



# **AIC C.V. RAMAN COLLEGE OF ENGINEERING FOUNDATION**

**BIDYANAGAR, MAHURA, JANLA, BHUBANESWAR-752 054**

## **TENDER DOCUMENT**

## **TENDER REFERENCE NO**

**AIC/CVRCEF/001/2026 DATE 28 JAN 2026**

## **FOR**

**PROCUREMENT, INSTALLATION AND COMMISSIONING  
OF VARIOUS AUGMENTED REALITY/VIRTUAL REALITY  
AND FUTURE MOBILITY LABORATORY EQUIPMENTS**

## **THE TENDER DOCUMENT OR REQUEST FOR QUOTATION**

1. **NIT.** AIC C.V. Raman College of Engineering Foundation, Bidyanagar, Mahura, Janla, Bhubaneswar, Odisha - 752054 (herein after referred as AIC-CVRCEF), through the Administrative officer (Purchase) (herein after referred to as 'the Authority'/'the Head of Procurement'/'the Competent Authority'/'the Procuring Entity'/'the BUYER'/'the Procuring Organisation/AO (Purchase)', invites bids for entering into a contract for ***"procurement, installation and commissioning of various Augmented Reality, Virtual Reality and Future Mobility Laboratory Equipment"***. This Tender Document Reference Number : ***AIC/CVRCEF/001/2026 DATE 28 JAN 2026***, (hereinafter referred to as 'the Tender Document'), gives further details.

2. **Bidder Must Read the Complete Tender Document.** This NIT is an integral part of the Tender Document and serves a limited purpose of invitation, and does not purport to contain all relevant details for submission of bids. 'Tender Information Summary' (TIS) appended to this notice gives a salient summary of the tender information. Any generic reference to NIT shall also imply a reference to TIS as well. Bidders must go through the Tender Document for details before submission of their Bids. However, Bidders must go through the complete Tender Document for details before submission of their Bids.

3. **Availability of the Tender Document.** The Tender Document will be published on the Website of AIC-CVRCEF ([www.aiccggu.com](http://www.aiccggu.com)). It shall be available for download. The Tender Document can be obtained from the office of AIC-CVRCEF or AO (Purchase). Unless otherwise stipulated in TIS, the downloaded Tender Document is free of cost. Any query/ clarification regarding downloading/ obtaining of Tender Documents and submission of Bids may be addressed to the following officials through any means of communication:-

(a) **Query Related to Procedure of Tendering.** AO (Purchase) (E-Mail ID [purchase.officer@cgu-odisha.ac.in](mailto:purchase.officer@cgu-odisha.ac.in)) in the Purchase Department of the Procuring Organisation.

(a) **Query Related to Technical Specification of Items.** Head Operations AIC (E-Mail ID [incubation\\_aic@cvrgi.edu.in](mailto:incubation_aic@cvrgi.edu.in)) in the AIC-VRCEF.

4. **Clarifications.** A Bidder requiring any clarification regarding the Tender Document may ask questions in writing/ electronically from the Office/ Contact Person as mentioned in TIS.

5. **Eligibility Criteria for Participation in this Tender.** Subject to provisions in the Tender Document, participation in this Tender Process is ***open to all bidders***.

6. **Submission of Bids.** Bids can be submitted in the following modes:-

(a) **PHYSICALLY.** Tender Form duly filled up in all respect can be deposited to the Purchase Department in a sealed envelope with AO (Purchase).

(b) **BY POST.** Tender Form duly filled up in all respect can be submitted through BY POST to the AO (Purchase) in the address mentioned in NIT.

**REMARKS.** In all cases of mode of submission, procuring entity will not be held responsible for any late/ delay submission beyond the date and time mentioned in NIT. Tender documents/ Forms received after specified date and time (whatsoever be the reason) will not be considered for evaluation.

7. **Bid Opening.** Bids received shall be opened at the specified date and time given in TIS. If the office is closed on the specified date of opening of the bids, the opening shall be done on the next working day at the same time.

8. **Disclaimers and Rights of Procuring Entity.** The issue of the Tender Document does not imply that the Procuring Entity is bound to select bid(s), and it reserves the right without assigning any reason to:-

(a) reject any or all of the Bids, or

Signature of Bidders  
Duly Stamped Officially

Sd/-x-x-x-x-x-x  
AO (Purchase), AIC-CVRCEF, CGU

- (b) cancel the tender process; or
- (c) abandon the procurement of the Goods; or
- (d) issue another tender for identical or similar Goods

9. **Contents of this Tender Form.**

- (a) Contents of this Tender Form broadly divided into the following parts:-
  - (i) **PART -I.** Notice Inviting Tender (NIT).
  - (ii) **PART -II.** Instructions to Bidders (ITB).
  - (iii) **PART -III.** Standard Conditions.
- (b) Documents to be attached as per following Appendixes as part of TECHNICAL BID:-
  - (i) **Appendix A.** SOR (Schedule of Requirement.
  - (ii) **Appendix B.** Bidders Information.
  - (iii) **Appendix C.** Eligibility Criteria of Bidder.
  - (iv) **Appendix D.** Terms and Conditions Compliances Certificate
  - (v) **Appendix E.** Bid Security Declaration (**FOR** the bidders who are regd under MSME).
  - (vi) **Appendix F.** Self-declaration for not being blacklisted.
- (c) Document to be attached as per following Appendix as part of FINANCIAL/ COMMERCIAL BID:-
  - (i) **Appendix G.** Price Bid Format.

10. **Error in This Tender Document.** Any typographic mistake/ error, spelling mistake will be treated as minor clerical mistake.

Sd/-x-x-x-x-x-x-x-x-x  
**Administrative Officer (Purchase)**  
**Tender Inviting Authority**  
**C.V. Raman College of Engineering Foundation**  
**Bidyanagar, Mahura, Janla, Bhubaneswar,**  
**Odisha, PIN-752054**

**PART-I****NOTICE INVITING TENDER (NIT)****Tender Information Summary (TIS)**

This Tender Document Reference Number : **AIC/CVRCEF/001/2026 DATE 28 JAN 2026.**

For ***“Procurement, installation and commissioning of various Augmented Reality, Virtual Reality and Future Mobility Laboratory Equipment”***.

<b>Tender Information Summary (TIS)</b>			
<b>1. Basic Tender Details</b>			
Tender Title	Procurement, installation and commissioning of various Augmented Reality, Virtual Reality and Future Mobility Laboratory Equipment		
Tender Reference Number	AIC/CVRCEF/001/2026 DATE 28 JAN 2026	Tender ID	NA being physical tendering
Tender Type	Open Tender – Domestic	Form of Contract	Item Rate
Tender Category	Goods	No. of Covers	Single
Bidding System	Single Stage Two Envelope	e-Reverse Auction to be held after Financial bid opening	No
Procuring Organisation	Atal Incubation Centre, C.V. Raman College of Engineering Foundation	Procuring Entity	Director, Atal Incubation Centre, C.V. Raman College of Engineering Foundation
Tender Inviting Authority (TIA)	Administrative Officer (Purchase)	Address	Bidyanagar, Mahura, Janla, Bhubaneswar, Odisha – 752054
Appointing Authority for Arbitration	Head of the Operations - AIC		
<b>2. Requirement Details</b>			
Evaluation Basis	As per terms and conditions of contracts and Rules of Govt of India	Part quotation allowed or not	Allowed as per Schedule
Inspection Type	On site of procuring entity	Inspection Agency	Internal
Inspection Schedule	After receipt of all items		
Item Details	As per SOR (Schedule of Requirement)	Quantity and Units	As per SOR
Indicative HSN Code	Item wise	Consignee / State	Central Stores Department
Terms of Delivery	As per Tender Docu	Completion date of Delivery	As per Tender Docu
<b>3. Critical Dates</b>			
Published Date	29 Jan 2026	Bid Validity (Days from the date of Tender Opening)	30 days from the date of opening of Bid

Signature of Bidders  
Duly Stamped Officially

Sd/-x-x-x-x-x  
AO (Purchase), AIC-CVRCEF, CGU

Bid Submission Start Date & Time	29 Jan 2026 at 0930 hours	Bid Submission Closing Date & Time	18 Feb 2026 at 1730 hours
Tender Opening Date & Time (Technical and Financial)	19 Feb 2026 at 1000 hours and subsequent days	Award of Contract	Within 15 Days from the date of opening of Tender
<b>4. Eligibility to Participate</b>			
Is this item reserved for exclusive Procurement from MSEs	No		
Nature of Bidders eligible – OEMs/ Dealers authorised by OEMs	No Restriction		
Entities from countries not eligible to participate on reciprocal basis	Not applicable as only Domestic Bidders are eligible		
Minimum local content for eligibility to participate	NA		
Classes of Local Suppliers eligible to participate	NA		
Mandatory Joint venture with Indian Company	NA		
<b>5. Obtaining the Tender Document and Clarifications</b>			
Helpdesk for Document availability and submission	<a href="http://www.aiccggu.com">www.aiccggu.com</a> <b>Query Related to Procedure of Tendering.</b> AO (Purchase) (E-Mail ID <a href="mailto:purchase.officer@cgu-odisha.ac.in">purchase.officer@cgu-odisha.ac.in</a> ) in the Purchase Department of the Procuring Organisation. <b>Query Related to Technical Specification of Items.</b> Head Operations AIC (E-Mail ID <a href="mailto:incubation_aic@cvrgi.edu.in">incubation_aic@cvrgi.edu.in</a> ) in the AIC-VRCEF.		
Cost of Tender Document (INR)	Free of Cost		
Office/ Contact Person/ email for clarifications	Purchase Department OR AIC-CVRCEF		
<b>6. Pre-bid Conference - NA</b>			
<b>7. Preparation and Submission and Opening of Bids</b>			
Bids to be Addressed to	Administrative Officer (Purchase) C.V. Raman College of Engineering Foundation, Bidyanagar, Mahura, Janla, Bhubaneswar, Odisha – 752054		
Tender Opening Place	Purchase Department, C.V. Raman College of Engineering Foundation, Bidyanagar, Mahura, Janla, Bhubaneswar, Odisha – 752054		
Alternate Bids allowed or not	Not Allowed		
Presence of Bidders	<b><i>On the day of Opening of Bid, Bidders or duly authorised representative of Bidder are requested to present at C.V. Raman College of Engineering Foundation, Bidyanagar, Mahura, Janla, Bhubaneswar, Odisha – 752054. However, its not mandatory and absence from this will not affect in tendering process.</i></b>		
<b>8. Documents relating to Bid Security and Performance Security</b>			
Earnest Money Deposit OR Bid Security and Validity	Rs. 2.35 Lakh (Rupees Two Lakh Thirty Five Thousand Only) should be valid for 30 (THIRTY) Days from the last date of bid submission	Form of Security and To whom to be addressed	Account Payee Demand Draft, Banker's Cheque or Bank Guarantee [including eBank Guarantee] from any of the Commercial Banks or payment online in an acceptable form in favour of AIC-CV RAMAN COLLEGE OF ENGINEERING FOUNDATION
Performance Security and Validity	NIL	NA	

## **PART – II : INSTRUCTIONS TO BIDDERS (ITB)**

### **1. Procuring Entity – Rights and Disclaimers**

Bids are to be addressed to the **Administrative Officer (Purchase)**. The Tender Inviting Authority is the designated officer for uploading and clarifying this Tender Document. The contract may designate, as required, Inspection Agency/ Officer and interim/ ultimate Consignee(s) and Paying authority who shall discharge designated function during contract execution.

### **2. Right to Reject any or all Bids**

The Procuring Entity reserves its right to accept or reject any or all Bids, abandon/ cancel the Tender process, and issue another tender for the same or similar Goods at any time before the award of the contract. It would have no liability to the affected Bidder or Bidders or any obligation to inform the affected Bidder or Bidders of the grounds for such action(s).

### **3. Bidders – Eligibility and Preferential Bidders**

Subject to provisions in the following clauses in this section and provisions in Tender Document, this invitation for Bids is open to all bidders who fulfil the 'Eligibility Criteria' and 'Qualification Criteria' stipulated in the Tender Document. In the case of the Second Stage (of two Stage Bidding or PQB) or Special Limited Tenders, this invitation is open only to such bidders who have been previously shortlisted or specifically invited.

### **4. Eligibility Criteria for Participation in this Tender**

Subject to provisions in this Tender Document, participation in this Tender Process is open to all bidders who fulfil the 'Eligibility' and 'Qualification criteria. Bidder should meet (as on the date of his bid submission and should continue to meet till the award of the contract) the minimum 'Eligibility Criteria' are as follows:-

<b>Sl. No.</b>	<b>Description</b>	<b>Remarks</b>
1	Trade License or Equivalent Trade Registration certificate	Relevant valid current document needs to be submitted
2	PAN Details	Photocopy of PAN Card to be submitted
3	GST Details	Photocopy of GST Certificate to be submitted
4	The Average Annual Financial Turnover for the last three preceding years should be minimum 12 Lakh Per Year. The vendor should not be in loss during any last three financial year	Certified copy of balance sheet for the following financial year be attached: - 2022-2023, 2023-2024 and 2024-2025
5	The firm should neither have blacklisted by any Central/State/Autonomous Bodies or Institute/ Public Undertaking nor any criminal case registered/ pending against the firm or its owner /partners anywhere in India.	A declaration to this effect on firm's letter head duly signed by the proprietor/ authorised signatory is to be submitted.
6	Experience of working with any AICs or Govt. Engineering will be given preference	Relevant proof of work completion or Work Order to be submitted
7	Earnest Money Deposit- cum- Security Deposit	Rs. 2.35 Lakh (Rupees Two Lakh Thirty Five Thousand Only) in the form of Account Payee Demand Draft, Banker's Cheque or Bank Guarantee [including e-Bank Guarantee] from any of the Commercial Banks or payment online in an acceptable form in favour of AIC-CV RAMAN COLLEGE OF ENIGNEERING FOUNDATION.

Signature of Bidders  
Duly Stamped Officially

Sd/-x-x-x-x-x  
AO (Purchase), AIC-CVRCEF, CGU

8	Acceptance of Terms and Conditions of the Contract	Must submit a signed copy of this tender document on all the pages as acceptance to the terms and conditions mentioned in this tender.
---	--	--

## 5. Conflict of Interest.

Any bidder having a conflict of interest, which substantially affects fair competition, shall not be eligible to bid in this tender. Bids found to have a conflict of interest shall be rejected as nonresponsive. A bidder in this Tender Process shall be considered to have a conflict of interest if the bidder:-

- 1) directly or indirectly controls, is controlled by or is under common control with another Bidder;  
or
- 2) receives or have received any direct or indirect subsidy/ financial stake from another bidder;  
or
- 3) has the same legal representative/ agent as another bidder for purposes of this bid. A Principal can authorize only one agent, and an agent also should not represent or quote on behalf of more than one Principal. However, this shall not debar more than one Authorised distributor from quoting equipment manufactured by an Original Equipment Manufacturer (OEM), in procurements under Proprietary Article Certificate;  
or
- 4) has a relationship with another bidder, directly or through common third parties, that puts it in a position to have access to information about or influence the bid of another Bidder or influence the decisions of the Procuring Entity regarding this Tender process;  
or
- 5) participates in more than one bid in this tender process. Participation in any capacity by a Bidder (including the participation of a Bidder as sub-contractor in another bid or vice-versa) in more than one bid shall result in the disqualification of all bids in which he is a party. However, this does not limit the participation of a non-bidder firm as a sub-contractor in more than one bid;  
or
- 6) would be providing goods, works, or non-consulting services resulting from or directly related to consulting services that it provided (or were provided by any affiliate that directly or indirectly controls, is controlled by, or is under common control with that firm), for the procurement planning (inter-alia preparation of feasibility/ cost estimates/ Detailed Project Report (DPR), design/ technical specifications, terms of reference (ToR)/ Activity Schedule/ schedule of requirements or the Tender Document etc.) of this Tender process;  
or
- 7) has a close business or family relationship with a staff of the Procuring Organisation who:
  - (i) are directly or indirectly involved in the preparation of the Tender document or specifications of the Tender Process, and/or the evaluation of bids;  
or
  - (ii) would be involved in the implementation or supervision of resulting Contract unless the conflict stemming from such relationship has been resolved in a manner acceptable to the Procuring Entity throughout the Tender process and execution of the Contract.

## 6. Bid Prices, Taxes and Duties

### 6.1 Prices

The prices should be arrived at independently, without restricting competition, any consultation, communication, or agreement with any other bidder or competitor relating to those prices or the intention to submit an offer or the methods or factors used to calculate the prices offered. The prices should neither be nor shall be knowingly disclosed by the Bidder, directly or indirectly, to any other bidder or competitor before bid opening or contract award unless otherwise required by law.

### 6.2 Undue Profiteering

The price quoted by Bidder shall not be higher than the controlled price fixed by law for the Goods, if any, or where there is no controlled price, it shall not exceed the prices or contravene the norms for fixation of prices if any, laid down by Government or where the Government has fixed no such prices or norms, it shall not exceed the price appearing in any agreement, if any, relating to price regulation by any industry. In any case, save for special reasons stated in the bid, if any, the price charged shall not be higher than the Maximum Retail Price (MRP). If the price quoted is higher than the controlled price in the sub-clause above, Bidder shall specifically mention this fact in his bid giving reasons for quoting a higher price(s). If he fails to do so or makes any misstatement, it shall be lawful for the Procuring Entity either to revise the price at any stage to bring it in conformity with the sub-clause (1) above or to terminate the contract for default as per the contract and avail all the remedies available therein in addition to other punitive actions for violation of Code of Integrity.

### **6.3 Price Schedule**

Bidders are to upload only the downloaded Price Schedule (in MS Excel Format) after entering the relevant fields without any alteration/ deletion/ modification of other portions of the excel sheet. Delivery Schedule and Terms of delivery are also to be quoted. All the columns shown in the price schedule should be filled up as required. If any column does not apply to a Bidder, he should clarify the same. Bidders shall fill in their rates other than zero value in the specified cells without keeping it blank. The quoted price shall be considered to include all relevant financial implications, including inter-alia the scope of the Goods to be supplied, location of the bidder, location of the consignee(s), terms of delivery, extant rules and regulations relating to taxes, duties, customs, transportation, environment, labour of the bidder's country and in India.

### **6.4 Provisions of GST**

Break up of different price elements, i.e., as per GST Act, shall be indicated separately, along with its associated HSN code and GST rate. While quoting the basic rate, the bidder should offset the input credit available/ to be availed as per the GST Act.

### **6.5 Goods and Services Tax (GST)**

All the bidders/ Bidders should ensure that they are GST compliant and their quoted tax structure/ rates as per GST Act/ Rules. Bidder should be registered under GST and furnish GSTIN number and GST Registration Certificate in their offer unless they are specifically exempted from registration under specific notification/ circular/ section/ rule issued by statutory authorities. If the Bidder has opted for a composition levy under Section 10 of CGST, he should declare the fact while bidding along with GSTIN and GST registration certificate. If a bidder is not liable to take GST registration, i.e., having turnover below threshold, he shall submit undertaking/ indemnification against tax liability. Bidder claiming exemption in this respect shall submit a valid certificate from practising Chartered Accountant (CA)/ Cost Accountant with Unique Document Identification Number (DIN) to the effect that Bidder fulfils all conditions prescribed in notification exempting him from registration. Such bidder/ dealer shall not charge any GST and/ or GST Cess in the bill/ invoice. In such case, applicable GST shall be deposited under Reverse Charge Mechanism (RCM) or otherwise as per GST Act by the Procuring Entity directly to concerned authorities. Bidder should note that his offer would be loaded with the payable GST under the RCM. Further, Bidder should notify and submit to the Procuring Entity within 15 days from the date of becoming liable to registration under GST. The Procuring Entity's state-wise GSTINs are indicated in Section VI – Schedule of Requirements and/ or TIS/ AITB.

### **6.6 HSN Code and GST Rate**

HSN (Harmonized System of Nomenclature) code for the goods provided in this Tender Document (if any) is only indicative. It shall be the responsibility of Bidder to ensure that they quote the exact HSN Code and corresponding GST rate for the goods being offered by them. As per the GST Act, the bid and contract must show the GST Tax Rates (and GST Cess if applicable) and GST Amount explicitly and separate from the bid/ contract price (exclusive of GST). If the price is stated to be inclusive of GST, the current rate included in the price must be declared by the bidder. If a Bidder asks for GST (and GST Cess if applicable) to be paid extra, the rate and nature of such taxes applicable should be shown separately. Bidders should quote 'GST' if payable extra on the total basic rate of each cost element and quote GST in '%' inclusive of cess. If GST, other



taxes, duties are not specified, or column is left blank in the price schedule, it shall be presumed that no such tax/ levy is applicable or payable by the Procuring Entity.

## **6.7 Applicability to Imported Goods/ Services**

Following the implementation of GST, the import of commodities shall not be subject to such erstwhile applicable duties like safeguard duty, education cess, basic customs duty, anti-dumping duty, etc. All these supplementary custom duties are subsumed under GST. The supply of commodities or services or both, if imported into India, shall be considered as supply under inter-state commerce/ trade and shall attract integrated tax (IGST). The IGST rate and GST cess shall be applicable on the 'Custom Assessable Value' plus the 'Basic Customs duty applicable thereon'.

## **7. Payment Terms**

### **7.1 General**

Unless otherwise stipulated, Payment will be made after complete delivery of items on production of Invoice and after successful completion of internal inspection of all items.

### **7.2 No Advance Payments**

Unless otherwise stipulated, no advance payment of any type, shall be made by the Procuring Entity to the contractor.

## **8. Downloading the Tender Document; Corrigenda and Clarifications**

### **8.1 Downloading the Tender Document**

The Tender Document shall be published and be available for download as mentioned in TIS. The Bidders can obtain the Tender Document after the date and time of the start of availability till the deadline for availability. If the office happens to be closed on the deadline for the availability of the Tender Document, the deadline shall not be extended.

### **8.2 Clarification on the Tender Document**

A Bidder may seek clarification of the Tender Document from Office/ Contact Person/ Help Desk as mentioned in TIS. Any modification of the Tender Document that may become necessary due to the clarification shall be made by the Procuring Entity through an Addendum/ Corrigendum issue under the sub-clause above.

## **9. Quote Quantities/ Prices in both Numerals and Words**

The bidders are advised to ensure that there is no ambiguity in this regard.

## **10. Alternative Bids**

Unless otherwise stipulated in the TIS/ AITB, conditional offers, alternative offers, multiple bids by a bidder shall not be considered. The Portal shall permit only one bid to be uploaded.

## **11. Documents Comprising the Bid**

### **11.1 Techno-commercial bid/ Cover**

"Technical Bid" OR "Techno Commercial Bid" shall include inter-alia the original or scanned copies of duly signed. *No price details should be given or hinted at in the Technical bid.*

### **11.2 Financial bid/ Cover**

Signature of Bidders  
Duly Stamped Officially

Sd/-x-x-x-x-x  
AO (Purchase), AIC-CVRCEF, CGU

“Financial Bid” shall comprise the Price Schedule considering all financially relevant details, including Taxes and Duties. No additional technical details, which have not been brought out in the Technical bid shall be brought out in the Financial bid.

### 11.3 Bid Validity

***Bids shall remain valid for a period not less than THIRTY (30) days from the deadline for the bid submission stipulated in TIS.*** A bid valid for a shorter period shall be rejected as nonresponsive. In case the day up to which the bids are to remain valid falls on/ subsequently declared a holiday or closed day for the Procuring Entity, the bid validity shall automatically be deemed to be extended up to the next working day. In exceptional circumstances, before the expiry of the original time limit, the Procuring Entity may request the bidders to extend the validity period for a specified additional period. The request and the bidders’ responses shall be made in writing or electronically. A bidder may agree to or reject the request. A bidder who has agreed to the Procuring Entity’s request for extension of bid validity, in no case, he shall be permitted to modify his bid.

### 11.4 Bid Security OR Earnest Money Deposit

(a) To safeguard against a bidder's withdrawing or altering its bid during the bid validity period in the case of advertised or limited tender enquiry, Bid Security (also known as Earnest Money) is to be obtained from the bidders except Micro and Small Enterprises (MSEs) as defined in MSE Procurement Policy issued by Department of Micro, Small and Medium Enterprises (MSME) or are registered with the Central Purchase Organisation or the concerned Ministry or Department [or Startups as recognized by Department for Promotion of Industry and Internal Trade (DPIIT)]. Those bidders should furnish Bid Security Declaration along with their bids. ***A sum of Rs. 2.35 Lakh (Rupees Two Lakh Thirty Five Thousand Only) in the form of Account Payee Demand Draft, Banker's Cheque or Bank Guarantee [including e-Bank Guarantee] from any of the Commercial Banks or payment online in an acceptable form in favour of AIC-CV RAMAN COLLEGE OF ENGINEERING FOUNDATION be deposited with Tender Document as part of Technical/ Techno Commercial Bid.*** Bid securities of the unsuccessful bidders will be returned to them at the earliest after expiry of the final bid validity and latest on or before the 30th day after the award of the contract.

(b) In lieu of Bid Security, all Bidders who are registered under Micro and Small Enterprises (MSEs) as defined in MSE Procurement Policy issued by Department of Micro, Small and Medium Enterprises (MSME) or are registered with the Central Purchase Organisation or the concerned Ministry or Department [or Startups as recognized by Department for Promotion of Industry and Internal Trade (DPIIT)] shall furnish/ upload a Bid Securing Declaration (BSD) as Form attached to this Tender Document. The BSD is required to protect the Procuring Entity against the risk of the Bidder’s unwarranted conduct as amplified under the sub-clause below.

(i) The BSD provides for automatic suspension of the Bidder from being eligible for bidding in any tender in Ministry/ Department of Procuring Organisation for 2 years from the date of such enforcement. This declaration shall stand enforced if Bidder breaches the following obligation(s) under the tender conditions:

(ii) withdraws or amend the bid or impairs or derogates from the bid in any respect within the period of validity of its bid;

or

(iii) after having been notified within the period of bid validity of the acceptance of his bid by the Procuring Entity:

(iv) refuses to or fails to submit the original documents for scrutiny or the required Performance Security within the stipulated time as per the conditions of the Tender Document.

(v) fails or refuses to sign the contract.

(vi) Unsuccessful Bidders’ Bid Securing Declaration shall expire, if the contract is not awarded to them, upon:

- (aa) receipt by Bidder of the Procuring Entity's notification
- (ab) of cancellation of the entire tender process or rejection of all bids or
- (ac) of the name of the successful bidder or
- (ad) forty-five days after the expiration of the bid validity or any extension thereof

(vii) The Bid Securing Declaration of the successful bidder shall stand expired only when Bidder has furnished the required Performance Security and signed the Agreement.

### **11.5 Non-Compliance with these Provisions**

A substantively responsive bid is complete and conforms to the Tender Document's essential terms, conditions, specification of items/ equipment and requirements without substantive deviation, reservation, or omission. Only substantively responsive bids shall be considered for further evaluation. Other bids shall be treated as unresponsive and ignored. All bids received shall first be scrutinised to identify unresponsive bids, if any. Some important points based on which a bid may be declared as unresponsive and be ignored during the evaluation are:-

- (a) The bid is not in the prescribed format or is unsigned or not signed as per the stipulations in the tender document;
- (b) The required EMD has not been provided, or exemption from EMD is claimed without acceptable proof of exemption;
- (c) The bidder is not eligible to participate in the bid as per the eligibility criteria that have been laid down (including conflict of interest and other provisions of CIPP). In case procurement is on a limited tender basis or where procurement is restricted to pre-approved vendors, it should be especially ensured that there is no conflict of interest;
- (d) The bidder has quoted for goods manufactured by a different firm without the required authority letter from the proposed manufacturer;
- (e) Against a schedule in the list of requirements in the tender enquiry, the bidder has not quoted for the entire requirement as specified in that schedule (for example, in a schedule, it has been stipulated that the bidder will supply the equipment, install, and commission it and also train the purchaser's operators for operating the equipment. The bidder has, however, quoted only for the supply of the equipment).
- (f) Bidder has quoted conditional bids or more than one bid or alternative bids unless permitted explicitly in the Tender Document.
- (g) The bid validity is shorter than the required period.
- (h) Non-submission or submission of illegible copies of stipulated documents/declarations, if so stipulated in the Tender Document.
- (i) Fails to provide and/ or comply with the required information, instructions etc., incorporated in the Tender Document or gives evasive information/ reply against any such stipulations.
- (j) Furnishes wrong and/ or misleading data, statement(s) etc. In such a situation, besides rejection of the bid as nonresponsive, it is liable to attract other punitive actions under relevant provisions of the Tender Document for violation of the Code of Integrity.

## **12. Signing and Submission of Bids**

### **12.1 Signing of Bid**

Signature of Bidders  
Duly Stamped Officially

Sd/-x-x-x-x-x-x  
AO (Purchase), AIC-CVRCEF, CGU

The individual signing the bid or any other connected documents should submit an authenticated copy of the document(s), which authorizes the signatory to commit and submit bids on behalf of the bidder.

## 12.2 Submission of Bids. Bid can be submitted in the following modes:-

(a) **PHYSICALLY.** Tender Form duly filled up in all respect can be deposited to the Tender Box at AIC-CVRCEF.

(b) **BY POST.** Tender Form duly filled up in all respect can be submitted through BY POST to the AO (Purchase) in the address mentioned in NIT.

**REMARKS.** In all cases of mode of submission, procuring entity will not be held responsible for any late/ delay submission beyond the date and time mentioned in NIT. Tender documents/ Forms received after specified date and time (whatsoever be the reason) will not be considered for evaluation. **THE BOTH THE CASES THE OUTER ENVELOPE SHOULD PROPERLY MARKED AS “TENDER DOCUMENT FOR PROCUREMENT OF AR/VR LAB ITEMS AT AIC-CVRCEF”. Inside the outer envelope ONE ENVELOPE SHOULD CLEARLY MARKED AS “TECHNICAL/ TECHNO-COMMERCIAL BID” AND ANOTHER ENVELOPE SHOULD CLEARLY MARKED AS “FINANCIAL BID”.**

## 12.3 Late Bids

The bidder shall not be able to submit his bid after the expiry of the deadline for the bid submission.

## 13. Modification, Resubmission and Withdrawal of Bids

### Modification & Resubmission

Resubmission of the bid by the bidders for any number of times superseding earlier bid(s) before the date and time of submission is allowed. Resubmission of a bid shall require submitting of all documents, including financial bid afresh. The procuring entity shall consider only the last bid submitted as the valid bid.

### Withdrawal

The bidder may withdraw his bid before the bid submission deadline, and it shall be marked as withdrawn. No bid should be withdrawn after the deadline for the bid submission and before the expiry of the bid validity period. If a Bidder withdraws the bid during this period, the Procuring Entity shall be within its right to enforce Bid Securing Declaration (in lieu of forfeiture of the Bid Security), in addition to other punitive actions provided in the Tender Document for such misdemeanour.

## 14. Bid Opening

The date & time of the opening bid is as stipulated in TIS. Bids cannot be opened before the specified date & time. If the specified date of tender opening falls on is subsequently declared a holiday or closed day for the Procuring Entity, the Bids shall be opened at the appointed time on the next working day. ***Bidders or their authorised representative is advised/ requested to be present at CV Raman College of Engineering Foundation, Vidyanagar, Mahura, Janla, Bhubaneswar, Odisha on the day of opening of bid. However, this is not a mandatory requirement and absence from Bid Opening will not affect tendering process.***

## 15. Evaluation of Bids and Award of Contract

(a) Only substantively responsive bids shall be evaluated further.

(b) The TC evaluates all responsive bids with a view to selecting the lowest (L1) bidder who meets the eligibility/ qualification criteria and techno-commercial aspects.

(c) Initially, only the techno-commercial bids will be opened and evaluated for bids that successfully meet the qualification criteria and techno commercial aspects. Financial bids of such successful bidders will only be opened for selecting the L1 bidder among these, and financial bids of unsuccessful bidders will be returned unopened to them.

## **15.1 Evaluation of Eligible Techno-commercial Bids**

### **15.1.1 Evaluation of Qualification Criteria:**

(a) In evaluating the techno-commercial bid, conformity to the eligibility/ qualification criteria, technical specifications, and Quality Assurance; and commercial conditions of the offered Goods to those in the Tender Document is ascertained. Additional factors incorporated in the Tender Document (if any) shall also be considered in the manner indicated therein.

(b) In accordance with Rule 173 (i) of GFR-2017, the condition of prior turnover and prior experience may be relaxed for Startups (only to Startups recognized by the Department of Industry & Internal Trade (DPIIT)) subject to meeting quality & technical specifications and making suitable provisions in the tender document. Startups may be MSMEs or otherwise. It is further clarified that such relaxation is not optional but has to be ensured, except in case of procurement of items related to public safety, health, critical security operations and equipment, etc) where adequate justification exists for the Procuring Entity not to relax such criteria.

**15.1.2 Evaluation of Commercial Conditions:** Bidder must comply with all the Commercial and other clauses of the Tender Document. The Procuring Entity will evaluate the commercial conditions quoted by Bidder to confirm that all terms and conditions stipulated in the Tender Document have been accepted without substantive omissions/ reservations/ exception/ deviation by the Bidder. Deviations from or objections or reservations to critical provisions identified in the Tender Documents will be deemed to be a material deviation. If critical provisions are not explicitly stated in the Tender document then these shall be taken to be Governing laws and Jurisdiction, Contractor's Obligations and Restrictions of its Rights, Performance Bond/ Security, Force Majeure, Taxes & Duties, and Code of Integrity).

**15.1.3 Declaration of Successful Bidders:** The PC will prepare a recommendation for a techno-commercial bid to declare successful bidders.

## **15.2. Evaluation of Financial Bids and Ranking of Bids In general:**

**15.2.1 Evaluation of Financial Bids:** Evaluation of the financial bids shall be on the price criteria only. Financial Bids of all Techno-commercially suitable bids are evaluated and ranked to determine the lowest priced bidder, based on the total outgo from the buyer's pocket (including GST, transportation, insurance, customs duty, marine insurance, and freight, agency commission, as applicable).

### **15.2.2 Evaluation of Multiple Schedules/ Requirements:**

(a) Evaluation will be done Destination-wise (if any)/ Item-wise/ Schedule-wise **OR** on the total of all Destinations (if any)/ Items/ Schedules as per the discretion of PC on the ground to achieve most suitable and economic rates.

(b) In case the list of requirements contains more than one schedule/ package, the responsive, technically suitable bids shall be evaluated and compared separately for each schedule. The bid for a schedule will not be considered if the complete list of goods in that schedule is not included in the bid. However, bidders have the option to quote for any one or more schedules and offer unconditional discounts for individual schedules.

(c) If there is only a list of items without grouping into schedules, evaluation of the financial ranking of bids shall be done for each item separately, and Bidder has the option to submit its quotation for any one or more items and also to offer unconditional discounts for individual items. However, Bidder shall quote for all the destinations included in an item quoted.

(d) Discounts mentioned above, wherever applicable, shall be considered for deciding the lowest evaluated bid for schedules/ items/ destinations, respectively. However, any conditional discounts are not considered for the ranking.

(e) Quoted rate should be on a CIF/ FOR destination basis, duly delivered, commissioned, as the case may be:

(i) In the case of goods manufactured in India or goods of foreign origin already located in India, GST, and any other duties/levies, etc., which will be contractually payable (to the bidder) on the goods are to be added;

(ii) In the case of goods of foreign origin offered from abroad, customs duty and other similar import duties/taxes, which will be contractually payable (to the bidder) on the goods, are to be added;

### **15.3 Evaluation Based Only on Declared Criteria/ Terms and Conditions**

The evaluation shall be based upon scrutiny and examination of all relevant data and details submitted by Bidder in its/ his bid and other allied information deemed appropriate by Procuring Entity. Evaluation of bids shall be based only on the criteria/ conditions included in the Tender Document. The financial bid will be evaluated only for those bidders who are qualified in Technical Bid. The financial bid can be evaluated either item wise or total value or in the both way.

### **15.4 Clarification of Bids and shortfall documents**

During the evaluation of Techno commercial or Financial Bids, the Procuring Entity may, at its discretion, but without any obligation to do so, ask Bidder to clarify its bid by a specified date. Bidder should answer the clarification within that specified date (or, if not specified, 7 days from the date of receipt of such request). The request for clarification shall be submitted in writing or electronically, and no change in prices or substance of the bid shall be sought, offered, or permitted that may grant any undue advantage to such bidder.

### **15.5 Award of Contract**

#### **Right to Vary Quantities at the Time of Award**

At the time of contract award, the Procuring Entity reserves the right to increase or decrease, without any change in the unit prices or other terms and conditions of the bid and the Tender Document, the quantity of Goods originally stipulated in Section VI: Schedule of Requirements, provided this increase/ decrease does not exceed 25 (twenty-five) percent of tendered quantity (or any other percentage indicated in the Tender Document).

#### **Parallel Contracts or Splitting of Award**

If the Tender Document stipulates such parallel contracts due to the critical/ strategic/ specific nature of the supplies/ Goods and after due processing, if it is discovered that the quantity to be ordered is far more than what L-1 alone is capable of supplying and there was no prior stipulation in the Tender Document for parallel contracts, then it reserves its rights to distribute the quantity being finally ordered, among the other bidders by counter offering the L-1 rate to willing L-2 or higher bidders, in a transparent manner to avail full assessed capacities of lower-priced bidders first, before inviting higher-priced bidders. The decision of Procuring Entity shall be final. Unless otherwise stipulated in the AITB, in case of splitting in two and three, the ratio of 70:30; 50:30:20, respectively shall be used. These ratios

are approximate, and the Procuring Entity reserves its right to marginally vary quantities to suit capacity/ past performance of the bidder/ unit loads of packing or transportation/ relative ranking of the bids/ delivery period offered/ existing load of Bidder and other similar factors affecting smooth supplies as per requirements.

**16. Delivery Period.** Items are required to be delivered at Indian Institute of Management Calcutta, in full quantity, as requested in written together with challan in duplicate and bill is to be submitted in triplicate duly affixed of revenue stamp within **THIRTY (30)** days of delivery of items. No delay will be accepted at any cost beyond the stipulated date/time as given in the supply order. It is informed that the user has right to cancel the Contract unilaterally in case items are not received within the contracted delivery period and as per prescribed quality specifications. Extension of contracted delivery period will be at the sole discretion of the Customer, with applicability of LD clause.

**17. Liquidated Damages.** In the event of the Contractor failure to submit the stores, supply the stores/goods/services as specified in this contract, the Procuring Entity may, at his discretion, withhold any payment until the completion of the contract. The Procuring Entity may also deduct from the Contractor as agreed, liquidated damages to the sum of 0.5% of the contract price of the delayed/undelivered stores/services mentioned above for every day of delay or part of a day, subject to the maximum value of the Liquidated Damages being not higher than 10% of the value of delayed stores.

**18. Termination of Contract.** The BUYER shall have the right to terminate this Contract in part or in full in any of the following cases:-

- (a) The delivery of the material is delayed for causes not attributable to Force Majeure for more than ONE (01) HOUR beyond stipulated time.
- (b) The Seller is declared bankrupt or becomes insolvent.
- (c) The delivery of material is delayed due to causes of Force Majeure for more than ONE (01) HOUR days after the schedule date of delivery.
- (d) The BUYER has noticed that the Contractor has utilized the services\any Indian/ Foreign agent in getting this contract and paid any commission to such individual/ company etc.
- (e) As per decision of the Arbitration Tribunal.
- (f) The contractor fails to supply the desired standard of item/items even after three written reminders.
- (g) If the Contractor fails to deliver the items as per approved specification/ quality and tries to supply substitute/substandard items.
- (h) The Contractor uses illegal means to influence or bribe the staff dealing with the contractor.

**19. Notices.** Any notice required or permitted by the contract shall be written in the English language and may be delivered personally or may be sent by FAX/e-mail or registered pre-paid mail/airmail, addressed to the last known address of the party to whom it is sent.

**PART – III : STANDARD CONDITIONS**

1. **Performance Bank Guarantee (PBG).** NOT APPLICABLE.
2. **Option Clause.** The contract shall have an Option Clause, wherein the BUYER can exercise an option to procure an additional 50% (FIFTY PERCENT) of the original contracted quantity in accordance with the same terms & conditions of the present contract. This will be applicable within the currency of contract. The bidder is to confirm the acceptance of the same for inclusion in the contract. It will be entirely the discretion of the BUYER to exercise the option.
3. **Repeat Order Clause.** The contract shall have an option of Repeat Order Clause, wherein the BUYER can exercise an option to procure an additional 50% (FIFTY PERCENT) of the original contracted quantity in accordance with the same terms & conditions of the present contract. This will be applicable up to SIX (06) MONTHS beyond the completion of contract. The bidder is to confirm the acceptance of the same for inclusion in the contract. It will be entirely the discretion of the BUYER to exercise the option.
4. **Tolerance Clause.** To take care of any change in the requirement during the period starting from issue of RFP till placement of the contract, BUYER reserves the right to 25% (+/-) (Twenty Five Percent) (plus/minus) increase or decrease the quantity of the required goods up to that limit without any change in the terms & conditions and prices quoted by the Seller. While awarding the contract, the quantity ordered can be increased or decreased by the BUYER within this tolerance limit.
5. **Payment Terms.** No advance payment will be made under any circumstances. Payment will be made only after delivery of complete items/ goods/ stores/ services/ installation/ commissioning on production of the Tax Invoice(s) and after successful internal receipt inspection.
6. **Risk & Expense Clause.** Should the items/ goods/ stores/ services thereof not be delivered/carried out within the time or times specified in the contract documents, or if defective delivery is made in respect of the stores, the BUYER shall after granting the SELLER **TEN (10) DAYS** to cure the breach, be at liberty, without prejudice to the right to recover liquidated damages as a remedy for breach of contract, to declare the contract as cancelled either wholly or to the extent of such default.
  - (a) Should the stores thereof not perform in accordance with the specifications / parameters provided by the SELLER during the check proof tests to be done in the BUYER's premises, the BUYER shall be at liberty, without prejudice to any other remedies for breach of contract, to cancel the contract wholly or to the extent of such default.
  - (b) In case of a material breach that was not remedied within **TEN (10) DAYS**, the BUYER shall, having given the right of first refusal to the SELLER be at liberty to purchase or procure from any other source as he thinks fit, other stores of the same or similar description to make good:-
    - (i) Such default.
    - (ii) In the event of the contract being wholly determined the balance of the stores remaining to be delivered there under.
  - (c) Any excess of the purchase price or value of any stores procured from any other SUPPLIER as the case may be, over the contract price appropriate to such default or balance shall be recoverable from the SELLER. 100% recovery will be made from SELLER.
7. **Transportation.** The contractor is responsible for transport for the delivery of goods to the Consignee's premises as mentioned in NIT under their own arrangement. The term Contract means acquiring all types of goods, such as stores as well as all types of services including packing, unpacking, preservation, transportation, loading, unloading, insurance, delivery, special services if any, consultancy and



systems. Any claims arising out the accident of transport, damage to public or private property or any injury or death shall be the responsibility of the SUPPLIER and the AIC-CVRCEF as such shall not be a party to it.

8. **Quality Assurance.** The goods supplied under the contract should conform to the standards, quality and specifications as mentioned in **Schedule of Requirement** to this tender document. The item should be conforming to the current production standard and having 100% defined life at the time of delivery.

9. **Inspection Authority.** The Inspection will be carried out by the authorised representative of AIC-CVRCEF. The mode of Inspection will be Departmental Inspection / User Inspection / Self-certification.

10. **Warranty/ Guarantee/ Defect Liability Clause (where applicable).**

(a) The SELLER should covenant that, it is a condition of the contract that all Goods supplied to the BUYER under this contract shall be free of all defects and faults arising from design, materials (except when the design adopted and/ or the material used are as per the SELLER's specifications) or workmanship or from any act or omission of the contractor, that may develop under regular use of the supplied Goods under the conditions prevailing in India.

(b) Obligations of the SELLER under the warranty clause shall survive even though:-

(i) The SERVICES/ ITEMS may have been inspected/accepted and paid for by the BUYER.

(ii) The contract is terminated for any reason whatsoever.

(c) The BUYER shall promptly notify in writing to the SELLER, if during the period above, the supplied SERVICES/ ITEMS are discovered not to conform to the description and quality or have deteriorated, otherwise than by any means of food preservation (the decision of the BUYER in that behalf being final and conclusive).

(d) Upon receipt of such notice, the SELLER shall, within **TEN (10) DAYS** (or within any other period, if stipulated in the contract), expeditiously replace the substandard/ inferior quality SERVICES/ ITEMS, free of cost, at the ultimate destination. The Contractor shall take over the replaced SERVICES/ ITEMS after providing their replacements, and no claim shall lie on the BUYER for such replaced SERVICES/ GOODS after that.

(e) A penalty of 0.5% (HALF PER CENT) of the contract value for the delay in response time beyond specified time as detailed above shall be recoverable from the Performance/ Warrantee Guarantee. The maximum penalty for warranty failure will be 5% (Five percent) of the contract value during the whole warranty period. If there is further such delay after reaching this limit, BUYER shall be entitled to encashment of whole of Performance/ Warrantee Guarantee Bonds. In such an event, action for inordinate delays would also be taken as per the Rules and Regulations of Govt of India.

(f) In case of any rectification of a defect or replacement of any defective Goods during the warranty period, the warranty for the rectified/ replaced Goods shall remain till the original warranty period.

(g) If the SELLER, having been notified, fails to rectify/ replace the defect(s) within **TEN (10) DAYS** (or within any other period, if stipulated in the contract), it shall amount to breach of Contract for default, and the BUYER shall avail any or all remedial action(s) thereunder.

11. **Price Bid Format.** Unless otherwise mentioned in this RFP, the Price Bid Format is as per BOQ (Bill of Quantities) Bidders are required to fill Price Bid Format as per **Appendix-G** to this Tender document correctly with full details, sign with firms stamp on all pages of commercial bid.

Signature of Bidders  
Duly Stamped Officially

Sd/-x-x-x-x-x-x  
AO (Purchase), AIC-CVRCEF, CGU

**Note 1:** Incompletely filled form will be rejected out rightly.

**Note 2:** Bidders are requested to carry out calculations in Price Bid Format carefully. The Procuring Entity reserves the right to amend/correct any wrongly calculated totals.

**Note 3:** It is mandatory to fill the cost of each and every item in price bid format. If the rates of any item remain unfilled then the price bid may be rejected or assumed as inability to supply the said goods.

**Note 4:** Under no circumstances vendor is allowed to change/ alter/ include/ delete format of this price bid. Procuring entity reserve the right to cancel any bid in case found to do so.

**Note 5:** Quantity required is of indicative nature. quantity can be increased/ decreased by the procuring entity, without assigning any reason (refer para 15.3 of tender document).

**Note 6:** Procuring entity reserve the right to evaluate the price based on item wise or total value wise or both the value wise (refer para 15.1 of tender document)

**Note 7:** Procuring entity reserve the right to determine L-1 (lowest one) value with or without the "B" value.

**Note 8:** Procuring entity reserve the right to award the contract to L-1, L-2 or L-3 vendor (refer para 15.3 of tender document).

**Note 9:** Perspective bidder is advised to mention HSN/SAC, MAKE, BRAND and FULL SPECIFICATION of their item. procuring entity reserve the right to evaluate the price based on brand and make of the product.

**Note 10:** Bidders are advised to fill this price bid with care as under no circumstances, after opening of bid, bidder is not allowed to change any nomenclature, value, cost etc in this price bid. in this regard, no representation will be entertained at later stage.

**CHECK LIST**  
**(BIDDERS ARE REQUESTED TO ATTACH THIS PAGE ON TOP OF ALL DOCUMENT)**

Ser No	Check Points	YES/NO	Remarks
01.	Trade License		Valid Copy is attached
02.	PAN Card		Valid Copy is attached
03.	GST No		Valid Copy is attached
04.	MSME Certificate (if)		Valid Copy is attached
05.	Average Annual Financial Turnover 2022-23 2023-24 2024-25		Certified copy of <i>summary of Balance Sheet OR a Certificate duly signed by the authorised CA stating that the Annual Financial Turnover for the last three years of Bidder is as follows</i> is attached.
06.	Experience Certificate (if)		Copy of Purchase/ Work Order is attached
07.	Earnest Money Deposit (EMD)/ Bid Security Deposit (BSD)		Original copy attached
08.	Appendix 'B' - Bidders Information		Attached duly signed by the authorised person and duly affixed the company stamp/ seal
09.	Appendix 'D' – Terms and Conditions Compliance Certificate		Attached duly signed by the authorised person and duly affixed the company stamp/ seal
10.	Appendix 'E' – Bid Security Declaration		Attached duly signed by the authorised person and duly affixed the company stamp/ seal in respect of those bidders only who are registered under MSME
11.	Appendix 'F' – Self Certificate of Black Listing		Attached duly signed by the authorised person and duly affixed the company stamp/ seal
12.	Entire Tender Document		Attached duly signed by the authorised person on each page and duly affixed the company stamp/ seal

Signature of Bidders  
Duly Stamped Officially

Sd/-x-x-x-x-x  
AO (Purchase), AIC-CVRCEF, CGU

**SCHEDULE OF REQUIREMENT**

<b>SER NO</b>	<b>NOMENCLATURE OF ITEMS</b>	<b>SUGGESTED SPECIFICATION</b>	<b>QUANTITY REQUIRED</b>
1	QUEST 3 (512 GB)	<p><b>Storage</b> – 512 GB internal storage, providing ample space for large VR titles.</p> <p><b>Processor</b> - Qualcomm Snapdragon XR2 Gen 2 platform, which offers double the GPU processing power compared to the Quest 2.</p> <p><b>Memory (RAM)</b> - 8 GB LPDDR5.</p> <p><b>Display</b>: Two LCD panels with a resolution of 2064 x 2208 pixels per eye (4K+ Infinite Display).</p> <p><b>Refresh Rate</b>: Supports 72 Hz, 90 Hz, and an experimental 120 Hz refresh rate.</p> <p><b>Optics</b>: Pancake lenses for a slimmer profile and improved visual clarity across the field of view.</p> <p><b>Field of View</b>: 110 degrees horizontal and 96 degrees vertical.</p> <p><b>Audio</b>: Integrated stereo speakers with 3D spatial audio and a 40% louder volume range than the Quest 2.</p> <p><b>Mixed Reality (MR)</b>: Features dual 4MP RGB cameras and a depth projector for high-fidelity, full-color passthrough, allowing for seamless blending of virtual elements with the real world.</p> <p><b>Tracking</b>: Inside-out tracking (6-DoF) using four IR cameras and two RGB cameras; supports controller-free hand tracking (Direct Touch).</p> <p><b>Controllers</b>: Redesigned, ring-free Meta Quest Touch Plus controllers with TruTouch haptic feedback.</p> <p><b>Connectivity</b>: Wi-Fi 6E, Bluetooth 5.2, and a USB-C port (supports Meta Quest Link cable for PC connectivity).</p> <p><b>Battery Life</b>: Up to 2.2 hours of average usage (gaming is around 2.4 hours; productivity is about 1.5 hours).</p> <p><b>Weight</b>: 515 grams.</p> <p><b>Performance</b> - Powered by the Snapdragon XR2 Gen 2 chip for double the graphics power of Quest 2, Display - High-resolution (4K+) LCD panels with enhanced clarity and vibrant colors.</p> <p><b>Audio</b> - Built-in 3D spatial audio for immersive sound.</p> <p><b>Tracking</b> - Inside-out tracking with hand tracking (no controllers needed) and advanced motion sensors.</p> <p><b>Connectivity</b> - Supports Wi-Fi 6E for faster wireless performance.</p> <p><b>Ecosystem</b> - Access to the entire Quest store of 500+ apps, games, and experiences, plus Xbox Cloud Gaming.</p>	3
2	QUEST 3S (256 GB)	<p><b>Storage</b>: 256 GB internal storage, providing ample space for large VR titles.</p> <p><b>Processor</b>: Qualcomm Snapdragon XR2 Gen 2 platform, offering double the GPU processing power of the Quest 2.</p> <p><b>Storage</b>: 256 GB of internal storage.</p> <p><b>Memory (RAM)</b>: 8 GB LPDDR5.</p> <p><b>Display</b>: Single Fast-Switch LCD panel with a resolution of 1832 x 1920 pixels per eye.</p> <p><b>Refresh Rate</b>: Supports 72 Hz, 90 Hz, and experimental 120 Hz refresh rates.</p> <p><b>Optics</b>: Fresnel lenses with 3-position interaxial distance (IAD) adjustment.</p> <p><b>Field of View</b>: 96 degrees horizontal and 90 degrees vertical.</p> <p><b>Audio</b>: Integrated stereo speakers with spatial audio and reduced distortion compared to the Quest 2.</p> <p><b>Mixed Reality (MR)</b>: Features dual 4MP RGB cameras for full-color passthrough (4.5X better resolution than Quest 2 for clarity and color), allowing virtual objects to blend into physical space.</p>	2

		<p><b>Tracking:</b> Inside-out 6-DoF tracking using multiple cameras and LEDs; supports controller-free hand tracking (Direct Touch).</p> <p><b>Controllers:</b> Redesigned, ring-free Meta Quest Touch Plus controllers with TruTouch haptic feedback.</p> <p><b>Connectivity:</b> Wi-Fi 6E, Bluetooth 5.2, and a USB-C port (supports Meta Quest Link cable for PC connectivity).</p> <p><b>Battery Life:</b> Up to 2.5 hours of average usage.</p> <p><b>Weight:</b> 514 grams.</p> <p><b>Performance:</b> Powered by the Snapdragon XR2 Gen 2 chipset with 8 GB of RAM, offering double the GPU power of the Quest 2.</p>	
3	LOGITECH G LOGITECH EXTREME 3D PRO JOYSTICK	<p><b>Precision Twist Rudder Control</b> - The joystick should handle twists for natural, one-handed rudder (yaw) control, a feature often praised by users for its effectiveness in flight sims.</p> <p><b>Programmable Buttons</b> - The device should feature a total of 12 programmable buttons (six on the base, five on the stick, and one rapid-fire trigger) which can be configured for single commands or complex macros using the optional Logitech Gaming Software.</p> <p><b>8-Way Hat Switch</b> - A thumb-operated hat switch for quick and easy switching of point-of-view, weapon systems, or other functions specific to flight simulation games.</p> <p><b>Rapid-Fire Trigger</b> - A responsive trigger mechanism for quick, reliable firing in combat scenarios.</p> <p><b>Comfortable Hand Grip</b> - The sculpted, ergonomic design to support the hand and fingers for comfort during extended gaming sessions.</p> <p><b>Stable, Weighted Base</b> - The heavy base prevents the joystick from tipping or sliding around on the desk during intense gameplay.</p> <p><b>Connectivity</b> - Connectivity to a PC via wired USB connection, ensuring a reliable, low-latency performance.</p> <p><b>Compatibility</b> - Compatibility with Windows PC operating systems and is generally plug-and-play with modern Windows 10/11 systems (though software may be needed for full customization).</p>	2
4	LOGITECH JOYSTICK F310 GAMEPAD	<p><b>Connectivity:</b> Wired controller with a 1.8-meter (6-foot) USB cable, ensuring a reliable connection with low latency.</p> <p><b>Broad Game Support:</b> Supported the two most common input standards, XInput and DirectInput, which allows it to work with both modern games and older classic titles. A switch on the back lets users toggle between these modes.</p> <p><b>Console-Like Layout:</b> Should have familiar button layout and shape, similar to a PlayStation or Xbox 360 controller, means most users can pick it up and play without a learning curve.</p> <p><b>Programmable Controls:</b> Using the optional Logitech Profiler software, the 10 programmable buttons and 8-way D-pad can be customized, and can even mimic keyboard and mouse commands for games that do not natively support controllers.</p> <p><b>Exclusive 4-Switch D-Pad:</b> Unlike standard D-pads that often rest on a single pivot point, the F310's D-pad glides over four individual switches for a more responsive and tactile feel.</p> <p><b>Ergonomics:</b> It features smooth curves and contoured rubber grips designed for comfort during long gaming sessions.</p> <p><b>Compatibility:</b> It works with Windows 11, 10, 8, 7, and Vista, is certified "Works With Chromebook," and is compatible with Android TV.</p> <p><b>No Vibration:</b> The F310 does not include haptic or rumble motors, which some users consider a drawback.</p>	5
5	WACOM MOVINK 13	<p><b>OLED Display:</b> 13.3-inch Full HD (1920 x 1080) OLED display, a high contrast ratio of 100,000:1 for deep blacks and vibrant colors, with a fast response time of 0.2ms.</p> <p><b>Superior Color Accuracy:</b> The display should be Pantone® Validated and Pantone® SkinTone™ Validated, covering 100% of the DCI-P3 and 95% of the Adobe RGB color gamuts, ensuring professional-grade color management.</p> <p><b>Ultra-Portable Design:</b> Exceptionally thin (4mm) and lightweight (420g) construction using magnesium alloy and Corning Gorilla Glass for durability.</p>	2

		<p><b>Wacom Pro Pen 3:</b> Battery-free Wacom Pro Pen with 8192 levels of pressure sensitivity and tilt recognition, and can be customized with different grips and weights to suit user preference.</p> <p><b>Dual Pen Technology:</b> Should support Dual Pen Technology, allowing compatibility with the Wacom Pro Pen 3, Pro Pen 2, and third-party styli from brands like Lamy and Staedtler.</p> <p><b>Connectivity and Compatibility:</b> Connectable via a single USB-C cable (which also provides power) to devices running Windows, macOS, ChromeOS, and Android. Two customizable buttons on the side of the tablet can be used as ExpressKeys.</p>	
6	WACOM INTOUS MEDIUM WITH BLUETOOTH (BLACK)	<p><b>Connectivity:</b> Both wireless Bluetooth 4.2 connectivity for a clutter-free workspace and a wired USB connection for reliable, low-latency use.</p> <p><b>Wacom Pen 4K:</b> Included stylus is battery-free and uses Electro-Magnetic Resonance (EMR) technology. 4,096 levels of pressure sensitivity for precision and control, along with two customizable buttons and built-in nib storage for three extra standard nibs.</p> <p><b>Active Area:</b> A generous active drawing area of 8.5 x 5.3 inches (216 x 135 mm).</p> <p><b>Customizable ExpressKeys:</b> Four customizable ExpressKeys™ located at the top that can be programmed for frequently used shortcuts, such as copy, paste, and undo.</p> <p><b>Design:</b> Sleek, ultra-slim design (8.8 mm) and is lightweight (410g). Should be suitable for both left- and right-handed users.</p> <p><b>Compatibility:</b> Windows (7 or later), macOS (10.11 or later), ChromeOS, and select Android smartphones/tablets.</p> <p><b>Battery Life:</b> The built-in Li-ion battery having approximately 15 hours of continuous operation on a single charge.</p>	2
7	WIRELESS ADAPTER FULL PACK FOR PRO SERIES/ COSMOS SERIES	<p><b>VIVE Wireless Adapter (the main unit):</b> Attaches to the top of the VR headset.</p> <p><b>Headset Cable:</b> A short, specific cable to connect the adapter unit to the headset itself.</p> <p><b>PCIe WiGig Card:</b> A required card that must be installed into an available PCIe x1 slot in a compatible desktop computer. This card processes the high-speed, near-zero latency wireless signal.</p> <p><b>Wireless Link Box/Transmitter:</b> Connects to the PCIe card and transmits the signal to the adapter on the headset.</p> <p><b>Power Bank (Battery):</b> An easy-swap, rechargeable battery pack (usually 21-watt for Pro/Cosmos series) that powers the adapter for approximately 2.5 hours of continuous play.</p> <p><b>Cradle and Hook-and-Loop Fasteners:</b> Mounting accessories for managing the components.</p> <p><b>Near-Zero Latency:</b> Powered by Intel® WiGig technology (802.11ad Wi-Fi), the adapter offers a fast, responsive experience with near-zero latency, which is crucial for immersive VR.</p> <p><b>Play Area:</b> It supports a spacious play area of up to 6m x 6m (20ft x 20ft), enabling multi-user VR experiences in the same space.</p> <p><b>High Resolution Support:</b> When used with the VIVE Pro 2, it supports a resolution of up to 3264 x 1632 pixels at a 90Hz refresh rate.</p> <p><b>System Requirements:</b> Requires a desktop computer with a specific processor (Intel Core i5-4590 or better), GPU (NVIDIA GTX 1060 or better), 4GB of RAM, and an available PCIe slot</p>	2
8	PODCAST MICROPHONE-AUDIO-TECHNICA AT2020 CARDIOID CONDENSER	<p><b>Cardioid Polar Pattern:</b> The microphone has a heart-shaped pickup pattern, which effectively reduces the capture of sounds from the sides and rear, helping to isolate the speaker's voice and minimize background noise.</p> <p><b>Condenser Element:</b> It utilizes a low-mass diaphragm, custom-engineered for extended frequency response and superior transient response, capturing crisp and detailed audio.</p> <p><b>Durability:</b> Both versions feature an all-metal construction, ensuring robust performance and durability for frequent use.</p>	2

	MICROPHONE OR SIMILAR	<p><b>High SPL Handling:</b> The microphone can handle high sound pressure levels (up to 144 dB), making it versatile for recording not just vocals, but also loud instruments.</p> <p><b>Use Cases:</b> It is ideal for a wide range of applications, including podcasting, streaming, voice-overs, and home studio music recording.</p>	
9	PICO NEO 3 PRO EYE	<p><b>Integrated Eye Tracking:</b> Developed in partnership with <a href="#">Tobii</a>, this feature allows for <b>gaze interaction</b>, where users can initiate actions by simply looking at objects, and <b>eye movement analysis</b> for data-driven insights into user behavior.</p> <p><b>Foveated Rendering:</b> Utilizes eye tracking to concentrate graphical power on exactly where the user is looking, which can increase frame rates by up to 78% and extend battery life by roughly 10%.</p> <p><b>4K Display:</b> Features a single 5.5-inch LCD with a resolution of <b>3664 x 1920</b> (1832 x 1920 per eye), a 90Hz refresh rate, and a 98-degree field of view.</p> <p><b>High Performance:</b> Powered by the <b>Qualcomm Snapdragon XR2</b> chipset and upgraded with <b>8 GB of RAM</b> (compared to the 6 GB in the standard Pro model) and 256 GB of internal storage.</p> <p><b>Enterprise Ergonomics:</b> Designed for long-term comfort with a counterbalanced battery at the rear and a sterilizable, hygienic PU face cushion.</p> <p><b>Tracking:</b> Inside-out tracking via four wide-angle cameras; includes two 6DoF optical controllers with 32 tracking sensors each.</p> <p><b>Connectivity:</b> Supports <b>Wi-Fi 6</b>, Bluetooth 5.1, and high-bandwidth wired streaming through a dedicated DisplayPort for lossless 4K PC VR.</p> <p><b>Battery:</b> 5300mAh capacity, providing approximately 2.5 to 3 hours of active use.</p> <p><b>Software Compatibility:</b> Compatible with major development engines like Unity and Unreal via the Pico SDK, and supports enterprise solutions like <a href="#">ArborXR</a> for fleet management.</p>	1
10	REALWEAR N500+ACCESSORIES	<p><b>Hands-Free Operation:</b> The device is primarily operated by voice commands, which is crucial for safety and productivity in industrial settings with high ambient noise (up to 100 dBA).</p> <p><b>Ruggedized Design:</b> It is built for demanding environments with an IP66 rating (dust-tight and protected against powerful water jets) and MIL-STD-810H certification (drop-tested up to 6.5 feet).</p> <p><b>Assisted Reality Display:</b> A monocular (single eye) display presents information in the user's field of vision, similar to a 7-inch tablet screen viewed at a distance, without obscuring the worker's view of their real surroundings ("reality first, digital second").</p> <p><b>Modular Camera:</b> Features a high-performance 48 MP camera with enhanced zoom and low-light capabilities. The camera module is designed to be swapped out with other accessories or covered as needed.</p> <p><b>Hot-Swappable Battery:</b> The 2600 mAh battery is designed to last a full shift (around 8 hours) and can be replaced without powering down the device, ensuring continuous use.</p> <p><b>Accessories:</b> The "full pack" should include following accessories to enhance the device's functionality and compatibility with personal protective equipment (PPE).</p> <p><b>Mounting Options:</b></p> <ul style="list-style-type: none"> <li><b>Workband 2:</b> A standard workband for wearing the device.</li> <li><b>Hard Hat Clips/Bands:</b> Various clips (e.g., for MSA, 3M, Honeywell hard hats) and bands to securely attach the device to industry-standard safety headwear.</li> <li><b>RealWear Ball Cap with Mounts:</b> A branded cap option for less hazardous environments.</li> </ul>	1

		<p><b>Power &amp; Battery Solutions:</b></p> <p><b>Extra Battery Packs:</b> Crucial for multi-shift operations, allowing for hot-swapping.</p> <p><b>Multi-Battery Charger:</b> A 4-bay charger for managing multiple battery packs efficiently.</p> <p><b>USB-C Power Adapter:</b> For standard charging.</p> <p><b>Audio and Communication:</b></p> <p><b>Pro Buds IS Hearing Protection Headphones with in-ear Microphone :</b> In-ear headphones offering noise reduction (NRR 33 dB) and an in-ear microphone for clear communication in extreme noise.</p> <p><b>Specialized Modules and Connectivity:</b></p> <p><b>Thermal Camera Module:</b> A Teledyne FLIR co-developed module that adds thermal imaging capabilities to see heat signatures, useful for preventative maintenance.</p> <p><b>Mini LTE Modem &amp; Mount:</b> An accessory for adding 4G/LTE cellular connectivity when Wi-Fi is unavailable.</p> <p><b>Protective Carrying Case:</b> A semi-rigid case to transport and protect the device and its accessories.</p>	
11	RAY BAN META GEN 2	<p><b>Enhanced Camera:</b> Features an ultra-wide 12 MP camera for high-quality photos and videos in up to <b>3K Ultra HD (30fps)</b> resolution, a major upgrade from the Gen 1's 1080p video.</p> <p><b>Extended Battery Life:</b> Provides up to <b>8 hours of use on a single charge</b>, doubling the Gen 1's battery life. The portable charging case provides an additional 48 hours of power.</p> <p><b>Improved Audio:</b> Equipped with a five-microphone array for clear calls and two custom-built open-ear speakers with improved volume and bass, while still allowing the user to remain aware of their surroundings.</p> <p><b>Meta AI Integration:</b> The built-in Meta AI assistant can be summoned by voice ("Hey Meta") to ask questions, control the glasses, get live translations, and even perform specific functions like scanning and paying via UPI Lite in India.</p> <p><b>Connectivity and Storage:</b> Runs on the Qualcomm Snapdragon AR1 Gen 1 platform, with support for Wi-Fi 6 and Bluetooth 5.3. It has 32GB of flash storage for over 1,000 photos or 100 30-second videos.</p> <p><b>Design and Lenses:</b> Maintains the classic Ray-Ban aesthetic (available in Wayfarer, Headliner, and Skyler styles), is IPX4 water-resistant, and can be fitted with various lens options including polarized, photochromic (Transitions®), and prescription lenses.</p>	2
12	MICROSOFT HOLOLENS 2 STANDARD EDITION	<p><b>Display:</b> Features see-through holographic lenses (waveguides) with 2K 3:2 light engines, providing a wide 52° diagonal field of view. It automatically adjusts the display for optimal 3D viewing based on eye position.</p> <p><b>Interaction:</b> Supports fully articulated <b>two-handed hand tracking</b> (direct manipulation of holograms), <b>real-time eye tracking</b>, and on-device <b>voice commands</b>.</p> <p><b>Sensors:</b> Includes a suite of sensors for environmental understanding, such as four visible light cameras for head tracking, a 1-MP time-of-flight depth sensor, and an Inertial Measurement Unit (IMU).</p> <p><b>Performance:</b> Powered by a Qualcomm Snapdragon 850 Compute Platform and a second-generation custom-built Holographic Processing Unit (HPU), with 4GB of RAM and 64GB of internal storage.</p> <p><b>Audio:</b> Features built-in spatial sound speakers and a five-channel microphone array for clear communication.</p> <p><b>Ergonomics:</b> Weighs 566g and features a balanced, dial-in fit system that can be worn comfortably over glasses. The visor can be flipped up to quickly switch between mixed reality and physical tasks.</p> <p><b>Connectivity:</b> Supports Wi-Fi (802.11ac) and Bluetooth 5.0, with a USB-C port for charging and data transfer.</p> <p><b>Battery Life:</b> Provides approximately 2 to 3 hours of active use and can be fully charged in under 65 minutes when in standby mode.</p>	1



13	HTC VIVE PRO 2 FULL KIT	<p><b>5K Resolution:</b> The headset features a combined resolution of <b>4896 x 2448 pixels</b> (2448 x 2448 per eye) on dual RGB low persistence LCD screens for exceptional clarity and minimal screen-door effect.</p> <p><b>Wide Field of View:</b> An expanded 120-degree horizontal field of view (FOV) is designed to better align with natural human eyesight, enhancing immersion and depth perception.</p> <p><b>High Refresh Rate:</b> It supports a <b>120 Hz refresh rate</b> for smooth, fluid visuals, which is ideal for fast-paced gaming and professional applications.</p> <p><b>Precision Room-Scale Tracking:</b> The included SteamVR Tracking 2.0 components provide sub-millimeter, 360-degree coverage, allowing for seated, standing, or full room-scale experiences.</p> <p><b>Integrated Audio:</b> Hi-Res certified on-ear headphones with 3D spatial sound integration and a powerful amplifier deliver rich, immersive audio.</p> <p><b>Ergonomic Design:</b> The headset is designed for comfort during extended sessions with a balanced construction, adjustable head strap, and an easy-to-use interpupillary distance (IPD) adjustment dial.</p> <p><b>It should contain the following</b> - The "Full Kit" is a complete package that ensures you have all the necessary components for a full PC-VR setup:-</p> <ul style="list-style-type: none"> <li>• <b>1x VIVE Pro 2 Headset</b> with an attached VIVE Headset Cable (2.0)</li> <li>• <b>2x VIVE Controllers (2018)</b> with lanyards and micro-USB charging cables</li> <li>• <b>2x Base Station 2.0</b> with power adapters and a mounting kit</li> <li>• <b>1x Link Box (2.0)</b>, which connects the headset to the PC</li> <li>• <b>Cables and Accessories:</b> <ul style="list-style-type: none"> <li>○ Link box power adapter</li> <li>○ USB 3.0 cable</li> <li>○ DisplayPort cable and Mini DisplayPort to DisplayPort adapter</li> <li>○ Cleaning cloth and earphone hole caps</li> </ul> </li> </ul>	2
14	HTC VIVE FOCUS 3	<p><b>Display:</b> Features dual 2.88-inch LCD panels with a combined <b>5K resolution</b> (2448 x 2448 pixels per eye) for sharp, clear visuals, a 90 Hz refresh rate, and a wide 120-degree field of view.</p> <p><b>Processor &amp; Performance:</b> Powered by the <b>Qualcomm Snapdragon XR2</b> Platform with 8GB of RAM and 128GB of internal storage (expandable up to 2TB via microSD), allowing it to handle demanding professional applications.</p> <p><b>Tracking:</b> Uses four integrated tracking cameras for VIVE Inside-out 6DoF (six degrees of freedom) tracking, enabling room-scale experiences up to 10m x 10m without external base stations. It also supports 26-point hand tracking for controller-free interaction.</p> <p><b>Ergonomics &amp; Comfort:</b> Features a counterbalanced design with the battery mounted at the rear to distribute weight evenly, reducing neck strain. It has an adjustable head strap with a quick-release button and a physical IPD (inter-pupillary distance) adjustment dial (57-72mm).</p> <p><b>Battery:</b> Equipped with a swappable 26.6Wh lithium-polymer gel battery that provides approximately 2-3 hours of continuous use and can charge to 50% in 30 minutes, allowing for all-day use with spare batteries.</p> <p><b>Audio:</b> Integrated open-back, dual-driver speakers provide 3D spatial sound with directional design to reduce sound leakage for private conversations. It also has dual microphones with echo cancellation and a 3.5mm audio jack for external headphones.</p>	1

15	HTC VIVE XR ELITE-MR DEVICE	<p><b>Display:</b> It features a sharp 4K combined resolution (1920 x 1920 pixels per eye) on dual LCD panels with pancake lenses, offering edge-to-edge clarity, a 90 Hz refresh rate, and a 110-degree field of view.</p> <p><b>Mixed Reality (MR) Capability:</b> A 16 MP RGB color passthrough camera and a depth sensor enable high-resolution, full-color mixed reality experiences, seamlessly blending the digital and physical worlds.</p> <p><b>Modular Design:</b> The device is highly portable, with a detachable rear battery cradle that allows it to transform into a compact pair of glasses-style goggles, which can then be powered by a power bank.</p> <p><b>Performance:</b> It is powered by the Qualcomm Snapdragon XR2 processor, 12 GB of RAM, and 128 GB of internal storage, delivering robust standalone performance.</p> <p><b>Connectivity:</b> It offers both wired (USB-C) and high-speed wireless (Wi-Fi 6E, Bluetooth 5.2) connectivity for PC VR streaming, providing access to a wide range of content on platforms like SteamVR.</p> <p><b>Ergonomics:</b> The headset is designed for comfort with balanced weight distribution (625g with battery), adjustable IPD (inter-pupillary distance), and built-in diopter dials, eliminating the need for some users to wear prescription glasses inside the headset.</p> <p><b>Interaction:</b> It supports both precise 6DoF physical controllers and natural hand-tracking, allowing users to navigate, click, and type with their finger movements.</p> <p><b>It should includes the following</b> - The standard package typically includes everything necessary to get started with both standalone and basic PC VR use:</p> <ul style="list-style-type: none"> <li>• VIVE XR Elite headset</li> <li>• Battery cradle (removable and hot-swappable)</li> <li>• Two controllers (left and right)</li> <li>• Various cables (USB-C to C, 2x USB-A to C)</li> <li>• Documentation, a microfiber pouch, and a lens protection card</li> <li>• A deluxe pack of accessories including a deluxe strap, various face gaskets, and temple clips for enhanced comfort</li> </ul>	1
16	HTC VIVE TRACKER 3.0	<p><b>Compact Design:</b> It is 33% smaller and 15% lighter than the previous version, making it more comfortable for long VR sessions.</p> <p><b>Extended Battery Life:</b> The battery lasts for up to <b>7.5 hours of continuous use</b>, a 75% improvement over the VIVE Tracker (2018).</p> <p><b>Precision Tracking:</b> It uses the SteamVR tracking system (compatible with both Base Station 1.0 and 2.0) to provide sub-millimeter accuracy and low latency for the best experience possible.</p> <p><b>Versatile Connectivity:</b> Features a modern <b>USB-C</b> port for both charging and data transfer, replacing the older Micro-USB port.</p> <p><b>Universal Mounting:</b> It includes a standard 1/4-inch UNC threaded mount, allowing it to be easily attached to camera mounts, straps, and custom accessories.</p> <p><b>Included Accessories:</b> Each tracker typically comes with a USB-C cable, a wireless dongle, and a dongle cradle.</p>	2
17	HTC VIVE ULTIMATE TRACKER	<p><b>Tracking Technology:</b> Uses built-in dual wide-FOV (field-of-view) cameras and computer vision for 6DoF (six degrees of freedom) inside-out tracking, providing instant spatial recognition.</p> <p><b>No Base Stations Required:</b> This is its key advantage over previous models, enabling use in various environments without a complex setup.</p> <p><b>Connectivity:</b> Connects wirelessly to a compatible headset or PC using a proprietary low-latency 2.4 GHz signal via a required VIVE Wireless Dongle (sold separately or included in a kit).</p> <p><b>Battery Life:</b> Offers up to <b>7 hours of continuous use</b> on a single charge.</p>	1

		<p><b>Design:</b> It is compact (94g weight) and features a quick-release mechanism and a standard 1/4"-20 UNC screw-in mount for easy attachment to various objects or body straps.</p> <p><b>Compatibility:</b> Officially compatible with the VIVE XR Elite and VIVE Focus 3 standalone headsets. A beta program is available for compatibility with third-party PC VR headsets that support SteamVR, such as the Meta Quest and Valve Index. Up to five trackers can connect to a single dongle for full-body tracking.</p>	
18	CYBERITH VIRTUALIZER WALKING SIMULATOR ELITE-2	<p><b>Active Support:</b> The platform automatically inclines in front of the user's walking direction. This uses gravity to help the user's foot glide backward, significantly reducing the physical effort required to walk or run in VR.</p> <p><b>Adaptive Response:</b> The system adapts in real-time to the user's movement speed and direction, even reversing the inclination for backward walking.</p> <p><b>Decoupled Movement:</b> By combining an optical rotation sensor in the ring with the VR headset's tracking, the system allows for <b>decoupled viewing</b>, meaning users can look in one direction while walking in another.</p> <p><b>Precision Tracking:</b> Uses <b>6 optical motion sensors</b> in the baseplate with a high 1000 Hz frame rate for ultra-fast and precise movement detection.</p> <p><b>Haptic Feedback:</b> Includes an integrated vibration unit in the baseplate to provide tactile feedback for in-game events like explosions or floor textures.</p> <p><b>Universal Ergonomics:</b> Features an adjustable, one-size-fits-all harness system and vertical ring mobility that supports <b>crouching and jumping</b>.</p> <p><b>Footwear:</b> Instead of proprietary shoes, it uses <b>flexible overshoes</b> that fit over the user's regular footwear.</p> <p><b>Connectivity:</b> Supports PC-VR via USB and standalone headsets (like Quest 3 or VIVE Focus 3) through an optional Virtualizer Stand-Alone Module (VirtSAM).</p>	1
19	6DOF LMV CAR SIMULATOR FOR LMV	<p><b>Degrees of Freedom:</b> Roll, Pitch, Yaw, Heave (vertical), Surge (longitudinal), and Sway (lateral).</p> <p><b>Payload Capacity:</b> Standard units support between 250 kg and 1,000 kg for LMV cabins.</p> <p><b>Actuator Performance:</b></p> <p style="padding-left: 40px;"><b>Max Speed:</b> Typically <b>500 mm/s to 600 mm/s</b>.</p> <p style="padding-left: 40px;"><b>Max Acceleration:</b> Approximately <b>±0.61g to ±0.8g</b>.</p> <p style="padding-left: 40px;"><b>Rotational Range:</b> Pitch/Yaw up to <b>±23° to ±25°</b>; Roll up to <b>±22°</b>.</p> <p><b>Power Requirements:</b> Standard <b>220–240V AC Single Phase</b> (India/Europe) or 110V (US).</p> <p><b>Hardware and Driver Station</b> - The station must use authentic OEM controls to ensure a realistic training environment.</p> <p><b>Controls:</b> Full integration of an OEM steering wheel, pedals (Accelerator, Brake, Clutch), 5+1 or 6-speed manual gear shifter, and handbrake.</p> <p><b>Steering:</b> Motorized force feedback steering to replicate road resistance and steering stiffness.</p> <p><b>Display Options:</b></p> <p style="padding-left: 40px;"><b>Triple Screen:</b> Three <b>32-inch to 45-inch monitors</b> (often curved) to provide a 120° to 180° field of view.</p> <p style="padding-left: 40px;"><b>VR/XR:</b> Compatible with headsets like the Meta Quest 3 for 360° immersion.</p> <p><b>Computing Power (2026 Standards):</b></p> <p style="padding-left: 40px;"><b>Processor:</b> Intel i7 or i9 (e.g., i9-14900K).</p> <p style="padding-left: 40px;"><b>Graphics:</b> High-end GPU like the <b>NVIDIA RTX 5080</b> or equivalent with 8GB+ VRAM.</p>	1

20	CELL TESTING AND CHARACTERIZATION	<p><b>Memory/Storage:</b> Minimum <b>16GB to 64GB RAM</b> and <b>512GB to 4TB SSD</b>.</p> <p><b>1. Electrical Performance Characterization</b> - This involves quantifying the core energy capabilities of the cell under varied loads.</p> <p><b>Static Capacity Test:</b> Determines the actual Ampere-hour (Ah) capacity by charging to the upper cut-off voltage (typically 4.2V for NMC) and discharging to the lower limit (e.g., 2.5V) at a defined C-rate.</p> <p><b>Hybrid Pulse Power Characterization (HPPC):</b> Uses short high-current pulses (often 1C for 10s) to calculate the DC Internal Resistance (DCIR) and dynamic power capability at various States of Charge (SoC).</p> <p><b>Open Circuit Voltage (OCV) Mapping:</b> Measures the stable voltage at rest across the full SoC range (0–100%) to create precise look-up tables for BMS state estimation.</p> <p><b>2. Electrochemical &amp; AC Characterization</b> - Advanced techniques probe the internal chemical state and kinetic behaviour of the cell.</p> <p><b>Electrochemical Impedance Spectroscopy (EIS):</b> Applies a small AC signal over a wide frequency range (typically 1 mHz to 10+ kHz) to identify ohmic resistance, charge transfer resistance, and diffusion characteristics.</p> <p><b>GITT (Galvanostatic Intermittent Titration Technique):</b> Employs current pulses followed by long relaxation periods to study the lithium-ion diffusion coefficient and thermodynamic properties.</p> <p><b>3. Thermal and Environmental Testing</b> -Characterization must account for temperature-dependent performance variations.</p> <p><b>Operating Window:</b> Testing typically spans from -20°C to +60°C, with optimal performance usually occurring between 15°C and 35°C.</p> <p><b>Thermal Gradients:</b> Characterization identifies heat generation rates to ensure temperature differences between cells remain within safety limits (e.g., &lt;6°C) to prevent thermal runaway.</p> <p><b>Voltage/Current Accuracy:</b> Standard requirement is <b>±0.02%</b> or better to ensure valid modeling data.</p> <p><b>Sampling Rate:</b> Minimum of <b>10 readings per second</b> for critical parameters like voltage, current, and temperature.</p> <p><b>Power Capability:</b> Individual channels typically support up to <b>5V</b> with current ranges from <b>6A to 300A</b>, depending on cell size (cylindrical vs. prismatic).</p> <p><b>Software Integration:</b> Hardware is often combined with <b>HIL (Hardware-in-the-Loop)</b> simulators (e.g., <u>dSPACE</u>) to emulate real-world driving or motion profiles in real-time.</p>	1
21	PACK TESTING AND CHARACTERIZATION	<p><b>1. Performance and Electrical Characterization</b> - Characterization at the pack level focuses on how the combined cells behave as a single high-voltage unit.</p> <p><b>Static and Dynamic Capacity:</b> Measures the usable energy of the pack under standard discharge profiles (e.g., 1C or specific drive cycles).</p> <p><b>DC Internal Resistance (Pack Level):</b> Evaluates total resistance, including cell interconnects and busbars, often using the <b>VDA Current Step Method</b>.</p> <p><b>State of Health (SoH) &amp; Variation:</b> Advanced statistical modeling is used to identify <b>cell-to-cell variation (CtCV)</b>, ensuring the weakest cell does not prematurely trigger the BMS safety limits.</p> <p><b>Isolation and Insulation Resistance:</b> Testing the resistance between high-voltage components and the pack enclosure to ensure user safety from electrical shock.</p> <p><b>2. Thermal Management Testing</b> - Modern packs (2026 standard) must maintain temperatures between <b>15°C and 35°C</b> for optimal life.</p>	1

		<p><b>Thermal Stability and Uniformity:</b> Tests must prove that temperature variance across all cells in the pack is kept within a narrow window (typically &lt;5°C to 6°C) to prevent a 10% drop in power capabilities.</p> <p><b>Cooling/Heating Efficiency:</b> Validation of liquid cold plates, immersion cooling, or phase-change material systems during fast-charging and high-load cycles.</p> <p><b>Thermal Abuse &amp; Propagation:</b> Testing the pack's ability to contain a single-cell thermal runaway event, preventing it from spreading to adjacent cells (Propagation Test).</p> <p><b>3. Mechanical and Abuse Testing (2026 Standards)</b> - Safety standards such as <b>ISO 12405</b> and <b>UL 2580</b> require packs to survive extreme mechanical stress.</p> <p><b>Vibration and Mechanical Shock:</b> Simulates years of road use to ensure busbars and connectors remain secure.</p> <p><b>3-Meter Stacking &amp; Crush Resistance:</b> Mandatory for 2026 transport compliance to ensure structural integrity under heavy loads.</p> <p><b>Seawater Immersion &amp; Fire Exposure:</b> Evaluates the pack's safety in extreme accident scenarios.</p> <p><b>4. BMS Hardware-in-the-Loop (HIL) Testing - Power HIL</b> systems are standard for evaluating EV battery processes.</p> <p><b>Fault Injection:</b> Simulating sensor failures or over-voltage scenarios to verify that the BMS accurately triggers protection circuits.</p> <p><b>Communication Validation:</b> Ensuring the BMS correctly communicates with the vehicle controller via <b>CAN</b> or <b>RS485</b> protocols under all operating states.</p> <p><b>5. Regulatory Compliance and Certification</b></p> <p><b>UN 38.3 &amp; IATA 2026 Rules:</b> Critical for shipping; starting January 1, 2026, most lithium-ion batteries must be transported at a <b>State of Charge (SoC) not exceeding 30%</b>.</p> <p><b>Regional Standards:</b> Bureau of Indian Standards (BIS) and <b>AIS-156</b> for India, or <b>ISO 12405</b> globally, govern performance and safety approvals.</p>	
22	PACK ACR TESTING LAB – 110V/ 1 CH	<p><b>Technical Specifications</b></p> <ul style="list-style-type: none"> <li>• Power Supply: 110V AC, Single Phase (1 PH), 50/60 Hz.</li> <li>• Measurement Principle: Dual-wavelength reflectance method or reflectance photometry.</li> <li>• Light Source: 4 LED wavelengths (typically 470, 550, 620, and 720 nm).</li> <li>• Reaction Time: Rapid testing with results available in approximately 60 seconds per test.</li> <li>• Sample Parameters: Primarily manual dipping of reagent strips (e.g., URIT 10G/14G).</li> <li>• Data Memory: Storage capacity for up to 1,000 patient samples.</li> <li>• Interface: Micro-USB for data transfer and Bluetooth for wireless printing.</li> </ul> <p><b>Key Features</b></p> <ul style="list-style-type: none"> <li>• User Interface: LCD colored touch screen for digital display and easy operation.</li> <li>• Portability: Compact, palm-sized design weighing approximately 180g to 320g.</li> <li>• Clinical Utility: Specifically recommended for annual screening of diabetic and hypertensive patients to detect microalbuminuria.</li> <li>• Comprehensive Testing: Often capable of calculating both ACR and PCR (Protein-to-Creatinine Ratio) on a single strip.</li> </ul>	1

23	ENVIRONMENTAL CHAMBER [(-)20° TO (+)80° CELCIUS]	<p><b>Temperature Performance:</b>  <b>Range:</b> -20°C to +80°C (standard).  <b>Accuracy:</b> Typically <math>\pm 1.0^{\circ}\text{C}</math> to <math>\pm 2.0^{\circ}\text{C}</math>.  <b>Uniformity:</b> Maintained within <math>\pm 1^{\circ}\text{C}</math> to <math>\pm 2^{\circ}\text{C}</math> via forced air circulation.  <b>Ramp Rates:</b> Standard heating/cooling rates average around <math>1^{\circ}\text{C}/\text{min}</math>; rapid-rate models can exceed <math>5^{\circ}\text{C}/\text{min}</math> to <math>15^{\circ}\text{C}/\text{min}</math>.  <b>Humidity Control:</b>  <b>Range:</b> Most climatic chambers for this temperature band offer a humidity range of <b>20% to 98% RH</b>.  <b>Accuracy:</b> Often controlled within <math>\pm 2\%</math> to <math>\pm 3\%</math> RH.  <b>Construction &amp; Design:</b>  <b>Interior:</b> High-grade <b>SUS304 mirror stainless steel</b> for corrosion resistance.  <b>Insulation:</b> 75mm to 120mm of rigid <b>polyurethane foam (PUF)</b> or glass wool for high energy efficiency.  <b>Access:</b> Viewing windows made of multi-layered toughened vacuum glass with anti-condensation heaters.  <b>Mobility:</b> Equipped with heavy-duty lockable castor wheels for facility relocation.  <b>Safety &amp; Monitoring:</b>  <b>Protections:</b> Over-temperature limiters, compressor overload relays, and independent circuit breakers.  <b>Controller:</b> PLC-based <b>touchscreen HMI</b> with programmable multi-step cycles and data logging via USB or Ethernet.  <b>Connectivity:</b> Integrated Wi-Fi or Ethernet for remote monitoring via PC or smartphone.  <b>Primary Applications</b>  <b>Battery Testing:</b> Simulating extreme climatic conditions to evaluate the lifespan and safety of lithium-ion cells.  <b>Material Stability:</b> Testing plastics, automotive parts, and packaging for durability against thermal stress.  <b>Industrial Compliance:</b> Performing tests according to standards such as <b>IEC 60068, ASTM D4332, and MIL-STD-810H</b>.</p>	1
24	BMS ALGORITHM DEVELOPMENT BOARD-NXP-MBD BASED SINGLE CELL BMS (WITHOUT PC)	<p><b>1. Core Hardware Specifications</b>  <b>Microcontroller (MCU):</b> Typically based on the NXP S32K144 or the newer <b>S32K3</b> series (Arm® Cortex®-M4F or M7).  <b>Analog Front-End (AFE):</b> Features an integrated NXP battery cell controller (like the <b>MC3377x</b> series) capable of high-precision voltage sensing (<math>\pm 1\text{mV}</math> to <math>\pm 2\text{mV}</math> accuracy).  <b>Sensing Channels:</b>  <b>Voltage:</b> Single-cell monitoring (with scalability to 14+ cells via daisy chain).  <b>Current:</b> Integrated shunt or Hall-effect sensor interface for high-resolution current sensing.  <b>Temperature:</b> 1–4 NTC thermistor inputs for thermal characterization.  <b>Communication:</b> Dual CAN FD (Flexible Data-rate) ports, LIN, and UART for data logging and vehicle integration.  <b>2. Model-Based Design (MBD) Workflow</b> - The primary advantage of this board is its tight integration with the <b>NXP Model-Based Design Toolbox (MBDT)</b>.  <b>Simulink Integration:</b> Engineers can drag and drop NXP-specific blocks for peripheral initialization (ADC, PWM, CAN) directly within Simulink.  <b>Algorithm Development:</b> Supports development of complex algorithms including:  <b>State of Charge (SoC):</b> Extended Kalman Filter (EKF) or Unscented Kalman Filter (UKF).</p>	2

		<p><b>State of Health (SoH):</b> Recursive Least Squares (RLS) for internal resistance estimation.</p> <p><b>Cell Balancing:</b> Logic for passive balancing control.</p> <p><b>Processor-in-the-Loop (PIL):</b> Allows the model running on a PC to execute code on the actual hardware in real-time to verify execution timing and numerical accuracy.</p> <p><b>3. Software &amp; Simulation Support</b></p> <p><b>Compiler Support:</b> Fully compatible with NXP S32 Design Studio, IAR, and GCC.</p> <p><b>Safety Standards:</b> Built-in support for <b>ISO 26262 ASIL-D</b> functional safety requirements, critical for automotive and high-reliability industrial applications.</p> <p><b>Real-time Monitoring:</b> Compatible with NXP FreeMASTER for real-time data visualization and tuning without stopping the CPU.</p>	
25	NXP-MBD BASED MULTICELL BMS ALGORITHM DEVELOPMENT-14S (WITHOUT PC)	<p><b>1. Hardware Specifications</b> - The system typically follows a reference design architecture such as the NXP MR-BMS771 or RD-K344BMU.</p> <p><b>Microcontroller (MCU):</b></p> <p><b>NXP S32K344.</b> : A high-performance, 32-bit Arm® Cortex®-M7 based MCU with dual cores in lockstep. It is ASIL D certified and features up to 4 MB Flash and 512 KB RAM.</p> <p><b>NXP S32K146</b> : Used in mobile robotics variants (MR-BMS771), featuring an Arm® Cortex®-M4F, 1 MB Flash, and ASIL B safety.</p> <p><b>Analog Front-End (AFE):</b></p> <p><b>MC33771C Li-ion Cell Controller</b> : Specifically designed for 7- to 14-cell management.</p> <p><b>Voltage Measurement:</b> 14 channels with a maximum total error of <b>±0.8 mV</b>.</p> <p><b>Passive Balancing:</b> Integrated 300 mA MOSFETs with diagnostics.</p> <p><b>Temperature Inputs:</b> 7 ADC/GPIO inputs for thermistor-based temperature monitoring.</p> <p><b>Communication &amp; Safety:</b></p> <p><b>Isolated Daisy Chain:</b> Supports up to 63 nodes in a single chain using a 2.0 Mbps differential link.</p> <p><b>CAN FD:</b> 2–6 ports for integration with vehicle networks.</p> <p><b>Safety SBC:</b> Integrated FS26 Safety System Basis Chip for power management and watchdog functions</p> <p><b>2. Software &amp; MBD Integration</b></p> <p><b>Model-Based Design Toolbox (MBDT):</b> Provides a direct plug-in for <b>MATLAB/Simulink</b>, enabling users to drag-and-drop hardware-optimized blocks for peripheral control (CAN, ADC, PWM).</p> <p><b>Algorithm Development:</b> Supports out-of-the-box development for:</p> <p><b>SoC &amp; SoH Estimation:</b> Using advanced data-driven models or neural networks.</p> <p><b>Fault Detection:</b> Over 200 automated checks (Overvoltage, Undervoltage, Overtemperature).</p> <p><b>Contact Control:</b> Automated management of charging/discharging states.</p> <p><b>Tool Support:</b> Fully compatible with NXP FreeMASTER for real-time debugging and visualization.</p> <p><b>3. Standard Kit Contents:</b> Typically includes the 14S BMS board, a <b>BATT-14CEMULATOR</b> (battery pack emulator), supply cables, and JTAG adapters for debugging.</p>	1

26	SOFTWARE PACKAGES FOR THE SINGLE CELL	<p><b>1. Model-Based Design &amp; Simulation Packages</b> - The industry standard remains the <b>MATLAB &amp; Simulink</b> ecosystem, specifically tailored for battery systems.</p> <p><b>Simscape Battery (MathWorks):</b></p> <p><b>Cell Characterization:</b> Automates the creation of "Digital Twins" using experimental data from pulse discharge tests.</p> <p><b>Electrochemical Modeling:</b> Supports Equivalent Circuit Models (ECM) and reduced-order physics models to simulate single-cell aging and thermal behavior.</p> <p><b>NXP Model-Based Design Toolbox (MBDT):</b></p> <p><b>Targeted Code Generation:</b> Allows users to generate C-code directly from Simulink blocks for NXP MCUs (like the S32K series).</p> <p><b>Peripheral Blocks:</b> Includes pre-configured blocks for ADC (voltage/current sensing), PWM, and communication protocols.</p> <p><b>2. Runtime Debugging &amp; Visualization</b></p> <p><b>NXP FreeMASTER:</b></p> <p><b>Real-time Dashboard:</b> A user-friendly interface to visualize cell voltage, current, and temperature graphs in real-time without halting the processor.</p> <p><b>Calibration:</b> Allows "on-the-fly" tuning of algorithm parameters (e.g., Kalman Filter gains) during operation.</p> <p><b>3. Integrated Development Environments (IDE)</b> - Professional IDEs are used to compile, flash, and debug the generated C-code.</p> <p><b>S32 Design Studio (NXP):</b> An Eclipse-based IDE that supports professional compilers like GCC or IAR. It includes the <b>S32 SDK</b> for low-level driver management.</p> <p><b>STM32CubeMonitor-Power:</b> If using ST-based single-cell testers, this helps in analyzing power consumption and battery life estimation through graphical data.</p> <p><b>4. Data Analysis &amp; Characterization Software</b></p> <p><b>Arbin Instruments MIT Pro:</b> Standard software for controlling battery testing hardware. It handles complex test scheduling (HPPC, GITT) and exports data in formats compatible with modeling software.</p> <p><b>Python-based Tools (Open Source):</b> Tools like <b>PyBaMM</b> (Python Battery Mathematical Modelling) are widely used in 2026 for fast, physics-based simulations of single-cell degradation.</p> <p><b>5. Functional Safety (ASIL) Packages</b> - For single-cell BMS targeted at automotive or medical use, software must include:</p> <p><b>Structural Core Self-Test (SCST) Libraries:</b> To verify MCU hardware integrity.</p> <p><b>AUTOSAR MCAL:</b> For standardizing the interface between the hardware and the application layer, ensuring the software is portable and safety-compliant.</p>	1
27	ATHER 450 BATTERY PACK TEARDOWN	<p><b>Battery Type</b> - Lithium-ion.</p> <p><b>Cell Type (450X/S)</b> - 21700 cylindrical cells (upgraded from 18650 in the original 450).</p> <p><b>Capacity (Installed)</b> - 2.9 kWh or 3.7 kWh.</p> <p><b>Nominal Voltage</b> – 51.1 V</p> <p><b>Casing Material</b> – Aluminium Alloy.</p> <p><b>Ingress Protection (IP) Rating</b> - IP67 (dust-tight and protected from temporary immersion in water).</p> <p><b>Portability</b> – Fixed (Non-Removable).</p> <p><b>Internal Design and Components (Teardown Details)</b> - Several design principles are:-</p>	1



		<p><b>Integrated BMS:</b> The pack features a sophisticated, in-house designed BMS (Battery Management System) that manages performance, life, and safety. This system enables features like the "Warp" performance mode by efficiently managing heat dissipation.</p> <p><b>Thermal Management:</b> Efficient heat management is a core design consideration, especially crucial for performance modes and fast charging. The metal casing is likely integral to the passive or active cooling system, though specific cooling mechanisms aren't detailed in public specs.</p> <p><b>Build for Durability:</b> The use of a robust aluminum casing and IP67 rating ensures the battery can withstand demanding urban conditions, including water wading limits of 300 mm.</p> <p><b>Cell Interconnects:</b> The internal cell connections are designed for reliability under vibration and movement, as part of the vehicle's hybrid chassis design.</p> <p><b>Safety:</b> The BMS includes robust error management, over-the-air (OTA) update capabilities for improved safety algorithms, and diagnostics that can trigger performance restrictions in case of glitches to ensure rider safety.</p>	
28	BATTERY PACK MANUFACTURING KIT	<p><b>Standard Kit Components &amp; Specifications</b> – The kit contains both the necessary parts and the equipment to assemble them safely and effectively.</p> <p><b>Battery Cells:</b> High-quality, EV-grade cells, commonly <b>18650</b> or <b>21700</b> cylindrical cells or prismatic LiFePO4 cells.</p> <p><b>Battery Management System (BMS):</b> A printed circuit board (PCB) that manages cell functions, including over-voltage, under-voltage, over-current, and temperature protection. The BMS's current rating and series (S) configuration (e.g., 3S 40A, 14S 100A) determine the pack's power output and nominal voltage.</p> <p><b>Cell Holders/Spacers:</b> Plastic brackets designed to maintain proper alignment and crucial space between cells, which helps prevent short circuits and assists with thermal management.</p> <p><b>Interconnect Materials:</b> <b>Pure nickel strips</b> or copper busbars are provided for series and parallel connections due to their excellent conductivity and corrosion resistance.</p> <p><b>Insulation &amp; Casing:</b></p> <p><b>Insulating materials:</b> Items like high-temperature Kapton tape, fish paper, or heat-shrink tubing are included for isolating sensitive areas and preventing short circuits.</p> <p><b>Outer casing:</b> Ranges from simple PVC shrink wrap to robust, often-aluminium alloy, enclosures with specific IP ratings (e.g., IP66 or IP67 for water/dust resistance) for larger packs.</p> <p><b>Required Tools &amp; Testing Equipment</b> - Kits designed for hands-on assembly typically include specialized tools to ensure quality and safety.</p> <p><b>Spot Welder:</b> The primary tool for securely fusing nickel strips to cell terminals without damaging the sensitive internal chemistry with excessive heat.</p> <ul style="list-style-type: none"> <li>○ <b>Specification:</b> Often portable, with adjustable multi-stage pulse current and pressure settings for consistent weld quality.</li> </ul> <p><b>Multimeter:</b> A standard electronic tool for testing individual cell voltage, current, and overall pack parameters during assembly and final testing.</p> <p><b>Cell Tester/Sorter:</b> Instruments used to measure and sort individual cells by voltage, capacity, and internal resistance to ensure uniformity within the pack, preventing future imbalances.</p> <ul style="list-style-type: none"> <li>○ <b>Specification:</b> Voltage accuracy of around <math>\pm 0.1\text{mV}</math> is typical for semi-automatic sorters.</li> </ul>	1

		<p><b>Charger/Discharger:</b> A system for safely charging the final pack and performing capacity/aging tests.</p> <p><b>Safety Gear:</b> Personal Protective Equipment (PPE) such as safety goggles and electrical gloves are critical for safe assembly.</p>	
29	DESKTOP COMPUTER WITH 24 INCH DUAL MONITORS	<p>It should be a highly scalable, professional mid-tower workstation designed to handle demanding workloads like 3D design, CAD, and data analysis. The bare minimum specifications are as under:-</p> <p><b>Core Technical Specifications</b></p> <p><b>Processors:</b> Supports 12th and 13th Gen Intel Core i3 to i9 (up to 24 cores/32 threads with the i9-13900).</p> <p><b>Motherboard &amp; Chipset:</b> Features the Intel W680 chipset.</p> <p><b>Memory (RAM):</b></p> <p><b>Maximum Capacity:</b> Up to <b>128 GB</b> via 4 DIMM slots.</p> <p><b>Technology:</b> Supports both ECC (Error Correction Code) and non-ECC DDR5 memory with speeds up to 4400 MHz.</p> <p><b>Graphics (GPU):</b></p> <p><b>Integrated:</b> Intel UHD Graphics 730/770.</p> <p><b>Discrete:</b> Supports a single high-end professional card up to <b>450W</b>, including the NVIDIA RTX A6000 (48GB) or AMD Radeon Pro W6800.</p> <p><b>Storage Scalability:</b> Total capacity up to 28 TB with RAID 0/1/5/10 support.</p> <p><b>M.2 NVMe:</b> Up to (3) Gen4 SSD slots on the motherboard.</p> <p><b>SATA:</b> Up to (3) 3.5-inch or (4) 2.5-inch hard drives.</p> <p><b>Power Supply Unit (PSU):</b> 1000W internal units, all 80 Plus Platinum rated (92% efficient).</p> <p><b>Physical and Connectivity Details</b></p> <p><b>Chassis Dimensions:</b> Height: 369 mm (14.52"); Width: 173 mm (6.81"); Depth: 420 mm (16.53").</p> <p><b>Expansion Slots:</b></p> <p>1x PCIe Gen5 x16 (for graphics).</p> <p>1x PCIe Gen4 x4, 1x PCIe Gen3 x4.</p> <p><b>Ports:</b></p> <p><b>Front:</b> 1x USB 3.2 Gen 2x2 Type-C (20Gbps), 1x USB 3.2 Gen 2 Type-C, 2x USB 3.2 Gen 1 Type-A, SD card slot.</p> <p><b>Rear:</b> 2x DisplayPort 1.4, 2x USB 3.2 Gen 2 Type-C, 2x USB 3.2 Gen 2 Type-A, 2x USB 2.0 Type-A, 1x RJ45 (1GbE).</p> <p><b>Cooling Options:</b> Advanced air cooling or premium liquid cooling.</p> <p><b>Specifications of 24 Inch Dual Monitors</b> - A standard "24-inch dual monitor" setup consists of two matching 23.8-inch (rounded to 24") panels. The minimum standard specifications are:</p> <p><b>1. Display &amp; Panel Specs</b></p> <p><b>Resolution:</b> Full HD (1920 x 1080) is standard, though QHD (2560 x 1440) is increasingly common in 2026 for sharper text.</p> <p><b>Panel Type:</b> IPS (In-Plane Switching) is the standard for dual setups to ensure consistent colors and wide 178° viewing angles when monitors are angled toward each other.</p> <p><b>Refresh Rate:</b> 75Hz to 100Hz for office/professional use; 144Hz+ for simulation or gaming.</p> <p><b>Color Accuracy:</b> Typically 99% sRGB coverage; essential for matching colors across both screens.</p>	2

		<p><b>2. Design &amp; Physical Specs</b></p> <p><b>Bezel Width:</b> "Ultra-thin" or "3-sided Borderless" designs (typically &lt;2mm bezels) are critical to minimize the visual gap (the "seam") between the two screens.</p> <p><b>Mounting:</b> Most 2026 setups use a <b>Dual Monitor Arm</b> rather than individual stands.</p> <p><b>VESA Compatibility:</b> Standard <b>100 x 100 mm</b> mounting holes.</p> <p><b>Desk Clamp:</b> Integrated C-clamp or grommet mount to save desk space.</p> <p><b>Adjustability:</b> Full range of motion including Tilt (-5° to +20°), Swivel (90°), Pivot (for vertical orientation), and Height Adjustment (up to 130mm).</p> <p><b>3. Connectivity (2026 Standard)</b></p> <p><b>Daisy Chaining:</b> Professional models (like the Dell UltraSharp Series) often feature <b>DisplayPort-Out</b>, allowing you to connect one monitor to the PC and the second monitor to the first (Multi-Stream Transport/MST).</p> <p><b>USB-C Power Delivery:</b> Single-cable setups providing <b>65W to 90W charging</b> for laptops while transmitting video data.</p> <p><b>Ports:</b> 1x HDMI 2.0/2.1, 1x DisplayPort 1.4, and a built-in USB 3.2 hub for peripherals.</p> <p><b>4. Eye Care Features</b></p> <p><b>TÜV Rhineland Certification:</b> Hardware-level low blue light filters and flicker-free technology are standard to reduce eye strain during long shifts.</p> <p><b>Anti-Glare Coating:</b> 3H Hard Coating to prevent reflections from office lighting.</p>	
30	USB-C FIBER OPTIC LINK CABLE – 5 MTR	<p><b>USB-C Fiber Optic Link Cables</b> (also known as Active Optical Cables or AOCs) are the standard for high-bandwidth, long-distance data transmission, particularly for <b>VR headsets</b> (like Meta Quest and VIVE), high-resolution cameras, and industrial displays. Unlike standard copper cables that suffer from signal degradation after 2–3 meters, fiber optic links use light to transmit data, allowing for much greater lengths without loss.</p> <p><b>1. Data and Video Performance</b></p> <p><b>Bandwidth:</b> Standard 2026 models support <b>5 Gbps to 10 Gbps</b> (USB 3.2 Gen 1/2). High-end "Full Feature" versions support <b>20 Gbps to 40 Gbps</b> (USB4/Thunderbolt 4 compatible).</p> <p><b>Signal Integrity:</b> Near-zero electromagnetic interference (EMI) and radio-frequency interference (RFI), crucial for environments with heavy machinery or multiple wireless devices.</p> <p><b>Latency:</b> Minimal signal delay, making them the preferred choice for Meta Quest Link applications.</p> <p><b>2. Power Delivery (PD) Specifications</b> - This is a critical area where fiber optic cables differ from copper:</p> <p><b>Hybrid Construction:</b> Most "Link" cables are hybrid, containing copper wires for power and optical fibers for data.</p> <p><b>Charging Capacity:</b> Typically supports <b>60W to 100W (20V/5A)</b> Power Delivery, allowing the connected device (e.g., VR headset or laptop) to stay charged during use.</p> <p><b>Voltage Drop:</b> High-quality cables use thicker copper cores (20–22 AWG) to ensure stable power delivery over distances exceeding 5 meters.</p> <p><b>3. Physical and Optical Specifications</b></p> <p><b>Length:</b> Standard lengths <b>5 meters (16 ft)</b>.</p> <p><b>Fiber Type:</b> Multi-mode glass or plastic optical fiber.</p> <p><b>Cable Diameter:</b> Significantly thinner and more flexible than equivalent copper cables (typically <b>4.5mm to 5.5mm</b>).</p>	6

		<p><b>Bend Radius:</b> Modern fiber links are "bend-insensitive," with a minimum bend radius of approximately <b>20mm to 30mm</b>.</p> <p><b>Durability:</b> Usually features a reinforced aramid (Kevlar) core and high-flex TPE or braided nylon jackets to withstand being stepped on or tangled during VR gameplay.</p> <p><b>4. Connectivity and Compatibility</b></p> <p><b>Connector Type:</b> USB Type-C to USB Type-C (or Type-A to Type-C for legacy PC ports).</p> <p><b>Orientation:</b> Most cables are <b>Active/Directional</b>. One end is marked "Host" (PC) and the other "Device" (Headset/Display). Reversing them will result in no signal.</p> <p><b>Plug Type:</b> High-end VR-specific cables often feature a <b>90-degree (right-angle) connector</b> on the device end to reduce strain on the headset port.</p> <p><b>5. Example Model:</b> The Meta Quest Link Cable is a benchmark for this category, featuring a 5-meter length, 5 Gbps throughput, and high-flexibility fiber construction.</p>	
31	DISPLAY PORT 2.9 CABLE - 6 MTR	<p><b>Max Total Bandwidth</b> – 80 Gbps.</p> <p><b>Max Data Rate (Payload)</b> – 77.37 Gbps (due to 128b/132b encoding).</p> <p><b>Transmission Mode</b> - Ultra High Bit Rate (UHBR 10, 13.5, and 20).</p> <p><b>Max Resolution (Single Display)</b> - <b>16K</b> (15360x8640) @ 60Hz with DSC; <b>8K</b> @ 85Hz/120Hz; <b>4K</b> @ 240Hz.</p> <p><b>Multi Monitor Support</b> - Supports Multi-Stream Transport (MST) for daisy-chaining multiple displays.</p> <p><b>Key Features</b> - Display Stream Compression (DSC 1.2a), HDR10+, HDCP 2.2/2.3, AMD FreeSync, NVIDIA G-Sync, Forward Error Correction (FEC).</p> <p><b>Audio</b> - Up to 32 uncompressed audio channels</p> <p><b>Cable Types (VESA Certification)</b> - The Video Electronics Standards Association (VESA) introduced specific certification levels for cables:</p> <p><b>DP40 (or DP54):</b> Certified to support up to 40 Gbps (or 54 Gbps with 2.1a), sufficient for 8K @ 60Hz with DSC enabled.</p> <p><b>DP80:</b> Certified to support the full 80 Gbps bandwidth, necessary for uncompressed 4K @ 240Hz or 8K @ 120Hz</p>	6
32	USB-C TO DISPLAY PORT ADAPTER	<p>USB-C to DisplayPort (DP) Adapters are essential for connecting modern laptops, smartphones, or VR headsets to high-resolution monitors. These adapters rely on <b>DisplayPort Alt Mode</b> technology to transmit raw video signals over the USB-C port.</p> <p><b>1. Video &amp; Bandwidth Specifications</b></p> <p><b>Protocol Support:</b> Standard 2026 adapters support <b>DisplayPort 1.4</b> or <b>DisplayPort 2.1</b>.</p> <p><b>Resolution &amp; Refresh Rates:</b></p> <p><b>DP 1.4 Models:</b> Support up to <b>8K @ 30Hz</b>, <b>4K @ 120Hz/144Hz</b>, or <b>2K @ 240Hz</b>.</p> <p><b>DP 2.1 Models:</b> Support up to <b>10K @ 60Hz</b> or <b>8K @ 120Hz</b> with Display Stream Compression (DSC).</p> <p><b>HDR Support:</b> Compatible with <b>HDR10+</b> and <b>Dolby Vision</b> for enhanced color depth and brightness.</p> <p><b>HDCP Compliance:</b> Typically <b>HDCP 2.2 or 2.3</b> compliant, allowing for the streaming of protected 4K content.</p> <p><b>2. Physical &amp; Build Specifications</b></p> <p><b>Connector Construction:</b> Often feature <b>gold-plated connectors</b> for corrosion resistance and stable signal transmission.</p>	6

		<p><b>Shell Material:</b> Aluminum alloy housings are preferred for 2026 models to ensure efficient heat dissipation during long 8K streaming sessions.</p> <p><b>Cable Jacket:</b> High-durability <b>braided nylon</b> or reinforced TPE.</p> <p><b>Form Factor:</b> Available as compact "dongles" (with a short lead cable) or fixed-piece "plug-style" adapters.</p> <p><b>3. Compatibility Requirements</b></p> <p><b>Host Device Port:</b> The source device (laptop, tablet, or phone) <b>must</b> support <b>DisplayPort Alt Mode</b> or <b>Thunderbolt 3/4/5</b> over its USB-C port. Not all USB-C ports carry video signals.</p> <p><b>Directionality:</b> These adapters are almost exclusively <b>unidirectional</b> (USB-C source to DisplayPort monitor). They will not work in reverse.</p> <p><b>OS Support:</b> Plug-and-play functionality for Windows 11, macOS, ChromeOS, and Android.</p> <p><b>4. Advanced Features</b></p> <p><b>Multi-Stream Transport (MST):</b> Some high-end adapters support MST, allowing a single USB-C port to drive multiple monitors in an extended desktop configuration.</p> <p><b>Power Delivery (PD) Pass-through:</b> Specialized "Charging Adapters" include an extra USB-C port to charge the host laptop (often up to <b>100W</b>) while simultaneously outputting video.</p>	
33	POWERED USB 3.0/3.2 HUB (EXTERNAL POWER)	<p>A powered USB 3.0/3.2 hub is a critical peripheral for workstation stability, as it uses an external AC adapter to provide independent power to connected devices rather than relying on the host computer's limited bus power. The Core Technical Specifications are:-</p> <p><b>Data Transfer Rates:</b></p> <p><b>USB 3.0 / 3.2 Gen 1:</b> Up to <b>5 Gbps</b> (standard for basic peripherals and older storage).</p> <p><b>USB 3.1 / 3.2 Gen 2:</b> Up to <b>10 Gbps</b> (necessary in 2026 for high-speed NVMe external SSDs).</p> <p><b>External Power Supply:</b></p> <p>Standard consumer hubs typically include <b>36W to 72W</b> (12V/3A to 12V/6A) power adapters.</p> <p>Industrial-grade hubs may support high-wattage inputs (up to <b>180W–300W</b>) for driving multiple high-draw devices simultaneously.</p> <p><b>Port Configuration:</b></p> <p>Available in layouts ranging from <b>4 to 20 ports</b>.</p> <p><b>Hybrid Ports:</b> Many 2026 models feature a mix of <b>USB-A</b> and <b>USB-C</b> data ports.</p> <p><b>Dedicated Charging Ports:</b> Often includes specialized ports for fast charging (e.g., <b>BC 1.2 at 1.5A</b> or <b>Smart Charging at 2.4A</b>).</p> <p><b>Professional &amp; Industrial Features</b></p> <p><b>Individual On/Off Switches:</b> Each port often has its own physical switch and LED indicator, allowing users to disconnect devices without physical unplugging.</p> <p><b>Advanced Protection Circuits:</b> Built-in mechanisms for <b>surge protection</b>, <b>ESD protection</b> (up to 15kV Air/8kV Contact), and over-current/over-voltage safety.</p> <p><b>Rugged Construction:</b> Industrial variants use <b>metal/steel housings</b> and support specialized mounting options like <b>DIN rail, wall, or desk mounts</b>.</p> <p><b>Wide Temperature Support:</b> Industrial models are rated for operating environments from <b>0°C to 70°C</b>.</p>	6

34	MINI DISPLAY PORT TO DISPLAY PORT ADAPTER	<p>The <b>Mini DisplayPort (mDP) to DisplayPort (DP) adapter</b> is a passive or active device used to connect a source device with an mDP output (common on older laptops and graphics cards) to a monitor with a standard DisplayPort input. the specifications primarily align with modern DisplayPort 1.4 standards to support high resolutions and refresh rates.</p> <p><b>1. Electrical &amp; Protocol Specifications</b></p> <table><tr><td><b>Adapter Type</b></td><td>Passive (most common) or Active (for multiple monitors)</td></tr><tr><td><b>Max Resolution Support</b></td><td><b>8K @ 30Hz</b> or <b>4K @ 120Hz/144Hz</b> (via DP 1.4)</td></tr><tr><td><b>Bandwidth</b></td><td>Up to <b>32.4 Gbps</b> (via HBR3 transmission mode)</td></tr><tr><td><b>HDR Support</b></td><td>Yes (HDR10, Dolby Vision)</td></tr><tr><td><b>HDCP Compliance</b></td><td>HDCP 2.2 for protected content</td></tr><tr><td><b>G-Sync/FreeSync</b></td><td>Yes (Pass-through support for variable refresh rates)</td></tr><tr><td><b>Multi-Stream Transport (MST)</b></td><td>Supported by active adapters for daisy-chaining multiple monitors</td></tr></table> <p><b>2. Physical &amp; Build Specifications</b></p> <p><b>Connector Type 1 (Input):</b> Mini DisplayPort male or female (depending on adapter style).</p> <p><b>Connector Type 2 (Output):</b> Full-size DisplayPort female (most adapters are dongles).</p> <p><b>Plug Type:</b> Usually straight connectors; some VR-specific adapters may have 90-degree angles.</p> <p><b>Build Material:</b> Aluminum alloy housing for heat dissipation; gold-plated connectors for reliability.</p> <p><b>Cable Length (Dongle Style):</b> Typically ranges from 0.1m to 0.5m.</p> <p><b>3. Compatibility Requirements</b></p> <p><b>Source Device Support:</b> The host device's mDP port must support the required DisplayPort standard (e.g., DP 1.4) to achieve the listed resolutions.</p> <p><b>Unidirectional:</b> The signal flows from the Mini DisplayPort source to the standard DisplayPort display. They do not work in reverse (connecting a standard DP source to a mDP monitor).</p> <p><b>Plug-and-Play:</b> No additional drivers or software are required for Windows, macOS, or Linux systems.</p> <p><b>4. Use Cases Example</b></p> <p><b>Legacy Connectivity:</b> Essential for connecting older high-performance laptops (like certain Dell XPS or Apple MacBook Pro models before USB-C was standard) to a modern 4K/8K monitor.</p> <p><b>VR Setup:</b> Often used with the HTC VIVE Pro series Link Box to connect to the PC's graphics card DisplayPort output.</p>	<b>Adapter Type</b>	Passive (most common) or Active (for multiple monitors)	<b>Max Resolution Support</b>	<b>8K @ 30Hz</b> or <b>4K @ 120Hz/144Hz</b> (via DP 1.4)	<b>Bandwidth</b>	Up to <b>32.4 Gbps</b> (via HBR3 transmission mode)	<b>HDR Support</b>	Yes (HDR10, Dolby Vision)	<b>HDCP Compliance</b>	HDCP 2.2 for protected content	<b>G-Sync/FreeSync</b>	Yes (Pass-through support for variable refresh rates)	<b>Multi-Stream Transport (MST)</b>	Supported by active adapters for daisy-chaining multiple monitors	6
<b>Adapter Type</b>	Passive (most common) or Active (for multiple monitors)																
<b>Max Resolution Support</b>	<b>8K @ 30Hz</b> or <b>4K @ 120Hz/144Hz</b> (via DP 1.4)																
<b>Bandwidth</b>	Up to <b>32.4 Gbps</b> (via HBR3 transmission mode)																
<b>HDR Support</b>	Yes (HDR10, Dolby Vision)																
<b>HDCP Compliance</b>	HDCP 2.2 for protected content																
<b>G-Sync/FreeSync</b>	Yes (Pass-through support for variable refresh rates)																
<b>Multi-Stream Transport (MST)</b>	Supported by active adapters for daisy-chaining multiple monitors																

35	VR CABLE MANAGEMENT KITS - CEILING HOOK WITH RETRACTABLE PULLEY	<p><b>Cable Management System</b> for professional simulators, workstations, or server racks refers to a suite of hardware used to organize, protect, and route complex wiring. Proper management prevents signal interference, physical tripping hazards, and port damage due to cable strain.</p> <p><b>1. Desk &amp; Simulator Management (Horizontal/Vertical)</b></p> <p><b>Cable Trays (Under-Desk):</b></p> <p><b>Material:</b> Powder-coated steel or flame-retardant ABS plastic.</p> <p><b>Capacity:</b> Rated to hold up to <b>5kg–10kg</b> of power bricks and bundled cables.</p> <p><b>Design:</b> Open-mesh or "J-channel" designs allow for passive heat dissipation from power adapters.</p> <p><b>Cable Spines (Vertebrae):</b></p> <p><b>Function:</b> Flexible, segmented segments that protect cables running from a height-adjustable (sit-stand) desk or moving 6DOF simulator to the floor.</p> <p><b>Flexibility:</b> 360-degree bend radius to accommodate rapid motion without pinching wires.</p> <p><b>Cable Sleeves:</b></p> <p><b>Types:</b> <b>Braided Nylon (Expandable)</b> or <b>Neoprene (Zipper/Velcro)</b>.</p> <p><b>Diameter:</b> Typically <b>12mm to 50mm</b>; capable of bundling up to 10–15 standard cables.</p> <p><b>2. Physical Fasteners &amp; Organizers</b></p> <p><b>Velcro/Hook-and-Loop Ties:</b></p> <p><b>Standard:</b> Preferred over plastic zip ties in 2026 to prevent over-tightening (which can damage fiber optic or Cat 6a cables) and to allow for easy reconfiguration.</p> <p><b>Specifications:</b> High-cycle life (rated for 1,000+ openings).</p> <p><b>Magnetic Cable Clips:</b></p> <p><b>Application:</b> Used on the metal frames of simulators or PC cases to keep charging cables (like USB-C Fiber Optic Link Cables) accessible.</p> <p><b>Adhesive Cable Mounts:</b></p> <p><b>Material:</b> 3M VHB adhesive backing; UV-resistant nylon 6/6.</p> <p><b>3. Server Rack &amp; Infrastructure Management</b></p> <p><b>Horizontal Cable Managers (1U/2U):</b></p> <p><b>Design:</b> D-ring or "Finger Duct" styles that mount to standard 19-inch racks.</p> <p><b>Function:</b> Routes patch cords from switches to servers neatly.</p> <p><b>Vertical Cable Managers:</b></p> <p><b>Capacity:</b> Extra-wide channels (up to 6 inches wide) for high-density Cat 6a/Cat 7 installations.</p> <p><b>Brush Strips:</b> Used in rack openings to allow cable passage while blocking airflow to maintain cooling efficiency.</p> <p><b>4. Technical Safety Standards</b></p> <p><b>Bend Radius Protection:</b> Professional systems must ensure that cables (especially Fiber Optic and Cat 6a) do not exceed their Minimum Bend Radius (typically 4x the cable diameter).</p> <p><b>Fire Safety:</b> Standard components should be <b>UL 94V-0</b> rated (Self-extinguishing) for use in industrial or server environments.</p>	6
----	---	--	---

		<p><b>EMI/RFI Separation:</b> High-end systems utilize separate channels for power cables and data cables (at least <b>2 inches of separation</b>) to prevent electrical noise from corrupting data signals.</p> <p><b>Functional Specifications-</b> These specifications define how the product performs during use:</p> <p><b>Retraction Length:</b> The internal cord in each pulley extends a typical maximum length of <b>1.8 to 2 meters</b> (approx. 6-7 feet).</p> <p><b>Cable Rotation:</b> Features a <b>360-degree</b> swivel or rotation mechanism within the cable holder clip to prevent the VR cable from twisting.</p> <p><b>Weight Load/Tension:</b> Designed to support the weight of the VR cable without excessive tension, usually a maximum of a few hundred grams per pulley.</p> <p><b>Noise Level:</b> Most standard kits operate silently; "Pro" versions may explicitly feature noise-dampening designs for a completely silent retraction mechanism.</p> <p><b>Cable Clips:</b> The clips are designed to gently hold the VR cable without crimping it or putting too much pressure on the connectors.</p>	
36	HIGH SPEED SD CARD, SDXC 128 GB	<p>A "High-Speed" SD Card typically refers to cards utilizing the <b>UHS-II, UHS-III, or SD Express</b> bus interfaces. These cards are essential for high-bitrate 4K/8K video recording, professional photography, and rapid data transfer in simulation and development environments.</p> <p><b>1. Speed Class Specifications</b> - Modern high-speed cards are defined by three main speed ratings:</p> <p><b>Video Speed Class (V-Rating): V60 (60MB/s) and V90 (90MB/s)</b> are the current high-speed standards. V90 is required for 8K video and high-frame-rate 4K recording SanDisk Professional.</p> <p><b>UHS Speed Class: U3</b> (minimum 30MB/s sustained write) is the baseline for high-speed cards.</p> <p><b>Application Performance Class: A2</b> rating ensures high random Read/Write IOPS (Input/Output Operations Per Second), critical for running apps or storing database files Lexar Official.</p> <p><b>2. Bus Interface &amp; Transfer Rates</b> - The physical interface determines the maximum theoretical "burst" speed of the card:</p> <p><b>UHS-II:</b> Features a second row of pins. Supports transfer speeds up to <b>312 MB/s</b>. This is the most common professional standard in 2026.</p> <p><b>UHS-III:</b> Supports up to <b>624 MB/s</b> (less common in consumer retail).</p> <p><b>SD Express:</b> Uses the PCIe and NVMe protocols. In 2026, these cards can reach speeds up to <b>985 MB/s to 3940 MB/s</b>, essentially acting as a removable SSD SD Association.</p> <p><b>3. Physical &amp; Reliability Specs</b></p> <p><b>Durability:</b> High-speed professional cards are typically <b>IP67 water/dustproof</b>, X-ray proof, and rated for extreme temperatures <b>(-25°C to 85°C)</b>.</p> <p><b>Write-Protect Switch:</b> A physical mechanical switch on full-sized SD cards to prevent accidental data erasure.</p>	6
37	DISPLAY PORT TO HDMI CABLE CONVERTER, LENGTH 2 MTR	<p><b>Device Type:</b> DisplayPort to HDMI Cable / Adapter</p> <p><b>Transmission Mode:</b> Unidirectional conversion from DisplayPort source to HDMI display</p> <p><b>DisplayPort Standard Supported:</b> DP 1.2 / DP 1.4 (Dual Mode DP++)</p> <p><b>HDMI Standard Supported:</b> HDMI 1.4 / HDMI 2.0</p> <p><b>Maximum Total Bandwidth:</b> Up to 21.6 Gbps as per DP 1.2 specification, adapter output limited by HDMI standard</p> <p><b>Maximum Data Rate (Payload):</b> Approximately 10.2 Gbps for HDMI 1.4</p> <p><b>Maximum Resolution (Single Display):</b> Up to 3840 × 2160 at 30 Hz or 60 Hz depending on HDMI version and system support</p>	6



		<b>Audio Support:</b> Digital audio pass through supported <b>Multi Monitor Support:</b> Not natively supported in single cable. Multi display possible only through external MST hub or docking station, subject to GPU capability <b>Cable Type:</b> Passive or Active adapter as per system requirement <b>Certification:</b> VESA Dual Mode DisplayPort compliant <b>Other Key Features:</b> Shielded cable, gold plated connectors, plug and play operation, no external power required	
--	--	--	--

(Signature with date) .....  
(Name and designation), Duly authorized to sign bid for and on behalf of  
[Name & address of Bidder and seal of company]

**Appendix-B****BIDDER'S INFORMATION**

**(To be submitted as part of Technical bid on Company Letter-head, along with supporting documents, if any)**

Bidder's Name and Complete Address : \_\_\_\_\_

1. Bidder/ Contractor particulars:

- (i) Name of the Company:.....
- (ii) Corporate Identity No. (CIN): .....
- (iii) Complete Postal Address: .....
- (iv) Pin code/ ZIP code: .....
- (v) Telephone nos. (with country/ area codes): .....
- (vi) Mobile Nos.: (with country/ area codes): .....
- (vii) Contact persons/ Designation: .....
- (vii) Email IDs: .....

2. Taxation Registrations:

- a) PAN number: .....
- b) Type of GST Registration as per the Act (Normal Taxpayer, Composition, Casual Taxable Person, SEZ, etc.): .....
- c) GSTIN number: .....
- d) Registered/ Certified Offices from where the Services would be supported and Place of Service Site for GST Purpose: .....
- e) Contact Names, Nos. & email IDs for GST matters (Please mention primary and secondary contacts): .....

Documents to be submitted: Self-attested Copies of PAN card and GSTIN Registration.

3. Certificate to be Submitted by Bidder. A certificate to be submitted by the bidder on the Letter Head of their Firm/Company as under:-

"This is to certify that \_\_\_\_\_ is my official mobile number and \_\_\_\_\_ is my official e-mail id. Any communication done by the buyer on these above said mobile number /e-mail through buyer official mobile/e-mail will be treated as an official communication. Buyer reserves the rights to produce these communications during legal proceedings as a form of legal communication from buyer".

(Signature with date)

.....

(Name and designation)

Duly authorized to sign bid for and on behalf of

[Name & address of Bidder and seal of company]

**Appendix-C****ELIGIBILITY CRITERIA OF BIDDERS**

Sl. No.	Description	Remarks
1	Trade License or Equivalent Trade Registration certificate	Relevant valid current document needs to be submitted
2	PAN Details	Photocopy of PAN Card to be submitted
3	GST Details	Photocopy of GST Certificate to be submitted
4	MSME Details	Photocopy of MSME registration to be submitted
5	OEM Authorisation	Photocopy of OEM authorisation to be submitted
6	The Average Annual Financial Turnover for the last three preceding years should be minimum 60 Lakh Per Year.	Certified copy of balance sheet for the following financial year be attached: - 2021-2022 2022-2023 2024-2025
7	The firm should neither have blacklisted by any Central/State/Autonomous Bodies or Institute/ Public Undertaking nor any criminal case registered/ pending against the firm or its owner /partners anywhere in India.	A declaration to this effect on firm's letter head duly signed by the proprietor/ authorised signatory is to be submitted.
8	Experience of working with any AICs or Govt. Engineering will be given preference	Relevant proof of work completion or Work Order to be submitted
9	<b>Earnest Money Deposit- cum- Security Deposit</b>	Rs. 2.35 Lakh (Rupees Two Lakh Thirty Five Thousand Only) should be valid for 30 (THIRTY) Days from the last date of bid submission THROUGH Account Payee Demand Draft, Banker's Cheque or Bank Guarantee [including e-Bank Guarantee] from any of the Commercial Banks or payment online in an acceptable form in favour of AIC-CV RAMAN COLLEGE OF ENGINEERING FOUNDATION
10	Acceptance of Terms and Conditions of the Contract	Must submit a signed copy of this tender document on all the pages as acceptance to the terms and conditions mentioned in this tender.

(Signature with date)

.....

(Name and designation)

Duly authorized to sign bid for and on behalf of

[Name &amp; address of Bidder and seal of company]

Signature of Bidders  
Duly Stamped OfficiallySd/-x-x-x-x-x-x  
AO (Purchase), AIC-CVRCEF, CGU

**Appendix-D****TERMS AND CONDITIONS - COMPLIANCE**

(To be submitted as part of Technical bid on Company Letter-head)

Bidder's Name and Complete Address \_\_\_\_\_

Tender Document No. \_\_\_\_\_; Tender Title: \_\_\_\_\_

**Note to Bidders:** Fill up this Form regarding Terms and Conditions in the Tender Document, maintaining the same numbering and structure. Add additional details not covered elsewhere in your bid in this regard.

Ser No	Reference in Tender Document		Subject	Confirmation/ Deviation/ Exception/ Reservation	Justification/ Reason
	Section/ Para	Clause/ Sub Clause/ Sub Para			

We shall comply with, abide by, and accept without variation, deviation, or reservation all terms and conditions of the Tender Document, except those mentioned above. If mentioned elsewhere in our bid, contrary terms and conditions shall not be recognised and shall be null and void.

.....  
(Signature with date)

.....  
(Name and designation)

Duly authorized to sign bid for and on behalf of

.....  
.....  
[Name & Address of Bidder and seal of company]  
DA: If any, at the option of the Bidder.

Signature of Bidders  
Duly Stamped Officially

Sd/-x-x-x-x-x-x  
AO (Purchase), AIC-CVRCEF, CGU

**Appendix-E****BID SECURITY DECLARATION**

*To be submitted as part of Technical bid, along with supporting documents, if any. A Bid Securing Declaration In lieu of bid security in the following format. Bidders exempted from submission of bid security are also required to submit this ON COMPANY LETTER HEAD*

Bidder's Name \_\_\_\_\_

Address \_\_\_\_\_

Contact Details \_\_\_\_\_

Bidder's Reference No. \_\_\_\_\_ Date.....

To

Director,

The Atal Incubation Centre,

C.V. Raman College of Engineering Foundation

Bidyanagar, Mahura, Janla, Bhubaneswar,

Odisha – 752054

Reference : Tender Document No. \_\_\_\_\_ Tender Title: \_\_\_\_\_

Sir/ Madam

We, the undersigned, solemnly declare that:

1. We understand that according to the conditions of this Tender Document, the bid must be supported by a Bid Securing Declaration in lieu of Bid Security. We unconditionally accept the conditions of this Bid Securing Declaration. We understand that we shall stand automatically suspended from being eligible for bidding in any tender in Procuring Organisation for 2 years from the date of opening of this bid if we breach our obligation(s) under the tender conditions if we:-

(a) Withdraw/ amend/ impair/ derogate, in any respect, from our bid, within the bid validity;  
OR  
being notified within the bid validity of the acceptance of our bid by the Procuring Entity.

(b) Refused to or failed to produce the original documents for scrutiny or the required Performance Security within the stipulated time under the conditions of the Tender Document (where applicable).

(c) Fail or refuse to sign the contract.

2. We know that this bid-Securing Declaration shall expire if the contract is not awarded to us, upon:

- (a) Receipt by us of your notification.
- (b) Of cancellation of the entire tender process or rejection of all bids or
- (c) Of the name of the successful bidder or
- (d) Forty-five days after the expiration of the bid validity or any extension to it.

(Signature with date)

.....

(Name and designation)

Duly authorized to sign bid for and on behalf of.....

[name & address of Bidder and seal of company]

Dated on ..... day of ..... [insert date of signing]

Place.....[insert place of signing]

Signature of Bidders  
Duly Stamped Officially

Sd/-x-x-x-x-x-x  
AO (Purchase), AIC-CVRCEF, CGU

**Appendix-F****SELF CERTIFICATE OF BLACKLISTING**

*To be submitted as part of Technical bid, along with supporting documents, if any ON COMPANY LETTER HEAD*

Bidder's Name \_\_\_\_\_  
 Address \_\_\_\_\_  
 Contact Details \_\_\_\_\_  
 Bidder's Reference No. \_\_\_\_\_ Date.....

To  
 President,  
 The Atal Incubation Centre,  
 C.V. Raman College of Engineering Foundation  
 Bidyanagar, Mahura, Janla, Bhubaneswar,  
 Odisha – 752054

Reference : Tender Document No. \_\_\_\_\_ Tender Title: \_\_\_\_\_

Sir/ Madam

We, the undersigned, solemnly declare that:

1. We understand that according to the conditions of this Tender Document, the bidder must NOT BE blacklisted neither by any Central/State/Autonomous Bodies or Institute/ Public Undertaking nor any criminal case registered/ pending against our firm or its owner /partners anywhere in India. We understand that we shall stand automatically suspended from being eligible for bidding in any tender in Procuring Organisation for 2 years from the date of opening of this bid if we furnish any false information and breach our obligation(s) under the above tender condition.

(Signature with date)

.....

(Name and designation)

Duly authorized to sign bid for and on behalf of.....

[name & address of Bidder and seal of company]

Dated on ..... day of ..... [insert date of signing]

Place.....[ insert place of signing]

DA:.....

Signature of Bidders  
 Duly Stamped Officially

Sd/-x-x-x-x-x-x  
 AO (Purchase), AIC-CVRCEF, CGU

### **PRICE BID FORMAT**

SER NO	SUB SER NO	NOMENCLATURE OF ITEMS (SEPCIFICATION OF ALL THE EQUIPMENT ARE AS PER APPENDIX 'A')	HSN/ SAC CODE & BRAND/ MAKE	UOM	QUANTITY	BASIC RATE	GST/ TAX %	GST/TAX AMOUNT ON BASIC PRICE (% OF COLN 7)	TOTAL BASIC RATE INCLUDING GST/ TAX (COLN 7 + COLN 9)	TOTAL AMOUNT (COLN 6 x COLN 10)
						(ALL AMOUNT IN INR)				
1	2	3	4	5	6	7	8	9	10	11
1	VR LABORATORY UPGRADE ITEMS									
	1.1.	QUEST 3 (512 GB)		NOS	3			0.00	0.00	0.00
	1.2.	QUEST 3S (256 GB)		NOS	2			0.00	0.00	0.00
	1.3.	LOGITECH G LOGITECH EXTREME 3D PRO JOYSTICK		NOS	2			0.00	0.00	0.00
	1.4.	LOGITECH JOYSTICK F310 GAMEPAD		NOS	5			0.00	0.00	0.00
	1.5.	WACOM MOVINK 13		NOS	2			0.00	0.00	0.00
	1.6.	WACOM INTOUS MEDIUM WITH BLUETOOTH (BLACK)		NOS	2			0.00	0.00	0.00
	1.7.	WIRELESS ADAPTER FULL PACK FOR PRO SERIES/ COSMOS SERIES		NOS	2			0.00	0.00	0.00
	1.8.	PODCAST MICROPHONE-AUDIO-TECHNICA AT2020 CARDIOID CONDENSER MICROPHONE OR SIMILAR		NOS	2			0.00	0.00	0.00
	1.9.	PICO NEO 3 PRO EYE		NOS	1			0.00	0.00	0.00
	1.10.	REALWEAR N500+ACCESSORIES		NOS	1			0.00	0.00	0.00
	1.11.	RAY BAN META GEN 2		NOS	2			0.00	0.00	0.00
	SUB TOTAL OF 1									0.00
2	2.1.	MICROSOFT HOLOLENS 2 STANDARD EDITION		NOS	1			0.00	0.00	0.00
	SUB TOTAL OF 2									0.00

3	HTC SETS									
	3.1.	HTC VIVE PRO 2 FULL KIT		NOS	2			0.00	0.00	0.00
	3.2.	HTC VIVE FOCUS 3		NOS	1			0.00	0.00	0.00
	3.3.	HTC VIVE XR ELITE-MR DEVICE		NOS	1			0.00	0.00	0.00
	3.4.	HTC VIVE TRACKER 3.0		NOS	2			0.00	0.00	0.00
	3.5.	HTC VIVE ULTIMATE TRACKER		NOS	1			0.00	0.00	0.00
SUB TOTAL OF 3									0.00	
4	VR EXPERIENCE ZONE									
	4.1.	CYBERITH VIRTUALIZER WALKING SIMULATOR ELITE-2		NOS	1			0.00	0.00	0.00
	4.2.	6DOF LMV CAR SIMULATOR FOR LMV		NOS	1			0.00	0.00	0.00
SUB TOTAL OF 4									0.00	
5	VR LABORATORY UPGRADE ITEMS									
	5.1.	CELL TESTING AND CHARACTERIZATION		NOS	1			0.00	0.00	0.00
	5.2.	PACK TESTING AND CHARACTERIZATION		NOS	1			0.00	0.00	0.00
	5.3.	PACK ACR TESTING LAB - 100V/ 1 CH		NOS	1			0.00	0.00	0.00
	5.4.	ENVIRONMENTAL CHAMBER [(-)200 DEGREE TO (+)800 DEGREE CELCIUS]		NOS	1			0.00	0.00	0.00
	5.5.	BMS ALGORITHM DEVELOPMENT BOARD-NXP-MBD BASED SINGLE CELL BMS (WITHOUT PC)		NOS	2			0.00	0.00	0.00
	5.6.	NXP-MBD BASED MULTICELL BMS ALGORITHM DEVELOPMENT-14S (WITHOUT PC)		NOS	1			0.00	0.00	0.00
	5.7.	SOFTWARE PACKAGES FOR THE SINGLE CELL		NOS	1			0.00	0.00	0.00
	5.8.	ATHER 450 BATTERY PACK TEARDOWN		NOS	1			0.00	0.00	0.00
	5.9.	BATTERY PACK MANUFACTURING KIT		NOS	1			0.00	0.00	0.00
SUB TOTAL OF 5									0.00	
6	ADDITIONAL PLANNING ITEMS									
	6.1.	DESKTOP COMPUTER WITH 24 INCH DUAL MONITOR		NOS	2			0.00	0.00	0.00
SUB TOTAL OF 6									0.00	

Signature of Bidders  
Duly Stamped Officially

Sd/-x-x-x-x-x-x  
AO (Purchase), AIC-CVRCEF, CGU



7	CABLES AND ACCESSORIES									
	7.1.	USB-C FIBER OPTIC LINK CABLE – 5 MTR		NOS	6			0.00	0.00	0.00
	7.2.	DISPLAY PORT 2.9 CABLE - 6 MTR		NOS	6			0.00	0.00	0.00
	7.3.	USB-C TO DISPLAY PORT ADAPTER		NOS	6			0.00	0.00	0.00
	7.4.	POWERED USB 3.0/3.2 HUB (EXTERNAL POWER)		NOS	6			0.00	0.00	0.00
	7.5.	MINI DISPLAY PORT TO DISPLAY PORT ADAPTER		NOS	6			0.00	0.00	0.00
	7.6.	VR CABLE MANAGEMENT KITS - CEILING HOOK WITH RETRACTABLE PULLEY		NOS	6			0.00	0.00	0.00
	7.7.	HIGH SPEED SD CARD, SDXC 128 GB		NOS	6			0.00	0.00	0.00
	7.8.	DISPLAY PORT TO HDMI CABLE CONVERTER, LENGTH 2 MTR		NOS	6			0.00	0.00	0.00
	SUB TOTAL OF 7									0.00
GRAND TOTAL VALUE (1+2+3+4+5+6+7)									0.00	

**NOTE:-**(A) UNDER NO CIRCUMSTANCES VENDOR IS ALLOWED TO CHANGE/ ALTER/ INCLUDE/ DELETE FORMAT OF THIS PRICE BID. PROCURING ENTITY RESERVE THE RIGHT TO CANCEL ANY BID IN CASE FOUND TO DO SO.(B) QUANTITY REQUIRED IS OF INDICATIVE NATURE. QUANTITY CAN BE INCREASED/ DECREASED BY THE PROCURING ENTITY, WITHOUT ASSIGNING ANY REASON (REFER PARA 15.3 OF TENDER DOCUMENT).(C) PROCURING ENTITY RESERVE THE RIGHT TO EVALUATE THE PRICE BASED ON ITEM WISE OR TOTAL SCHEDULE WISE OR BOTH THE VALUE WISE (REFER PARA 15 OF TENDER DOCUMENT).(D) PROCURING ENTITY RESERVE THE RIGHT TO AWARD THE CONTRACT TO L-1, L-2 OR L-3 VENDOR (REFER PARA 15 OF TENDER DOCUMENT). (E) PERSPECTIVE BIDDER IS ADVISED TO MENTION HSN/SAC, MAKE AND BRAND OF THEIR ITEM. PROCURING ENTITY RESERVE THE RIGHT TO EVALUATE THE PRICE BASED ON BRAND AND MAKE OF THE PRODUCT. (F) BIDDER ARE ADVISED TO FILL THIS PRICE BID WITH CARE AS UNDER NO CIRCUMSTANCES, AFTER OPENING OF BID, BIDDER IS NOT ALLOWED TO CHANGE ANY NOMENCLATURE, VALUE, COST ETC IN THIS PRICE BID. IN THIS REGARD, NO REPRESENTATION WILL BE ENTERTAINED AT LATER STAGE. (G) ALL THE RATES ARE INCLUDED CIF/FOR AND ALL OTHER ALLIED CHARGES.

(Signature with date) .....

(Name and designation)

Duly authorized to sign bid for and on behalf of.....

[name & address of Bidder and seal of company]

Dated on ..... day of ..... [insert date of signing]

Place.....[ insert place of signing]

Signature of Bidders  
Duly Stamped Officially

Sd/-x-x-x-x-x-x  
AO (Purchase), AIC-CVRCEF, CGU