVC will not be entertained.
24. Failure to submit the Technical Proposal, along with the requisite Bid Security (Earnest Money), before the bid closing time, duly addressed to the Controller Audit/Chairman, Senior Tender Committee, PTVC Headquarters, Constitution Avenue, F-5/1, Islamabad, shall render the bid non-responsive.
25. Submission of Certificate of acceptance of terms & conditions of PTV.

AGREED / DISAGREED BIDDERS SEAL & SIGNATURE