भारत सरकार/**GOVERNMENT OF INDIA**
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Date: 11/11/2024

Sl No	Tender Reference	Brief Description
01	ISRO HQ/ ISRO HQ PURCHASE/HQ202400008301	Data Centre Restructuring and Rack Solution with Integrated Cooling.

<div align="center">शुद्धिपत्र सं/CORRIGENDUM NO – 1</div>

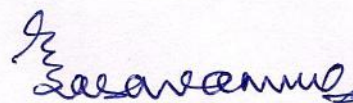| Clause No.	In Place of	To be read as
Clause 19	Specifications of 42U IT Racks - 1. Dimensions of the racks: Compute rack: (600 +- 20mm W) X (2000 +- 300 mm H) (42U) X (1200 +- 20 mm D) Network rack: (800 +- 20mm W) X (2000 +- 300 mm H) (42U) X (1200 +- 20 mm D) 2. Both hot aisle and cold aisle containment should be part of rack frame. 3. Concealed vertical cable managers on both LHS& RHS on front and rear side shall be supplied for each of the rack. 4. 01 No. vertical cable trough per rack for 2 racks shall be supplied. 5. 2 Nos. of horizontal cable mangers for 4 racks shall be supplied. 6. There shall be at least 40U usable space for IT equipment in each rack. 7. Each rack shall have minimum 1200kgs of load bearing capacity. 8. The frame shall be painted with a powder coat finish to protect against corrosion. 9. Both the front and rear door shall have a comfort handle different locking options. 10. There shall be front glass door for complete 42U height visibility. 11. **The racks may be housed in a non-AC room. The front and rear doors shall have insulation mechanisms to prevent condensation due to temperature difference between inside and outside the racks.** 12. The rear door shall be of split type for less clearance requirement behind the rack. 13. Cable entry should be via the gland plate without affecting the climatic conditions inside the Rack. There should be sealing mechanisms such as brushes etc. to fill the openings of cable entry and block noise coming to outside of the racks. 14. Power distribution must be via FRLSH (Flame Retardant Low Smoke and Halogen) type cables except PDUs. 15. Entry of all cables (power, network etc.) inside the rack shall be from the top of the rack. 16.There shall be cable trays to support routing of cables and pipes in between racks and other equipment. Cable trays shall be fixed on top of racks, necessary supports required shall be provided. There should be different cable trays for power cables	Specifications of 42U IT Racks - 1. Dimensions of the racks: Compute rack: (600 +- 20mm W) X (2000 +- 300 mm H) (42U) X (1200 +- 20 mm D) Network rack: (800 +- 20mm W) X (2000 +- 300 mm H) (42U) X (1200 +- 20 mm D) 2. Both hot aisle and cold aisle containment should be part of rack frame. 3. Concealed vertical cable managers on both LHS& RHS on front and rear side shall be supplied for each of the rack. 4. 01 No. vertical cable trough per rack for 2 racks shall be supplied. 5. 2 Nos. of horizontal cable mangers for 4 racks shall be supplied. 6. There shall be at least 40U usable space for IT equipment in each rack. 7. Each rack shall have minimum 1200kgs of load bearing capacity. 8. The frame shall be painted with a powder coat finish to protect against corrosion. 9. Both the front and rear door shall have a comfort handle different locking options. 10. There shall be front glass door for complete 42U height visibility. 11. **The racks may be housed in a non-AC room. The front and rear doors shall have insulation mechanisms (like double toughened glass door or equivalent for the front, nitrile rubber insulation or equivalent for the sides and rear to be provided) to prevent condensation due to temperature difference between inside and outside the racks.** 12. The rear door shall be of split type for less clearance requirement behind the rack. 13. Cable entry should be via the gland plate without affecting the climatic conditions inside the Rack. There should be sealing mechanisms such as brushes etc. to fill the openings of cable entry and block noise coming to outside of the racks. 14. Power distribution must be via FRLSH (Flame Retardant Low Smoke and Halogen) type cables except PDUs. 15. Entry of all cables (power, network etc.) inside the rack shall

	and network cables to avoid EM interference. The cable trays shall be of Mild Steel powder coated. 17. The solution should include blanking panels/plates of ABS kind of 1U, 2U and 3U for blocking the empty U space in the racks for improved cooling performance. Minimum 6 Nos. ,4 Nos. and 2 Nos. of 1U, 2U and 3U panels respectively, per rack should be provided. In case of non-availability of any of the above, 1U panels of equivalent quantity to block the empty space shall be provided. 18. Rear Doors must be equipped with Automatic Door Opening system or any other fail safe mechanism in case of cooling failures. 19. Products shall be UL/CE Certified and RoHS Compliant. 20. The rack shall comply with a minimum of IP 20 rating for protection against touch, ingress of foreign bodies and ingress of water.	be from the top of the rack. 16.There shall be cable trays to support routing of cables and pipes in between racks and other equipment. Cable trays shall be fixed on top of racks, necessary supports required shall be provided. There should be different cable trays for power cables and network cables to avoid EM interference. The cable trays shall be of Mild Steel powder coated. 17. The solution should include blanking panels/plates of ABS kind of 1U, 2U and 3U for blocking the empty U space in the racks for improved cooling performance. Minimum 6 Nos. ,4 Nos. and 2 Nos. of 1U, 2U and 3U panels respectively, per rack should be provided. In case of non-availability of any of the above, 1U panels of equivalent quantity to block the empty space shall be provided. 18. Rear Doors must be equipped with Automatic Door Opening system or any other fail safe mechanism in case of cooling failures. 19. Products shall be UL/CE Certified and RoHS Compliant. 20. The rack shall comply with a minimum of IP 20 rating for protection against touch, ingress of foreign bodies and ingress of water.
Clause 21	Specifications of Power Distribution - 1. **Each rack should have 2 Nos 3 Phase 32 A Intelligent PDU (IPDU) with atleast 36 Nos. of C13 sockets and at least 6 nos. of C19 sockets.** All outlets should provide high retention to avoid accidental dislodging of power cords. The IPDU should be UL/CE certified. 2. Power to each PDU in a rack shall be fed through different UPS sources from the utility rack. Power path under the scope of this RFP should be redundant from end-to-end. 3. MCB in each rack/PDUs shall be capable enough to power at least 15 kW of equipment. 4. PDUs should not consume any rack space (U) and shall be of protection category IP 20. 5. PDU shall be able to integrate with centralized monitoring system for monitoring and alerts via email. 6. Input power monitoring up to 3% accuracy shall be supported in PDUs. 7. **IPDU shall have approval from RoHS, CE/UL, EN and IEC certifications.** 8. IPDU shall have 2 nos. of network ports - 1 port of 10/100/1000 Mbps & 1 port of 10/100 Mbps for network communication. It shall be hot-swappable, so that it can be replaced without powering off the PDU. **9. IPDU must have provision to support power failure sensor etc.** 10. IPDU shall have USB support for firmware upgrade, backup, restore device configuration. 11. IPDU shall be high temperature grade, operating temp up to 60 C. 12. Appropriate no. of power cables for all PDU sockets for all racks to be provided.	Specifications of Power Distribution - 1. **Each rack should have 2 Nos 3 Phase 32 A Intelligent metered PDU (IPDU) with C13 sockets not less than 30 nos. and C19 sockets not less than 6 nos. subject to total nos. of 42 sockets.** All outlets should provide high retention to avoid accidental dislodging of power cords. The IPDU should be UL/CE certified. 2. Power to each PDU in a rack shall be fed through different UPS sources from the utility rack. Power path under the scope of this RFP should be redundant from end-to-end. 3. MCB in each rack/PDUs shall be capable enough to power at least 15 kW of equipment. 4. PDUs should not consume any rack space (U) and shall be of protection category IP 20. 5. PDU shall be able to integrate with centralized monitoring system for monitoring and alerts via email. 6. Input power monitoring up to 3% accuracy shall be supported in PDUs. 7. **IPDU shall have approval from RoHS, CE/UL, EN and IEC compliance.** 8. IPDU shall have 2 nos. of network ports - 1 port of 10/100/1000 Mbps & 1 port of 10/100 Mbps for network communication. It shall be hot-swappable, so that it can be replaced without powering off the PDU. 9. **IPDU must have provision to support power monitoring through the supplied monitoring and alert system.** 10. IPDU shall have USB support for firmware upgrade, backup, restore device configuration. 11. IPDU shall be high temperature grade, operating temp up to 60 C. 12. Appropriate no. of power cables for all PDU sockets for all racks to be provided.

Clause 22	Specifications of Access Control - **1. One controller should be able to control all front door locks and handles. Each door of the rack shall have a different reader.** 2. Access control systems and monitoring systems shall run on UPS. 3. At least 150 different biometric identity/ access cards should be supported by the system. In case of only access card based lock, 150 access cards should be supplied. 4. Different racks doors shall be configured with different access policies i.e. different people can be provided access to different racks. 5. Atleast 1,50,000 access log events should be maintained with user information and timestamp. 6. Centralized administration of access right across systems should be possible.	Specifications of Access Control - **1. One controller should be able to control all front & rear door EM locks. Each of the rack shall have a different reader.** 2. Access control systems and monitoring systems shall run on UPS. 3. At least 150 different biometric identity/ access cards should be supported by the system. In case of only access card based lock, 150 access cards should be supplied. 4. Different racks doors shall be configured with different access policies i.e. different people can be provided access to different racks. 5. Atleast 1,50,000 access log events should be maintained with user information and timestamp. 6. Centralized administration of access right across systems should be possible.
Clause 23	Specifications of Monitoring and Alerts - 1. The monitoring and alerting system shall be centralized with an ability to monitor sensors placed across all the racks. 2. The solution should have IP based monitoring facility of all the environmental parameters like temperature, humidity etc. inside the racks. 3. The monitoring system should support dual power input. 4. LED lights to depict the status shall be provided for each rack. 5. Minimum 7 inch GUI display to be supplied and mounted on integrated smart rack solution for monitoring. 6. The system should have a Graphical User Interface accessible through popular browsers, at least from latest version of Firefox, chrome and edge. 7. **The system shall have capability to monitor, log and generate email and SMS alerts on the events detected by sensor devices/sensors: Temperature, Humidity, fumes, Water Leakage, Fire Detection & Extinguishing, Door access sensor, power supply and UPS etc.** 8. All the required sensors for each of the IT rack to be supplied along with the monitoring system. 9. Temperature sensors to be installed at both front & rear of the rack. 10. There should be a provision to store different logs mentioned above on external storage/server in delimited raw format. 11. It should provide atleast one TCP/IP interface for remote monitoring of all components and generate email alerts and warnings. 12. The system should also be connected to Signal Pillar with Audio & Visual alarm extension. Provisioning of monitoring fault signals with Hooter and lightening alarm. 13. Additionally 1 No. of fire alarm system hooter or Repeater panel with hooter for fire alarm system to be provided and installed in CISF area which is around 350 m away from the Data Centre. 14. It should be able to operate with following Protocols:TCP-IPv4, SNMPv1/SNMPv2/SNMPv3/syslog, Telnet/SSH, FTP/SFTP, HTTPS, NTP, DHCP,DNS, SMTP. 15. The central monitoring system should be modular	Specifications of Monitoring and Alerts - 1. The monitoring and alerting system shall be centralized with an ability to monitor sensors placed across all the racks. 2. The solution should have IP based monitoring facility of all the environmental parameters like temperature, humidity etc. inside the racks. 3. The monitoring system should support dual power input. 4. LED lights to depict the status shall be provided for each rack. 5. Minimum 7 inch GUI display to be supplied and mounted on integrated smart rack solution for monitoring. 6. The system should have a Graphical User Interface accessible through popular browsers, at least from latest version of Firefox, chrome and edge. 7. **The system shall have capability to monitor, log and generate email and SMS alerts on the events detected by sensor devices/sensors: Temperature, Humidity, fumes (from the VESDA system), Water Leakage, Fire Detection & Extinguishing (from the supplied Addressable Fire Alarm system), Door access sensor, power supply and UPS etc.** 8. All the required sensors for each of the IT rack to be supplied along with the monitoring system. 9. Temperature sensors to be installed at both front & rear of the rack. 10. There should be a provision to store different logs mentioned above on external storage/server in delimited raw format. 11. It should provide atleast one TCP/IP interface for remote monitoring of all components and generate email alerts and warnings. 12. The system should also be connected to Signal Pillar with Audio & Visual alarm extension. Provisioning of monitoring fault signals with Hooter and lightening alarm. 13. Additionally 1 No. of fire alarm system hooter or Repeater panel with hooter for fire alarm system to be provided and installed in CISF area which is around 350 m away from the Data Centre. 14. It should be able to operate with following Protocols:TCP-IPv4, SNMPv1/SNMPv2/SNMPv3/syslog, Telnet/SSH,

Clause		
	and scalable from future expansion point of view. 16. All components of the datacenter infrastructure proposed in this document should be interconnected using a stand-alone network which should be accessible via gateway from other networks. 17. The system should have feature to generate SMS alerts (Mobile SIM will be provided by ISRO HQ) and transmit them over a GSM unit which should be part of the system.	FTP/SFTP, HTTPS, NTP, DHCP,DNS, SMTP. 15. The central monitoring system should be modular and scalable from future expansion point of view. 16. All components of the datacenter infrastructure proposed in this document should be interconnected using a stand-alone network which should be accessible via gateway from other networks. 17. The system should have feature to generate SMS alerts (Mobile SIM will be provided by ISRO HQ) and transmit them over a GSM unit which should be part of the system.
Clause 25	Specifications of Fire Detection and Suppression System - 1. Fire system should have at least 4 hours of emergency power supply. Accordingly, provision have to be done by vendor. 2. The entire enclosed volume of the Integrated Rack Solution should be protected with fire detection and fire suppression system. 3. Fire system shall be integrated with centralized monitoring system for system review and proactive maintenance. 4. System should be fully automated and should function without any human intervention. 5. Fire detection and suppression master system should not consume more than 1U space in each IT rack. 6. NOVEC 1230/ FK-5-1-12 suppression system cylinder must be built-in with sufficient quantity to cater 6 Nos. IT racks of 42U and any additional utility racks in the datacenter (if applicable). 7. Fire alarm system to be supplied for fire detection and suppression. 8. The solution shall include VESDA (Very Early Smoke Detection Apparatus) system as well. **9. VESDA system should be intelligent type and should be compatible with Addressable Fire Alarm system. Necessary addressable module shall be provided to integrate with existing FACP panel (GST---make as in ISRO HQ)** 10. The design, equipment, installation, testing and maintenance of the Clean Agent Suppression System shall be in accordance with the applicable requirements set forth in the latest edition of the NFPA Standards. 11. Fire Detection system & detectors should be UL 268 Approved. 12. Fire detection and suppression system should be one of the following make: Ravel, Secutron, Honeywell, Hochiki, Notifier, Morley (Honeywell), Siemens, Ziton, Edward, Telefire, Simplex, Thorn Security, Gst (Utc), SchrackSeconet, Ffe Ltd., Securiton or Godrej & Boyce.	Specifications of Fire Detection and Suppression System - 1. Fire system should have at least 4 hours of emergency power supply. Accordingly, provision have to be done by vendor. 2. The entire enclosed volume of the Integrated Rack Solution should be protected with fire detection and fire suppression system. 3. Fire system shall be integrated with centralized monitoring system for system review and proactive maintenance. 4. System should be fully automated and should function without any human intervention. 5. Fire detection and suppression master system should not consume more than 1U space in each IT rack. 6. NOVEC 1230/ FK-5-1-12 suppression system cylinder must be built-in with sufficient quantity to cater 6 Nos. IT racks of 42U and any additional utility racks in the datacenter (if applicable). 7. Fire alarm system to be supplied for fire detection and suppression. 8. The solution shall include VESDA (Very Early Smoke Detection Apparatus) system as well. **9. VESDA system should be intelligent type and should be compatible with Addressable Fire Alarm system. Necessary addressable module shall be provided to integrate with existing FACP panel (GST---make as in ISRO HQ, Model - GST-IFP8)** 10. The design, equipment, installation, testing and maintenance of the Clean Agent Suppression System shall be in accordance with the applicable requirements set forth in the latest edition of the NFPA Standards. 11. Fire Detection system & detectors should be UL 268 Approved. 12. Fire detection and suppression system should be one of the following make: Ravel, Secutron, Honeywell, Hochiki, Notifier, Morley (Honeywell), Siemens, Ziton, Edward, Telefire, Simplex, Thorn Security, Gst (Utc), SchrackSeconet, Ffe Ltd., Securiton or Godrej & Boyce.

Clause 26	Additional Components - 1. Main Electrical Panel- 2 nos. of 3 phase DB panel with breaker to be provided for redundancy with diversified path. Both DB Panels should be mounted in the utility rack. 1 No. of 3 phase DB panel with breaker to be provided for cooling unit in the utility rack. 2. Ultrasonic Rodent repellant system shall be supplied for the entire solution.	Additional Components - 1. Main Electrical Panel- 2 nos. of 3 phase DB panel with breaker to be provided for redundancy with diversified path. Both DB Panels should be mounted in the utility rack. 1 No. of 3 phase DB panel with breaker to be provided for cooling unit in the utility rack. **Data Centre Tier 3 compliance for power source redundancy to the cooling units is exempted.** 2. Ultrasonic Rodent repellant system shall be supplied for the entire solution.
Clause 92	Bidding Model: 1. Vendor should submit the offer using ISRO E-procurement portal. 2. This is a TWO-PART tender i.e. Techno-Commercial Bid (Part-I) and Price Bid (Part-II) shall be submitted separately. a. Techno-Commercial Bid should cover the following: i. Vendors should submit compliance (Yes/No) by OEM in their letter head, with sign of authorized signatory and seal on each page of the offer. ii. Vendor's designated personnel should put signature with stamp on each and every page of the offer. iii. Unpriced Bill of material as in Annexure- 2. iv. Vendor should submit Technical & commercial terms and conditions, if any, in the technical offer only. v. Disclosing of the price in technical bid will lead to disqualification b. Price Bid should cover the following: i. Bill of Material with price. ii. Commercial Bill of Material should be identical to un-priced BoM. iii. No other techno commercial terms and conditions shall be included in the price bid 3. Grand Total mentioned in Annexure-2 will be considered for arriving at L1 price. 4. Based on L1 value, Contract for complete turnkey solution (including required components and services) shall be awarded to a single vendor.	Bidding Model: 1. Vendor should submit the offer using ISRO E-procurement portal. 2. This is a TWO-PART tender i.e. Techno-Commercial Bid (Part-I) and Price Bid (Part-II) shall be submitted separately. a. Techno-Commercial Bid should cover the following: i. Vendors should submit compliance (Yes/No) by OEM in their letter head, with sign of authorized signatory and seal on each page of the offer. ii. Vendor's designated personnel should put signature with stamp on each and every page of the offer. iii. Unpriced Bill of material as in Annexure- 2. iv. Vendor should submit Technical & commercial terms and conditions, if any, in the technical offer only. v. Disclosing of the price in technical bid will lead to disqualification b. Price Bid should cover the following: i. Bill of Material with price. ii. Commercial Bill of Material should be identical to un-priced BoM. iii. No other techno commercial terms and conditions shall be included in the price bid 3. Grand Total mentioned in Annexure-2 will be considered for arriving at L1 price. 4. Based on L1 value, Contract for complete turnkey solution (including required components and services) shall be awarded to a single vendor. **5. Sl. No. 1 of the Price Bid is a lot item consisting of various components. Unit Price of Sl. No. 1 in Price Bid shall include price inclusive of all taxes. No tax component shall be quoted separately for Sl. No.1 of the Price Bid because it is already included in the quoted unit price for Sl. No. 1. 6. All vendors shall submit detailed price breakup for Sl. No. 1 indicating tax component separately along with the duly filled Price Bid format (Bill of Material). Please note that the Price Bid Document shall be uploaded as a single document under the Price Bid related template only.**

All other terms and conditions shall remain unchanged.

Sr.Purchase & Stores Officer