


# REQUEST FOR QUOTATION

	<b>BHARAT HEAVY ELECTRICALS LIMITED</b> Electronics Division PB No. 2606, Mysore Road Bangalore - 560026 INDIA	<b>RFQ NUMBER:</b> ANK0000258  <b>RFQ DATE :</b> 17.09.2020	Due Date/Day: 09.10.2020 FRI Time : 13:00 HRS Tender Box : Reception Area Opening Venue: NEW ENGG. BLDG
MMI:PU:RF:003			
(address for communication) :		(for all correspondence) Purchase Executive : Ankita Reja Phone : 08025146134 Fax : E-mail: ankitareja@bhel.in	


1. Please drop your offer before due date & time in the tender box named "FRIDAY" kept at the reception of BHEL-ESD, Electronic City Phase-1, Bangalore.
2. Offers by e-mail are also accepted. Offers by email should contain separate files for PQC, techno-commercial and price bids. The offers by Email shall be sent to "defnesdmm@bhel.in" specified in the RFQ with the subject ANK0000258\_Due dt. 09.10.2020\_FRIDAY\_Network Switches
3. List of document enclosed along with RFQ:
  - a) RFQ-ANK0000258-Special Terms and Conditions
  - b) Pre-Qualification Criteria PQ-460-024 Rev.00.
  - c) Purchase Specification PS-460-188 Rev.00, PS-460-189 Rev.00 and PS-460-201 Rev.00
  - d) Commercial Terms ANNEXURE-A
  - e) ANK0000258 - Price bid format
  - f) ITB & GCC - Instructions to bidders & General Terms and conditions
  - g) Office Memorandum (F.No.6/18/2019-PPD) issued by Ministry of Finance and Annexure-X.
  - h) Public procurement (Preference to Make in India), Order 2017 dated 04.06.2020 issued by DPIIT
4. **ADVANCE PAYMENT: BIDS SEEKING ADVANCE PAYMENT SHALL BE LIABLE FOR REJECTION.**
5. **PAYMENT TERMS AGAINST PROFORMA INVOICE ARE NOT ACCEPTABLE.**

SI No.	Description	Qty	Unit	Delivery qty	Delivery Date
1	DS0830006687 24 Port L2 Manageable POE Network Switch * HSN/SAC : 9032 Certificate Of Conformance Mil-Grade 24 Port L2 Manageable POE Network Switch As Per Procurement Specs Doc No.PS-460-188	23	NO	23	28.12.2020
2	DS0830006695 24 Port L3 Manageable POE Network Switch * HSN/SAC : 9032 Certificate Of Conformance Mil-Grade 24 Port L3 Manageable POE Network Switch As Per Procurement Specs Doc No.PS-460-201	6	NO	6	28.12.2020
3	DS0830006703 8 Port L2 Manageable POE Network Switch * HSN/SAC : 9032 Certificate Of Conformance Mil-Grade 8 Port L2 Manageable POE Network Switch As Per Procurement Specs Doc No.PS-460-189	24	NO	24	28.12.2020
4	DS0830006851 8 Port L2 Manageable Switch-Type Test * HSN/SAC : 9032 Certificate Of Conformance	1	NO	1	28.12.2020

## TWO PART BID - SUBMIT TECHNICAL AND PRICE BID IN SEPARATE SEALED COVERS

<b>NOTES:</b> 1. This RFQ is governed by: a) INSTRUCTIONS TO BIDDERS/SELLERS and GENERAL CONDITIONS OF CONTRACT FOR PURCHASE available at <a href="http://edn.bhel.com">http://edn.bhel.com</a> ( <b>RFQ-PO Terms &amp; Conditions</b> ) b) Any other specific Terms and Conditions mentioned. 2. Bidders / Representatives who would like to be present during opening of offers are required to furnish authorization letter for the same. * The HSN/SAC no mentioned against the line items in the RFQ are indicative only.	For and On behalf of BHEL.   Ankita Reja Contrl Eqpmnt - ESD  1 OF 2
---	--

# REQUEST FOR QUOTATION

	<b>BHARAT HEAVY ELECTRICALS LIMITED</b> Electronics Division PB No. 2606, Mysore Road Bangalore - 560026 INDIA	<b>RFQ NUMBER:</b> ANK0000258  <b>RFQ DATE :</b> 17.09.2020	Due Date/Day: 09.10.2020 FRI Time : 13:00 HRS Tender Box : Reception Area Opening Venue: NEW ENGG. BLDG
MMI:PU:RF:003			
(address for communication) :		(for all correspondence) Purchase Executive : Ankita Reja Phone : 08025146134 Fax : E-mail: ankitareja@bhel.in	

1. Please drop your offer before due date & time in the tender box named "FRIDAY" kept at the reception of BHEL-ESD, Electronic City Phase-1, Bangalore.
2. Offers by e-mail are also accepted. Offers by email should contain separate files for PQC, techno-commercial and price bids. The offers by Email shall be sent to "defnesdmm@bhel.in" specified in the RFQ with the subject ANK0000258\_Due dt. 09.10.2020\_FRIDAY\_Network Switches
3. List of document enclosed along with RFQ:
  - a) RFQ-ANK0000258-Special Terms and Conditions
  - b) Pre-Qualification Criteria PQ-460-024 Rev.00.
  - c) Purchase Specification PS-460-188 Rev.00, PS-460-189 Rev.00 and PS-460-201 Rev.00
  - d) Commercial Terms ANNEXURE-A
  - e) ANK0000258 - Price bid format
  - f) ITB & GCC - Instructions to bidders & General Terms and conditions
  - g) Office Memorandum (F.No.6/18/2019-PPD) issued by Ministry of Finance and Annexure-X.
  - h) Public procurement (Preference to Make in India), Order 2017 dated 04.06.2020 issued by DPIIT
4. **ADVANCE PAYMENT: BIDS SEEKING ADVANCE PAYMENT SHALL BE LIABLE FOR REJECTION.**
5. **PAYMENT TERMS AGAINST PROFORMA INVOICE ARE NOT ACCEPTABLE.**

Sl No.	Description	Qty	Unit	Delivery qty	Delivery Date
	Type Test for Mil-Grade 8 Port L2 Manageable POE Network Switch As Per Procurement Specs Doc No.PS-460-189				
5	DS0830006869 24 Port L2 Manageable Switch-Type Test * HSN/SAC : 9032 Certificate Of Conformance Type Test for Mil-Grade 24 Port L2 Manageable POE Network Switch As Per Procurement Specs Doc No.PS-460-188	1	NO	1	28.12.2020

Total Number of Items - 5

- 1.
- 2.

## TWO PART BID - SUBMIT TECHNICAL AND PRICE BID IN SEPARATE SEALED COVERS

### NOTES:

1. This RFQ is governed by:
    - a) INSTRUCTIONS TO BIDDERS/SELLERS and GENERAL CONDITIONS OF CONTRACT FOR PURCHASE available at <http://edn.bhel.com> (**RFQ-PO Terms & Conditions**)
    - b) Any other specific Terms and Conditions mentioned.
  2. Bidders / Representatives who would like to be present during opening of offers are required to furnish authorization letter for the same.
- \* The HSN/SAC no mentioned against the line items in the RFQ are indicative only.

For and On behalf of BHEL.

Ankita Reja  
Contrl Eqment - ESD

2 OF 2

**RFQ No. ANK0000258 MIL GRADE 8/24 PORT L2/L3 MANAGEABLE POE NETWORK**

**SWITCHES - SPECIAL INSTRUCTIONS**

1. The quotation is to be submitted in two parts “Techno-commercial bid” & “Price Bid” separately. Bid Shall Be Submitted As Per The Instruction Given In ITB & GCC - Instructions to bidders (Doc No.: BHEL:EDN:ITB-SHOP Rev03) & General Terms and conditions (Doc No: BHEL:EDN:GCC-SHOP Rev01).
2. Please drop your offer before due date & time in the tender box named **“FRIDAY”** kept at the reception of BHEL-ESD, Electronic city, Bangalore.
3. QUOTATIONS SHOULD BE SENT TO:  
BHEL-ESD, PLOT NO. #98, ELECTRONIC CITY PHASE 1, HOSUR ROAD, BANGALORE-560100.
4. Offers by e-mail are also accepted. Offers by email should contain separate files for techno-commercial and price bids. The offers by Email shall be sent to Email ID [defnesdmm@bhel.in](mailto:defnesdmm@bhel.in) with the subject ANK0000258\_09.10.2020\_Friday\_Network Switches.
5. Tender opening Time is 01:30 PM on the tender due date, Place: Tender opening room @ BHEL-ESD, Electronic city Phase-1, Bangalore.
6. Bidder has to seal & sign each and every page/document of the RFQ.
7. Please Quote Price Bid As Per Price Bid Format Enclosed.
8. Please indicate the price both in figures and words clearly.
9. Please Submit Unpriced Bid (Copy Of Price Bid After Hiding Price) Along With Technical Bid.
10. Any deviations from or additions to the ITB & GCC - Instructions to bidders (Doc No : BHEL:EDN:ITB-SHOP Rev03) & General Terms and conditions (Doc No : BHEL:EDN:GCC-SHOP Rev01) require BHEL's express written consent. The general terms of business or sale of the bidder shall not apply to this tender.
11. Non acceptance / deviations if any to the terms and conditions of the RFQ shall be clearly and explicitly mentioned in the offer, otherwise it will be treated that all the terms and conditions of the RFQ are accepted by the bidder in total.
12. Details of design, development, fabrication/manufacture, assemble and testing shall be as per Para 1.3 of BHEL's Purchase Specification Documents PS-460-188, PS-460-189 and PS-460-201.
13. Scope Of Work shall be as per Para 2 of BHEL's Purchase Specification Documents PS-460-188, PS-460-189 and PS-460-201
  - a) The construction of the Mechanical Enclosure for Mil-Grade 24 Port Manageable POE Network Switches should be the same for L2 Type and L3 Type, as Type Test will be carried out only on 24 Port L2 Type Network Switch in addition to 8 Port L2 Type Network Switch.

- b) The Circular RJ45 Cat6a POE Connectors and their mating Connectors to be provided for the 3 types Mil-Grade POE Network Switches (8 Port L2, 24 Port L2 and 24 Port L3) should be the same.
- c) The List of Deliverables and the schedule for their deliveries shall be as per Para 2.3(f) of the afore mentioned Purchase Specification documents.
14. PSI is applicable and Vendor needs to give a PSI call along with the relevant TCs /Test Reports.
15. Test Certificates, Warranty Certificate, COC, Packing List etc., have to be to be provided along with the supply.
16. Vendor to provide Commissioning Support to BHEL at Site (onboard Naval Platform at Vishakhapatnam) during commissioning of the 1st System.
17. Payment shall be made in 4 Stages, against delivery of each lot mentioned in the Para 2.3(f) of the afore mentioned Purchase Specification documents.
18. Unit prices to be provided for each of the items mentioned in list of deliverables.
19. Overall L1 to be considered for Evaluation.
20. TENDERED QTY IS NOT DIVISIBLE
21. Bidder to furnish Compliance to Pre-Qualification Criteria **PQ-460-024 Rev.00.**
22. Bidder to furnish compliance to Purchase Specifications **PS-460-188 Rev.00, PS-460-189 Rev.00 and PS-460-201 Rev.00**
23. Bidder to provide Warranty for 36 months from the date of supply as per cl. 11 of Purchase Specification **PS-460-188 Rev.00, PS-460-189 Rev.00 and PS-460-201 Rev.00.**
24. Data Sheets/Catalogues to be submitted along with the Technical offer.
25. The Evaluation currency for this tender shall be in **INR**
26. MSME Vendors may please get registered on BHEL RXIL Platform through Vendor Portal.
- 27. Clause C.11(c) of Doc. No. BHEL:EDN:ITB-SHOP:Rev.03 Page No 1 & Clause K.11 of Doc. No. BHEL:EDN:ITB-SHOP:Rev.03 Page No 6 are Superseded by the following instruction:  
:" Tender will be finalized through hard copy Price bid opening ie., conventional method only. No Reverse Auction for the tender will be conducted . Hence please quote your competitive price in the price offer."**
28. Public Procurement (Preference to make in India ) order 2017 – No P-45021/2/2017-PP (BE-II) dtd 04.06.2020 by DPIIT and any subsequent Orders issued by the Nodal Ministry, on preference to local content , the same shall be applicable even if issued after issue of this NIT, but before opening of price bid/s against this NIT. Any Indian Bidder intending to avail the benefits shall submit the requisite documents as per the aforesaid orders.

Where any Ministry or department has its own policy for preference to local content approved by the cabinet after 01.01.2015, such policies will prevail over the provisions of this order.

29. Restrictions under Rule (xi) of general Financial Rules 2017. Order No F.No/6/18/2019-PPD dt 23.07.2020.

Any Bidder from a country which shares a land border with India will be eligible to bid in any procurement whether of goods, services (including consultancy services and non consultancy services) or works (including turnkey projects) only if the bidders is registered with DPIIT.

The Bidder shall mandatorily submit Declaration as mentioned below. The declaration to be submitted on Company Letter head duly signed and sealed by authorised signatory, for ascertaining the eligibility of offer in the tender.(Annex III of the above order)

“I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; I certify that this bidder is not from such a country or, if from such a country, has been registered with the Competent Authority. I hereby certify that this bidder fulfils all requirements in this regard and is eligible to be considered.” (Where applicable, evidence of valid registration by the Competent Authority shall be attached)- refer Annex III of the above order.

Refer Annexure-X for 'Restrictions under Rule 144(Xi) of General Financial Rules, 2017 amendment dt: 23.07.2020.

30. Bidders to mandatorily provide confirmation/compliance for the under-mentioned terms:


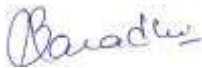
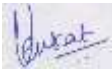
SL N O.	TERMS	BHEL ACCEPTABLE TERM	BIDDER'S CONFIRM ATION	REMARKS, if any
01	<b>Declaration of Local content</b> (Refer Sl. No. 25 of Special Instructions)	Bidder to furnish the following details: (a) Percentage of local content: _____ (b) Details of the Location(s) at which the local value addition is made: _____		
02	Declaration to be mandatorily submitted by the Bidder, as a compliance to Rule 144(xi) of GFR, 2017 amendment dt 23.07.2020 issued by Ministry of Finance, Govt. of India.	“I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; I certify that this bidder is not from such a country or, if from such a country, has been registered with the Competent Authority. I hereby certify that this bidder fulfils all requirements in this regard and is eligible to be considered.”  (Refer Sl. No. 26 of Special Instructions).		

31. Following Documents are attached:-

- i. Pre-Qualification Criteria PQ-460-024 Rev.00.
- ii. Purchase Specification PS-460-188 Rev.00, PS-460-189 Rev.00 and PS-460-201 Rev.00.
- iii. Commercial Terms ANNEXURE-A
- iv. ANK0000258- Price Bid Format
- v. ITB & GCC - Instructions to bidders & General Terms and conditions.
- vi. Office Memorandum (F.No.6/18/2019-PPD) issued by Ministry of Finance and Annexure-X.
- vii. Public procurement (Preference to Make in India), Order 2017 dated 04.06.2020 issued by DPIIT

32. Items should be delivered to:

BHEL-ESD, Plot #98,  
Electronic City Phase 1,  
Hosur Road, Bangalore- 560100.

			<b>PRE-QUALIFICATION CRITERIA DEFENCE ENGINEERING</b>		<b>PQ-460-024</b>	
					<b>Rev 00</b>	
					<b>Page 1 of 4</b>	
<b>COPY RIGHT AND CONFIDENTIAL</b> THIS INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY		<div><b>PRE-QUALIFICATION CRITERIA</b> <b>MIL-GRADE 8/24 PORT L2/L3</b> <b>MANAGEABLE POE NETWORK SWITCH</b></div>				
		<b>REVISION 00</b>			<b>APPROVED</b> 	
					<b>PREPARED</b> 	



**PRE-QUALIFICATION CRITERIA  
DEFENCE ENGINEERING**

PQ-460-024

Rev 00

Page 2 of 4

**REVISION HISTORY SHEET**

REV NO	DATE	NATURE OF CHANGE	REASON	PREPARED BY	APPROVED BY
00	24-08-20	First Issue	-	V VENKAT	BARADHI

**COPY RIGHT AND CONFIDENTIAL**  
THIS INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY



## PRE-QUALIFICATION CRITERIA DEFENCE ENGINEERING

PQ-460-024

Rev 00

Page 3 of 4

### Pre-Qualification Criteria For Mil-Grade 8/24 Port L2/L3 Manageable POE Network Switch

#### 1.0 Pre-Qualification Criteria (PQC)

The supplier shall necessarily meet the following conditions.

Sl. No	Particulars	Supplier's Confirmation (Y/N)
1	<p>The vendor shall have capability for the following:</p> <ul style="list-style-type: none"> <li>a) To Design, Develop, Fabricate/Manufacture Mechanical Enclosure for Naval Application</li> <li>b) Assemble Electronic Equipment inside the Mechanical Enclosure so designed</li> <li>c) Familiarity of CFD Analysis</li> <li>d) Design all the protections (for the Electronic Equipment) required for Naval Application</li> <li>e) Carryout all the required Internal Wiring</li> <li>f) Carry out Inspection &amp; Testing for Naval Application</li> <li>g) Familiarity of Type Testing for Naval Application</li> </ul>	
2	The vendor shall provide proof of similar equipment Designed, Developed, Fabricated/Manufactured, Assembled, Tested and Supplied for Defence Application	
3	Vendor shall have familiarity of various Naval Standards	
4	Vendor shall have familiarity of various Type Tests applicable for Naval Applications	
5	<p>Offer shall be for new equipment and not for any refurbished or used equipment. All the parts used in the equipment shall be new and not used / refurbished ones.</p> <p><i>A declaration to that effect to be furnished along with offer.</i></p>	
6	<p>The vendor or vendor's authorized service representatives shall be in a position to provide prompt after sales service and spares support for our installations. This service network shall necessarily be available in India.</p> <p><i>A declaration to that effect to be furnished along with offer.</i></p>	

COPY RIGHT AND CONFIDENTIAL

THIS INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY



## PRE-QUALIFICATION CRITERIA DEFENCE ENGINEERING

PQ-460-024

Rev 00

Page 4 of 4

**Note:**

- 1) The Pre-Qualification Criteria (PQC) are mandatory requirements and the technical bid will be considered only if all the above PQC are met.
- 2) All Supporting documents related to PQC shall be enclosed in techno-commercial offer.

COPY RIGHT AND CONFIDENTIAL

THIS INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY

**PURCHASE SPECIFICATION**  
**FOR DESIGN, DEVELOPMENT, MANUFACTURE, TESTING &**  
**SUPPLY OF MIL-GRADE 24 PORT L2 MANAGEABLE**  
**POE NETWORK SWITCH**  
**(PS No. PS-460-188)**



**BHEL- Electronic Systems Division**  
Plot No. 98, Electronic City  
Hosur Road, Bangalore - 560100

REVISION 00

APPROVED:

*Baradei*

PREPARED

*Rekha*

ISSUED

*Sharma*

DATE

24-08-20



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 24 Port L2 Manageable POE Network Switch**

PS No.: PS-460-188

Rev No.: 00

Page 2 of 26

**Revision History Sheet**

Rev. No.	Date	Nature Of Change	Prepared By	Verified By	Approved By
00	24.08.20	Nil	Mallaiah B	Parandaman S	Baradhi P



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 24 Port L2 Manageable POE Network Switch**

PS No.: PS-460-188

Rev No.: 00

Page 3 of 26

**Table Of Contents**

Sl. No.	Description	Page No.
01	Technical Specifications	4
02	Scope Of Work / Supply	6
03	Review Meetings	10
04	Technical Requirements	10
05	Vendor Documentation	12
06	Quality Assurance Plan	12
07	Packaging & Forwarding	12
08	Testing & Inspection	13
09	Supporting Documents	13
10	Confidentiality & Non-Disclosure Agreement	13
11	Warranty	13
12	Annexure - 1 (List Of Type Tests To Be Carried Out)	14
13	Annexure - 2 (Details Of Shock, Vibration & Airborne Noise)	15
14	Annexure - 3 (Quality Assurance Plan)	19
15	Annexure - 4 (Preservative Packaging & Delivery)	21
16	Annexure - 5 (Name Plate Details)	22
17	Annexure - 6 (Details For Painting The Mechanical Enclosure)	24



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 24 Port L2 Manageable POE Network Switch**

PS No.: PS-460-188

Rev No.: 00

Page 4 of 26

**1. Technical Specifications:**

- 1.1 This specification describes the details of Design, Development, Manufacture, Testing & Supply of Mil-Grade 24 Port L2 Manageable POE Network Switch meant for Naval Application (which will be installed onboard a Naval Platform).
- 1.2 The Network Switch should qualify the Type Tests specified at Annexure - 1.
- 1.3 The design, development, fabrication/manufacture, assemble and testing of Network Switch involves the following:
  - a) Design & development of Mil-Grade 24 Port L2 Manageable POE Network Switch suitable for Naval Application.
  - b) Submission of Detailed Design Drawing (2D & 3D) including the Cable Scheme.
  - c) Carrying out Analysis on the Network Switch and submission of Analysis Report.
  - d) On acceptance of the Analysis Report by BHEL/Customer, fabricate/manufacture of 1 no. of Network Switch.
  - e) Conduct Type Test on the above Network Switch as per the tests specified at Annexure-1.
  - f) Upon the Network Switch passing the Type Tests, manufacture the balance quantity of Network Switches and test the same.
- 1.4 It is not the intent to specify completely herein all the details of design and construction of the Network Switch. However, the Network Switch shall be complete in all respects conforming to high standards of components which may not have been specifically mentioned, but are essential for satisfactory and trouble-free operation/ maintenance of the equipment onboard Naval Ship.
- 1.5 The Vendor while quoting shall go through the specifications in detail and all attachments thereof and furnish all documentation as indicated elsewhere in the specification. Deviations from specifications, if any, should be clearly specified. Compliance shall be assumed if not mentioned otherwise.
- 1.6 The testing requirement of the Enclosure shall confirm to the specified standards stipulated in JSS 55555 document.
- 1.7 The Technical Details of the Mil-Grade 24 Port L2 Manageable POE Network Switch are as given below:



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 24 Port L2 Manageable POE Network Switch**

PS No.: PS-460-188

Rev No.: 00

Page 5 of 26

Sl. No.	Description
1	24 Ports POE ready
2	24 10/100/1000 Tx Gigabit Copper ports
3	Min 48 Gbps of switching fiber capacity
4	Switching forwarding rate of 32 Mpps or more
5	Broadcast/Multicast storm control to prevent degradation of switch performance from faulty end stations
6	Support for Ring Topology
7	IEEE 802.1Q Port and subnet based VLANs
8	Standard and Extended ACLs, port-based ACLs, VLAN ACLs
9	Integrated security feature like IP Source guard or equivalent, Dynamic ARP Inspection, IGMP Snooping, MAC Address binding
10	802.1x, RADIUS Authentication
11	Provision for Multicast traffic in the LAN through like protocols IGMP
12	The network manageable through NMS and supports for syslog server and features like Layer 2 trace route/IEEE802.1AG CFD/VCT/equivalent
13	Provision for backup and restore the configuration files
14	Port mirroring features for monitoring network traffic of a particular port/group of ports/entire switch
15	IPv6 compatibility support for all products
16	Network Switches to have Circular RJ45 Cat6a Receptacle with mating Connectors
17	IP rating 44
18	Not To Exceed Dimensions: 465 X 440 X 178 (W X D X H) mm

**Note:**

- 1) Vendor to use Circular RJ45 Cat6a Receptacle ED-IE-RJ45F-6A-B-68-FC of LAPP or PC4B0029-19NX-1-C of TE Connectivity or any other suitable equivalent
- 2) Vendor to provide 1 set of mating connectors for each Network Switch



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 24 Port L2 Manageable POE Network Switch**

PS No.: PS-460-188

Rev No.: 00

Page 6 of 26

## **2. Scope Of Work/Supply**

- 2.1** The Network Switch shall be designed / developed / fabricated / manufactured / assembled & tested and supplied by the Vendor.
- 2.2** Vendor will have to carry out all the Type Tests on the 1<sup>st</sup> Prototype at any NABL accredited Lab and provide the Test Certificates.
- 2.3** The following shall be applicable:
- a) It is not the intent to specify completely herein all the details of design and construction of the Network Switch. However, the Network Switch shall be complete in all respects conforming to high standards of components which may not have been specifically mentioned, but are essential for satisfactory and trouble-free operation/ maintenance of the equipment onboard Naval Ship.
  - b) The Network Switch should be adequately provided with the following in order to qualify the list of Type Tests mentioned at Annexure-1:
    - i. Heating/Cooling arrangement (for High Temperature / Low Temperature / Humidity Tests)
    - ii. Protections (for Power / EMI / EMC / IP)
    - iii. Filters (for Power / EMI / EMC)
    - iv. Shock Absorbers if required within the Network Switch (for Vibration / Shock)
  - c) Scope of supply will also cover the following:
    - i. Procurement of all the required Raw Materials
    - ii. Raw Material (used for fabrication of Mechanical Enclosure) to be tested for Chemical Analysis, Mechanical & Hardness Test (NABL accredited Lab Test Certificates), the raw material testing will be witnessed by BHEL/Customer
    - iii. Sourcing of Mechanical/Electrical/Electronic Commercial–Off-The–Shelf (COTS) Components like Eye-Bolts, Fasteners, Rivets, Gaskets, Locks, Nuts, Bolts, Hinges, Cable Glands, Cables/Wires, Terminal Blocks, Fuse, Switches, Indicators, MCBs, EMI/EMC Filters, etc., as required for the manufacture of the Network Switch.
    - iv. Only Screened and LSZH (Low Smoke Zero Halogen) Cables to be used for internal wiring.
    - v. Assembly



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 24 Port L2 Manageable POE Network Switch**

PS No.: PS-460-188

Rev No.: 00

Page 7 of 26

- vi. Internal wiring
- vii. Surface preparation and painting (Colour: Eau-Di-Nil as per IS 5)
- viii. Inspection (by Third party / Customer / BHEL)
- ix. PSI is applicable and Vendor needs to give a PSI call along with the relevant TCs /Test Reports
- x. Packaging & Forwarding to BHEL Premises
- xi. Carrying out Type Tests on 1 no. of Network Switch, as per the list of Tests specified at Annexure-1
- xii. All Type Tests to be carried out at any NABL accredited Lab and will be witnessed by BHEL/Customer

Note: For detailed process of Preservative Packaging and Painting, please refer to documents "Annexure - 4" and "Annexure - 6" respectively.

- d) The scope of supply also includes final packing of the Network Switches and dispatching them to BHEL - Electronics Systems Division, Electronic City, Hosur Road, Bangalore – 560100.
- e) Schedule Of Design, Development, Manufacture & Type Testing
  - i. The Vendor shall submit the Detailed Design Drawing (2D & 3D) including the Cable Scheme within 2 weeks from the date of receipt of BHEL's PO.
  - ii. Upon clearance of Detailed Design Drawing, the Vendor should carry out the Analysis and submit the Analysis Report within 4 weeks.
  - iii. The Analysis Report should contain all details like CG (Centre of Gravity), Heat Dissipation, Power Requirement in watts (Voltage and Current), Heating/Cooling Arrangements, Weight, Shock, Vibration, CFD, etc.
  - iv. Subsequent to acceptance of the Analysis Report, the Vendor shall complete Type Tests on 1 no. of Network Switch (meant for Type Test) mentioned at Annexure-1, within 10 weeks from the date of acceptance of the Analysis Report by BHEL/Customer.
- f) The List Of Deliverables and the schedule for their deliveries are as indicated below:



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 24 Port L2 Manageable POE Network Switch**

PS No.: PS-460-188

Rev No.: 00

Page 8 of 26

Sl. No.	Item Description	Quantity	Schedule
A) Items to be delivered in the 1st Lot			
1	Mil-Grade 24 Port L2 Manageable POE Network Switch – Type Test (BHEL Mat Code - DS0830006869)	1 set	Refer (*)
	a) Submission of Detailed Design Drawing (2D & 3D) including the Cable Scheme.		8 weeks from PO
	b) Approval of Detailed Design Drawing by BHEL/Customer		
	c) Carrying out Analysis on the Network Switch and submission of Analysis Report		
	d) Approval of Analysis Report by BHEL/Customer		10 weeks
	e) Manufacture 1 no. of Network Switch (meant for Type Test) and carrying out the Type Tests as per the tests specified at Annexure-1  Note: One set of all mating Circular Connectors (Power / Network) to be supplied along with the Network Switch		
* Delivery of Lot 1 items shall be 10 Weeks from Date of Approval of Analysis Report (Sl. No. A 1.d) by BHEL/Customer			
B) Items to be delivered in the 2 <sup>nd</sup> Lot			
1	Mil-Grade 24 Port L2 Manageable POE Network Switch (BHEL Mat Code - DS0830006887) Note: One set of all mating Circular Connectors (Power / Network) to be supplied along with the Network Switch	5 Nos.	Refer (*)
* Delivery of Lot 2 items shall be 16 Weeks from Date of Approval of Analysis Report (Sl. No. A 1.d) by BHEL/Customer			
C) Items to be delivered in the 3 <sup>rd</sup> Lot			
1	Mil-Grade 24 Port L2 Manageable POE Network Switch (BHEL Mat Code - DS0830006887) Note: One set of all mating Circular Connectors (Power / Network) to be supplied along with the Network Switch	6 Nos.	Refer (*)
* Delivery of Lot 3 items shall be 22 Weeks from Date of Approval of Analysis Report (Sl. No. A 1.d) by BHEL/Customer			
D) Items to be delivered in the 4 <sup>th</sup> Lot			
1	Mil-Grade 24 Port L2 Manageable POE Network Switch	12 Nos.	Refer (*)



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 24 Port L2 Manageable POE Network Switch**

PS No.: PS-460-188

Rev No.: 00

Page 9 of 26

Sl. No.	Item Description	Quantity	Schedule
	(BHEL Mat Code - DS0830006687) Note: One set of all mating Circular Connectors (Power / Network) to be supplied along with the Network Switch		
* Delivery of Lot 4 items shall be 30 Weeks from Date of Approval of Analysis Report (Sl. No. A 1.d) by BHEL/Customer			

**Note:**

- 1) Vendor to pack and despatch Network Switches in Reusable Wooden Box.
- 2) Vendor to provide Commissioning Support to BHEL at Site (onboard Naval Platform at Vishakhapatnam) during commissioning of the 1<sup>st</sup> System



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 24 Port L2 Manageable POE Network Switch**

PS No.: PS-460-188

Rev No.: 00

Page 10 of 26

**3. Review Meetings:**

It is mandatory for the Vendor to attend Review Meetings to be held at BHEL ESD, Bangalore, for reviewing the progress of the manufacturing.

**4. Technical Requirements:**

- 4.1 The design of the Mil-Grade 24 Port L2 Manageable POE Network Switch should be such that it does not exceed the Limiting Dimensions of 465 X 440 X 178 (W X D X H) mm.
- 4.2 The design & construction of the Mechanical Enclosure for Mil-Grade 24 Port Manageable POE Network Switches should be the same for L2 Type and L3 Type, as Type Test will be carried out only on 24 Port L2 Type Network Switch and 24 Port L3 Type Network Switch will not undergo Type Test.
- 4.3 The Power & Network Connections pertaining to the Network Switch should be Circular Connectors.
- 4.4 Vendor to use Circular RJ45 Cat6a Receptacle ED-IE-RJ45F-6A-B-68-FC of LAPP or PC4B0029-19NX-1-C of TE Connectivity or any other suitable equivalent Circular Connector.
- 4.5 Vendor to provide 1 set of all mating connectors for Power & Network Connections for each Network Switch.
- 4.6 External Earthing with suitable earth bonds/studs as per DND/SDG/24EMC-1 are to be provided.
- 4.7 The Network Switch should be provided with suitable protection against short circuit currents, voltage surges and overloads in the input supply and protect the electronic items/circuits from damage caused by transients and over-stresses.
- 4.8 The painting color of the enclosure is "Eau-De-Nil, Code No: 216 as per IS 5". Finishing and Painting shall be as per the document "Annexure-6".
- 4.9 The following shall be applicable:
  - a) The Vendor has to ensure that no deformation takes place due to overheating caused by welding and sand/grit blasting. These two processes have to be carried out in a controlled manner.
  - b) Unless otherwise mentioned, all junction point or edge due to bending operation has to be filled with welding material. Every junction must be



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 24 Port L2 Manageable POE Network Switch**

PS No.: PS-460-188

Rev No.: 00

Page 11 of 26

water proof. Welding material in excess must be removed by grinding tool. Continuous electric welding on all external perimeters, external areas of the body shall not show evidences of welding.

- c) In case of any non-compliance to the Technical Specifications, the same shall be brought to the notice of BHEL and prior consent to be taken from BHEL before proceeding for further assembly.
- d) The Vendor has to ensure the uniformity and straightness of the enclosures after welding and sand blasting. The Vendor also has to ensure that there is no matching burrs and sharp corners and to be removed or trimmed.
- e) Name plate and Diagram plate shall be as per the document "Annexure-5"
- f) Any cut-outs internal or external to be made only with the consent of BHEL.



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 24 Port L2 Manageable POE Network Switch**

PS No.: PS-460-188

Rev No.: 00

Page 12 of 26

**5. Vendor Documentation:**

- 5.1 As part of Technical Proposal, Vendor has to provide a point wise compliance to each of the clauses of this specification document.
- 5.2 OEM's datasheets of all components (in the scope of the Vendor), satisfying the requirements stated in this document shall be furnished by Vendor to BHEL along with the technical offer.
- 5.3 Vendor needs to give a PSI call along with the relevant TCs /Test Reports.
- 5.4 Test Certificates, Warranty Certificate, COC, Packing List etc., have to be provided along with the supply.
- 5.5 During the execution of the project, Vendor shall maintain version-controlled documentation process related to manufacturing process and to be shared as and when required by BHEL including any approved deviations.

**6. Quality Assurance Plan:**

The Quality Assurance Plan to be followed as per "Annexure - 3"

**7. Packaging & Forwarding:**

The Packaging & Forwarding shall be as per "Annexure - 4" document.

**8. Testing & Inspection:**

- 8.1 The Vendor has to provide material test certificate for sheet metal from NABL accredited labs on chemical analysis, mechanical tests and hardness of the material (the test will be witnessed by BHEL/Customer). OEM's Certificate Of Conformity (COC) for bought out items (like Fasteners, Rivets, Gaskets, Air Filters, etc.). In addition to the above conformance, Vendor has to provide 3 nos. of samples of each item for subjecting to Salt Corrosion and Mould Growth Test. Also, the Vendor has to provide 3 nos. each of the representative samples of Raw Material Sheets (suitable for Naval Application) painted of size 5" x 5".
- 8.2 The Vendor has to inform BHEL at least 7 days in advance, for stage inspection after each process viz., Raw Material Inspection, Fabrication, Surface Preparation and Painting before starting the subsequent process. The next process can only be started after clearance from BHEL. Vendor has to facilitate inspection from



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 24 Port L2 Manageable POE Network Switch**

PS No.: PS-460-188

Rev No.: 00

Page 13 of 26

BHEL customer at any stage of the project. Vendor has to facilitate third party inspection for sample selection from the Raw Material. During the manufacturing process, any ambiguity or lack of information related to any process step as observed by Vendor to be resolved in consultation with BHEL.

**9. Supporting Documents:**

- 9.1 Document "Annexure – 1" for Details of Type Tests
- 9.2 Document "Annexure - 2" for Shock & Vibration
- 9.3 Document "Annexure - 3" for Quality Assurance Plan
- 9.4 Document "Annexure - 4" for Preservative Packaging
- 9.5 Document "Annexure - 5" for Name plate/Diagram plate
- 9.6 Document "Annexure - 6" for Finishing & Painting

**10. Confidentiality & Non-Disclosure Agreement:**

The Vendor has to enter into a confidentiality and non-disclosure agreement with BHEL to be eligible for participating in the bid and further execution of the contract / order.

**11. Warranty:**

The Vendor has to give a warranty of the product for a period of 36 months from the date of supply. The warranty includes the repair / replacement of the defective parts / items at Vendor works/BHEL/ONBOARD SHIP. The cost of logistics for movement of parts /items for repair/ replacement to be borne by the Vendor.



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 24 Port L2 Manageable POE Network Switch**

PS No.: PS-460-188

Rev No.: 00

Page 14 of 26

**Annexure – 1**

**List Of Type Tests To Be Carried Out**  
**On The Mil-Grade 24 Port L2 Manageable POE Network Switch**

Sl. No.	Type Test Description	Test Condition / Severity
1	High Temperature Test	53 ± 3°C for 24 hrs Procedure 6; Test Condition K Test No. 17 of JSS 55555
2	Low Temperature Test	-10°C for 16 hrs Procedure 4; Test Condition H Test No. 20 of JSS 55555
3	Damp Heat Test	40 ± 2°C at 93 ± 5% RH for 16 hrs Test No. 10 of JSS 55555
4	Mould Growth (On Representative Samples)	29°C to 90% RH for 28 days Test No. 21 of JSS 55555
5	Salt Corrosion (On Representative Samples)	0°C for 16 hrs Procedure 1 for 7 days Test No. 9 of JSS 55555
6	Air Borne Noise Test	As indicated at Annexure - 4
7	Shock / Impact Test	As indicated at Annexure - 4
8	Vibration Resistance Test	As indicated at Annexure - 4
9	High Voltage Test	As per Clause 0501-0518 of NES 511
10	Earth Bonding Test	As per Clause 0531-0533 of NES 511
11	Insulation Resistance Test	As per Clause 0519-0523 of NES 511
12	EMI/EMC Test	Test for CE-101, CE-102, CS-101, CS-103, CS-109, CS-114, CS-116, RE-101, RE-102, RE-103, RS-101, RS-103 and RS-06 As per MIL-STD 461E
13	IP Test	IP44 As per IEC 60529

**Note:**

- 1) Vendor have to be subject one number of Network Switch to Type Tests at any NABL accredited Lab and provide the Test Certificates.
- 2) Shock mounts required for Network Switch are not in the scope of supply of the Vendor, but Vendor should select the suitable shock mounts from the Data sheet provided by BHEL/Customer.



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 24 Port L2 Manageable POE Network Switch**

PS No.: PS-460-188

Rev No.: 00

Page 15 of 26

**Annexure – 2 (Shock, Vibration & Airborne Noise)**

**Details of Various Design Analysis of Equipment to be undertaken for Design Validation**

**1. Methodology for Shock Analysis of Equipment Using Finite Element Analysis:**

- (a) The shock analysis of equipment is required to be undertaken to ensure that the equipment will function properly without any failure under the specified shock pulse values given specifications. The shock pulse values in terms of acceleration and time as a full Sine wave has been specified for three mutually perpendicular directions. The shock pulse is to be considered acting in each direction separately and not acting simultaneously.
- (b) It is difficult to indicate minute details of the methodology and procedure of the analysis at this stage. It is therefore intended to broadly specify the methodology. The details of modeling and analysis procedure may be discussed and agreed upon between BHEL/Customer and the manufacturer. Shock analysis has to be carried out by finite element method and as far as possible physical modeling of the equipment shall be carried out with exact dimensions and material properties. The finite element model may be built up with shell element or solid elements or combination of the two depending on the design of the equipment. In each case, the designer should justify selection of elements. Whenever, shell elements are used, meshing should be done at the mid surfaces. Shock Analysis should be carried using Transient Dynamic Analysis approach only. The analysis should be carried out preferably in ANSYS software. However, if it is not possible to undertake in ANSYS, analysis may be carried out in ABAQUS software.
- (c) The Shock analysis should be performed by equivalent static load approach as well as transient dynamic analysis approach. Shock Analysis should be carried using Transient Dynamic approach only. For equivalent static load approach, the equipment should be analysed under static condition assuming that maximum shock amplitude is applied as inertia load. This analysis should be carried out separately for three mutually perpendicular directions in positive and negative axis. Apart from the inertia load, self-weight of the equipment as well as other operating loads, radial thrust, axial thrust, operating torque and any other loads acting on the equipment should be considered. For transient dynamic analysis, the entire analysis needs to be carried out in time domain and the shock pulse specified in the technical specifications of Purchase Order should be applied at the fixing points of the equipment as ground excitation, and the response of the equipment needs to be evaluated. Also in transient dynamic analysis, three separate analyses in mutually perpendicular directions should be carried out. In



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 24 Port L2 Manageable POE Network Switch**

PS No.: PS-460-188

Rev No.: 00

Page 16 of 26

all the above analyses, stresses and deflection should not exceed the allowable limit.

- (d) **Modal Analysis:** Apart from the above analysis, the designer/manufacture shall carry out normal mode dynamic analysis of the equipment to estimate the natural frequency of the equipment. Normal mode analysis should be carried out by Block-Lanczos method. The modal analysis of the equipment is to be carried out with and without the shock mounts. If the equipment natural frequency (without considering the shock mount) is very high i.e., above 160 Hz, the equipment will be considered as rigid and no transient analysis is required. In the analysis with shock mounts, the appropriate stiffness and the damping of the mount which is proposed to be used is to be considered as spring element in the analysis. The stiffness of the first connections like bellows, compensators, pipes, rubber hose, etc which is proposed in the actual on-board setup are to be considered in the analysis. The boundary condition below the SV mounts should be considered as a rigid grouted condition with all DOFs fixed. Adequate modes are to be extracted to cover the various operating frequencies such as shaft speed, blade pass frequencies, gear mesh frequency, etc., encountered during the operation of the equipment. Modal Analysis is not required for Shock Analysis and to be done for Vibration Analysis.
- (e) The shock mounts need not be modeled in the analysis as the shock amplitude specified in the specifications is above the shock mounts. Therefore, the fix points of the equipment (shock mount location) is to be modeled as translational restraints which means that all three translational degrees of freedom will be fixed (except in the direction of shock where base excitation is applied) and all three rotational degrees of freedom will be free.
- (f) Generation of solid/surface model of the equipment and consequent development of finite element model will vary from equipment to equipment depending on the shape, size, dimension and functioning of the equipment. Therefore, it is not possible to generalize the method of preparing the finite element model. The designer/manufacture shall discuss with BHEL/Customer before undertaking the analysis regarding above aspects. In case, entire equipment is not possible to be analysed as a single mode, it is permitted to undertake analysis with sub models. However, proper boundary conditions are to be considered while dividing the models. This should be discussed with BHEL/Customer in advance before undertaking the analysis and agreed upon.
- (g) The shock analysis report is to be submitted in hard copy as well as in soft copy. Apart from this, the final model and analysis files should be submitted by the firm along with the complete result files. For example, if the analysis is carried in ANSYS software, the firm should submit DB file, load step files, RST files etc. In all



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 24 Port L2 Manageable POE Network Switch**

PS No.: PS-460-188

Rev No.: 00

Page 17 of 26

cases, the analysis must be carried out as per the agreed methodology between BHEL/Customer and the firm. Therefore, the firm should ensure that all the details of modeling and analysis procedure is discussed with BHEL/Customer.

**2. Brief Methodologies for Various Analysis**

**(a) Finite Element Stress Analysis**

- i. Stress analysis by finite element method is to be carried out. The analysis is to be carried out in IDEAS/ANSYS software. In certain cases, ABAQUS software can also be used with prior approval of BHEL/Customer.
- ii. The basic procedure of modeling, meshing and FEM analysis is required to be followed. The stress analysis should be undertaken for normal operating condition. The boundary condition should simulate all the operating condition parameter like various forces, temperatures, restraints etc. It is not possible to specify the detailed procedure of analysis as it will vary from equipment to equipment. However, the objective of the analysis is to ensure that the equipment will meet the design requirement under operating condition and stresses and deflections are within the acceptable limit.
- iii. The firm should submit full report of stress analysis in hard and soft copies. The CAD model files of the components & assembly and FE model analysis database files and result files should be submitted in DVD or any other external storage media.
- iv. The firm should discuss with BHEL/Customer in advance regarding the type of model and meshing required to be developed and the various boundary conditions to be used.

**(b) Vibration Resistance Analysis**

- i. Vibration resistance analysis is basically to ensure that the equipment will perform its duties under propeller induced vibration. Also the frequency and the amplitude of the propeller induced vibration are indicated in the Purchase Order.
- ii. Vibration resistance analysis should be carried out by finite element method. The analysis should be carried out in ANSYS or IDEAS software, preferably in ANSYS software. This analysis is basically frequency response analysis and in the ANSYS it is described as spectrum analysis. The FEM model generated for stress analysis or shock analysis can be used for vibration resistance analysis. The objective of the analysis is to establish the response of the equipment under external vibration spectrum.



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 24 Port L2 Manageable POE Network Switch**

PS No.: PS-460-188

Rev No.: 00

Page 18 of 26

- iii. It is not possible to describe the details of analysis as it will vary from equipment to equipment. Therefore, the firm's rep should discuss the details methodology of the analysis with BHEL/Customer in advance so as to ensure proper modeling and analysis.
- iv. The firm should submit full report of vibration resistance analysis in hard and soft copies. The CAD & FE model analysis file and result file should be submitted in DVD or any other external storage media.

**(c) Brief Methodology For Air Borne Noise Measurement**

- i. Airborne Noise measurements should be carried out as per Standard ISO 3744 and levels of sound pressure measured are to be corrected accordingly
- ii. The points of measurement are to be located on the conformal measuring surface as per Fig-6 of ISO 3744 at a measuring distance of 1m.
- iii. From the results of the measurement, the average level of sound pressure for the measuring surface is to be calculated in accordance with ISO.

**(d) Reports:**

- i. Detailed calculation of Shock and vibration
- ii. Design confirmation to Shock and vibration
- iii. Analysis Reports



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 24 Port L2 Manageable POE Network Switch**

PS No.: PS-460-188

Rev No.: 00

Page 19 of 26

**Annexure – 3 (Quality Assurance Plan)**

Brief details for Quality Assurance Plan to be followed is as given below. Any changes needed will be notified during stage wise inspection

**1) Scope**

This Quality Assurance Plan (QAP) defines the quality assurance activities to be carried out by the Vendor for the supply of the following items (for the supplies, associated requirements, services, documentation and other items in accordance with the specifications)

This Quality Plan is a revisable document, and revisions will be made throughout the project if becomes necessary.

**2) Classification Of Tests**

Various tests to be carried out are classified as Visual/Physical Checks, Surveillance/Verification Check and Functional/Internal Factory Test for Quality Assurance check of the equipment's / stores manufactured by the Vendor to meet BHEL's requirements. These are as follows:

**A) Visual/Physical Check:** As part of the Visual/Physical Check the following will be carried out.

- Look for obvious sign and physical damage
- Check that the enclosures have smooth finish and are free from dents, cracks, blowholes etc.
- Check for proper painting
- Check that the orientation of the connectors/glands as per drawings having no visible damages
- Check that all nuts and screws at the connections are secured reliably
- Check for the workmanship and finish. It should be satisfactory.
- Ensure that all the Seals / Gaskets are intact for the sealed units / sub-assemblies.
- Check the dimensions & weight



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 24 Port L2 Manageable POE Network Switch**

PS No.: PS-460-188

Rev No.: 00

Page 20 of 26

B) **Surveillance/Verification Check:** Quality Surveillance is the continuing monitoring and verification of the products and analysis of records in relation to stated references to ensure that specified requirements for quality are being met. This check will be carried out on Random basis of the records / Test results of QA check done by the manufacturer

C) **Functional/Internal Factory Test:** This test will be performed to check the key parameters (HW items) of the stores offered for inspection on 100 % (if not differently mentioned) of the offered lot. These will be carried out at the Vendor's premises by BHEL/QA Officer.

3) **Acceptance Criteria**

The Testing of items is performed in Three Levels. They are as follows:

- A. The First Level is the Goods In-Wards inspection which involves inspection of the Raw Material. In this stage the items are checked visually as described at para 2(A) above. In addition, the various Test Certificates obtained from the manufacturer is also verified. In case of COTS items, they are to be functionally tested. The Vendor has to maintain records of the tests carried out on each of the items and the same should be provided to BHEL/IN reps.
- B. The Second Level is the In-process Stage Inspection which involves Testing of Sub-assemblies. In the present case, In-process Stage Inspection is not applicable, as the items under supply do not have the requisite functional sub-assemblies.
- C. The Third Level of Testing is the System Acceptance Test or Final Factory Test. In this Level the final deliverable item will be tested by Vendor in the presence of BHEL/IN reps.



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 24 Port L2 Manageable POE Network Switch**

PS No.: PS-460-188

Rev No.: 00

Page 21 of 26

**Annexure – 4 (Preservative Packaging & Delivery)**

Brief details for Preservative Packaging and Delivery of the items are given below. Any changes needed will be notified during stage wise inspection.

**1) Packaging Details**

- a) All deliverables are to be packed in Re-Usable Wooden Pallet Box with Nuts & Bolts.
- b) The Re-usable wooden pallet box sizes are to be optimized as required. Sufficient cushioning material has to be provided between the equipment and the inner wall of the re-usable wooden pallet box, to prevent any damage to the equipment during transportation. All materials required for the packing like wooden cases, pallet and other cushioning/packing material are to be provided by the Vendor,
- c) The equipment has to be first sealed in a poly-ethylene cover containing adequate quantity of silica gel sachets as per the above standard, and then to be placed inside the re-usable wooden pallet box. Each type of fasteners 1) required for mounting the equipment onboard ship and 2) being supplied as additional quantity are to be packed, sealed in properly labeled separate polyethylene covers along with silica gel sachets and placed in suitable cardboard boxes for dispatch.
- d) Each Package (Wooden Pallet Boxes and the card board boxes) should be individually labeled with the following information:
  - i. Equipment Nomenclature
  - ii. BHEL's Part Number
  - iii. Item Serial no.
  - iv. Item Quantity
- e) BHEL PO No.
  - i. Date of Dispatch
  - ii. Each wooden box / Cardboard Box should be numbered and having a packing slip.



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 24 Port L2 Manageable POE Network Switch**

PS No.: PS-460-188

Rev No.: 00

Page 22 of 26

**Annexure – 5 (Name Plate Details)**

**1. Name plate/Tally plate:**

Contents of Name Plate: BHEL's, Part/sub-systems name (such as RTU, DMC, WMC, SWE, CCTV etc.), Part number(s), Sl. No., Contract no., Yard No. Modification record, etc. The drawing will be provided upon award of contract; a draft version is given below:

BHEL Logo					
Bharat Heavy Electricals Limited, Electronics Division, Bangalore					
DWG. No.:					
Order No. & Date					
Weight (kg)					
MOD RECORD	1	2	3	4	5

The material and the process shall be as per section 3, below.

**2. Tally plate/Diagram plate**

The diagram plate which is fixed on the rear side of the front door of electric panel should have complete wiring diagram with sub-component identification number. The same identification number should be engraved on the components fitted on electric panels.

The material and the process shall be as per section 3, below.

**3. Material and the Process for making Tally Plates**

- a) Tally plates shall be in English language and in SI units.
- b) Size of tally plate and their letters shall be conformed to specification NES-723.
- c) Material: 6082 AlSi1MgMn as per DIN EN 573-3.



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 24 Port L2 Manageable POE Network Switch**

PS No.: PS-460-188

Rev No.: 00

Page 23 of 26

- d) Material Treatment: As per MIL-A-8625F "Anodic Coating For Aluminum And Aluminum Alloys" Type II, Class 1 (Non-colored Sulphuric Anode Oxidation) and nickel acetate sealing.
- e) Text color for screen printing: RAL 9005
- f) Engraving and screen printing as per DIN 1451

Note: The above details provided is only a sample. The actual details will be provided during detail design.



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 24 Port L2 Manageable POE Network Switch**

PS No.: PS-460-188

Rev No.: 00

Page 24 of 26

**Annexure – 6 (Details For Painting The Mechanical Enclosure)**

**1. SCOPE**

Purpose of this document is to describe the painting (**Colour: Eau-di-Nil**) and surface preparation methods to apply on the metallic parts of the Enclosures.

**2. SURFACES PREPARATION PROCEDURES**

- a) Careful surface preparation is a must to ensure proper adhesion of the paint to the surface, which needs to be preserved. All metal surfaces must be clean and free from scale, rust or grease.
- b) Removal of corrosion by mechanical (Vacuum/ abrasive blasting/ rotary discs) or hand means (chipping/ wire brushing/emery). All surfaces where the thickness is greater than 3mm, corrosion is to be removed by blasting. In areas where the thickness is less than 3mm, where blasting is not feasible like in corners, etc. Only mechanical cleaning by chipping/ wire brushing followed by emery is to be carried out.
- c) Degreasing
- d) Drying
- e) In case of galvanized and phosphate treated steels only degreasing and drying are to be carried out. In the case of non-ferrous metals the surface has to be abraded a second time after degreasing and drying.

**3. Application of Primer:**

Primer is the first coat of paint which is applied on a prepared/ pre-treated surface which acts as a bond between the metal surface and the finishing coat of the paint scheme. The primer to be applied depends on the type of finishing paint to be used in the paint scheme. The various types of primer to be used are.

- a) Paint RFU priming Zinc Chromate to IS 1874 – All steel surfaces of equipment to be installed in areas other than machinery spaces
- b) Epoxy red oxide primer to NCD 1435 –All steel surfaces of equipment to be installed in machinery spaces
- c) Etch primer to DEF-STAN 80-15-All non-ferrous metals (Including aluminum) and stainless steel.



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 24 Port L2 Manageable POE Network Switch**

PS No.: PS-460-188

Rev No.: 00

Page 25 of 26

- d) The primer is to be applied within 4 hours of completing the surface preparation. This is essential to prevent formation of rust/accumulation of dust over the surface prior to the application of the primer. Further humidity levels at the time of primer application should not exceed 75% and temperature should not be below 15° Centigrade.

**4. Application of finishing coat:**

- a) The finishing coat of a paint scheme is the actual layer of the paint which needs to be selected depending upon the type of surface and type of environment under which the surface needs to be preserved. The various types of finishing paints to be used are:

- 1) Paint RFU finishing fire retardant to JSS 3-47-05. All steel surfaces of equipment to be installed in areas of other than machinery spaces and all non-ferrous metals.

- 2) Paint Epoxy Enamel two components glossy to IS 14209. All steel surfaces of equipment to be installed in machinery spaces.

**5. Precautions:**

- a) Care must be taken to avoid damaging plated, anodic coatings, screw threads etc during cleaning/ surface preparation.
- b) Surface should be absolutely dry before application of the paint scheme
- c) The primer has to be applied within 4 hours of completing the surface preparation
- d) The humidity levels at the time of paint application should not exceed 75%
- e) The temperature should not be below 15° centigrade at the time of paint application
- f) The paint thickness should not exceed the specified limits
- g) Only spray painting is to be carried out wherever possible



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 24 Port L2 Manageable POE Network Switch**

PS No.: PS-460-188

Rev No.: 00

Page 26 of 26

**6. Paint scheme:**

Sl No	Type of surface	Surface preparation	Primer	Paint Finishing
1	Steel Substrate	>3mm-vacuum/ grit blasting or wire brushing  Wherever blasting is not possible  <3mm –Wire brushing/emery, degreasing drying	Epoxy red oxide primer specification –NCD1435  No of coats - 2  DFT-25-30 microns (Each coat)	Epoxy enamel two component glossy specs- IS 14209  No of coats -2 (1 base coat+ 1 finishing coat)  DFT-30- 40Microns (Each coat)  Colour: <b>Eau- di-Nil</b> (Code No 216 as per IS 5)

**PURCHASE SPECIFICATION**  
**FOR DESIGN, DEVELOPMENT, MANUFACTURE, TESTING &**  
**SUPPLY OF MIL-GRADE 8 PORT L2 MANAGEABLE**  
**POE NETWORK SWITCH**  
**(PS No. PS-460-189)**



**BHEL- Electronic Systems Division**  
Plot No. 98, Electronic City  
Hosur Road, Bangalore - 560100

REVISION 00

APPROVED:

PREPARED

ISSUED

DATE

24-08-20



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 8 Port L2 Manageable POE Network Switch**

PS No.: PS-460-189

Rev No.: 00

Page 2 of 26

**Revision History Sheet**

Rev. No.	Date	Nature Of Change	Prepared By	Verified By	Approved By
00	24.08.20	Nil	Mallaiah B	Parandaman S	Baradhi P



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 8 Port L2 Manageable POE Network Switch**

PS No.: PS-460-189

Rev No.: 00

Page 3 of 26

**Table Of Contents**

Sl. No.	Description	Page No.
01	Technical Specifications	4
02	Scope Of Work / Supply	6
03	Review Meetings	10
04	Technical Requirements	10
05	Vendor Documentation	12
06	Quality Assurance Plan	12
07	Packaging & Forwarding	12
08	Testing & Inspection	13
09	Supporting Documents	13
10	Confidentiality & Non-Disclosure Agreement	13
11	Warranty	13
12	Annexure - 1 (List Of Type Tests To Be Carried Out)	14
13	Annexure - 2 (Details Of Shock, Vibration & Airborne Noise)	15
14	Annexure - 3 (Quality Assurance Plan)	19
15	Annexure - 4 (Preservative Packaging & Delivery)	21
16	Annexure - 5 (Name Plate Details)	22
17	Annexure - 6 (Details For Painting The Mechanical Enclosure)	24



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 8 Port L2 Manageable POE Network Switch**

PS No.: PS-460-189

Rev No.: 00

Page 4 of 26

**1. Technical Specifications:**

- 1.1 This specification describes the details of Design, Development, Manufacture, Testing & Supply of Mil-Grade 8 Port L2 Manageable POE Network Switch meant for Naval Application (which will be installed onboard a Naval Platform).
- 1.2 The Network Switch should qualify the Type Tests specified at Annexure - 1.
- 1.3 The design, development, fabrication/manufacture, assemble and testing of Network Switch involves the following:
  - a) Design & development of Mil-Grade 8 Port L2 Manageable POE Network Switch suitable for Naval Application.
  - b) Submission of Detailed Design Drawing (2D & 3D) including the Cable Scheme.
  - c) Carrying out Analysis on the Network Switch and submission of Analysis Report.
  - d) On acceptance of the Analysis Report by BHEL/Customer, fabricate/manufacture of 1 no. of Network Switch.
  - e) Conduct Type Test on the above Network Switch as per the tests specified at Annexure-1.
  - f) Upon the Network Switch passing the Type Tests, manufacture the balance quantity of Network Switches and test the same.
- 1.4 It is not the intent to specify completely herein all the details of design and construction of the Network Switch. However, the Network Switch shall be complete in all respects conforming to high standards of components which may not have been specifically mentioned, but are essential for satisfactory and trouble-free operation/ maintenance of the equipment onboard Naval Ship.
- 1.5 The Vendor while quoting shall go through the specifications in detail and all attachments thereof and furnish all documentation as indicated elsewhere in the specification. Deviations from specifications, if any, should be clearly specified. Compliance shall be assumed if not mentioned otherwise.
- 1.6 The testing requirement of the Enclosure shall confirm to the specified standards stipulated in JSS 55555 document.
- 1.7 The Technical Details of the Mil-Grade 8 Port L2 Manageable POE Network Switch are as given below:



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 8 Port L2 Manageable POE Network Switch**

PS No.: PS-460-189

Rev No.: 00

Page 5 of 26

Sl. No.	Description
1	8 Ports POE ready
2	8 10/100/1000 Tx Gigabit Copper ports
3	Min 48 Gbps of switching fiber capacity
4	Switching forwarding rate of 32 Mpps or more
5	Broadcast/Multicast storm control to prevent degradation of switch performance from faulty end stations
6	Support for Ring Topology
7	IEEE 802.1Q Port and subnet based VLANs
8	Standard and Extended ACLs, port-based ACLs, VLAN ACLs
9	Integrated security feature like IP Source guard or equivalent, Dynamic ARP Inspection, IGMP Snooping, MAC Address binding
10	802.1x, RADIUS Authentication
11	Provision for Multicast traffic in the LAN through like protocols IGMP
12	The network manageable through NMS and supports for syslog server and features like Layer 2 trace route/IEEE802.1AG CFD/VCT/equivalent
13	Provision for backup and restore the configuration files
14	Port mirroring features for monitoring network traffic of a particular port/group of ports/entire switch
15	IPv6 compatibility support for all products
16	Network Switches to have Circular RJ45 Cat6a Receptacle with mating Connectors
17	IP rating 44
18	Not To Exceed Dimensions: 300 X 300 X 178 (W X D X H) mm

**Note:**

- 1) Vendor to use Circular RJ45 Cat6a Receptacle ED-IE-RJ45F-6A-B-68-FC of LAPP or PC4B0029-19NX-1-C of TE Connectivity or any other suitable equivalent
- 2) Vendor to provide 1 set of mating connectors for each Network Switch



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 8 Port L2 Manageable POE Network Switch**

PS No.: PS-460-189

Rev No.: 00

Page 6 of 26

**2. Scope Of Work/Supply**

- 2.1** The Network Switch shall be designed / developed / fabricated / manufactured / assembled & tested and supplied by the Vendor.
- 2.2** Vendor will have to carry out all the Type Tests on the 1<sup>st</sup> Prototype at any NABL accredited Lab and provide the Test Certificates.
- 2.3** The following shall be applicable:
- a) It is not the intent to specify completely herein all the details of design and construction of the Network Switch. However, the Network Switch shall be complete in all respects conforming to high standards of components which may not have been specifically mentioned, but are essential for satisfactory and trouble-free operation/ maintenance of the equipment onboard Naval Ship.
  - b) The Network Switch should be adequately provided with the following in order to qualify the list of Type Tests mentioned at Annexure-1:
    - i. Heating/Cooling arrangement (for High Temperature / Low Temperature / Humidity Tests)
    - ii. Protections (for Power / EMI / EMC / IP)
    - iii. Filters (for Power / EMI / EMC)
    - iv. Shock Absorbers if required within the Network Switch (for Vibration / Shock)
  - c) Scope of supply will also cover the following:
    - i. Procurement of all the required Raw Materials
    - ii. Raw Material (used for fabrication of Mechanical Enclosure) to be tested for Chemical Analysis, Mechanical & Hardness Test (NABL accredited Lab Test Certificates), the raw material testing will be witnessed by BHEL/Customer
    - iii. Sourcing of Mechanical/Electrical/Electronic Commercial–Off-The–Shelf (COTS) Components like Eye-Bolts, Fasteners, Rivets, Gaskets, Locks, Nuts, Bolts, Hinges, Cable Glands, Cables/Wires, Terminal Blocks, Fuse, Switches, Indicators, MCBs, EMI/EMC Filters, etc., as required for the manufacture of the Network Switch.
    - iv. Only Screened and LSZH (Low Smoke Zero Halogen) Cables to be used for internal wiring.
    - v. Assembly



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 8 Port L2 Manageable POE Network Switch**

PS No.: PS-460-189

Rev No.: 00

Page 7 of 26

- vi. Internal wiring
- vii. Surface preparation and painting (Colour: Eau-Di-Nil as per IS 5)
- viii. Inspection (by Third party / Customer / BHEL)
- ix. PSI is applicable and Vendor needs to give a PSI call along with the relevant TCs /Test Reports
- x. Packaging & Forwarding to BHEL Premises
- xi. Carrying out Type Tests on 1 no. of Network Switch, as per the list of Tests specified at Annexure-1
- xii. All Type Tests to be carried out at any NABL accredited Lab and will be witnessed by BHEL/Customer

Note: For detailed process of Preservative Packaging and Painting, please refer to documents "Annexure - 4" and "Annexure - 6" respectively.

- d) The scope of supply also includes final packing of the Network Switches and dispatching them to BHEL - Electronics Systems Division, Electronic City, Hosur Road, Bangalore – 560100.
- e) Schedule Of Design, Development, Manufacture & Type Testing
  - i. The Vendor shall submit the Detailed Design Drawing (2D & 3D) including the Cable Scheme within 2 weeks from the date of receipt of BHEL's PO.
  - ii. Upon clearance of Detailed Design Drawing, the Vendor should carry out the Analysis and submit the Analysis Report within 4 weeks.
  - iii. The Analysis Report should contain all details like CG (Centre of Gravity), Heat Dissipation, Power Requirement in watts (Voltage and Current), Heating/Cooling Arrangements, Weight, Shock, Vibration, CFD, etc.
  - iv. Subsequent to acceptance of the Analysis Report, the Vendor shall complete Type Tests on 1 no. of Network Switch (meant for Type Test) mentioned at Annexure-1, within 10 weeks from the date of acceptance of the Analysis Report by BHEL/Customer.
- f) The List Of Deliverables and the schedule for their deliveries are as indicated below:



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 8 Port L2 Manageable POE Network Switch**

PS No.: PS-460-189

Rev No.: 00

Page 8 of 26

Sl. No.	Item Description	Quantity	Schedule
A) Items to be delivered in the 1st Lot			
1	Mil-Grade 8 Port L2 Manageable POE Network Switch – Type Test (BHEL Mat Code - DS0830006851)	1 set	Refer (*)
	a) Submission of Detailed Design Drawing (2D & 3D) including the Cable Scheme.		8 weeks from PO
	b) Approval of Detailed Design Drawing by BHEL/Customer		
	c) Carrying out Analysis on the Network Switch and submission of Analysis Report		
	d) Approval of Analysis Report by BHEL/Customer		10 weeks
	e) Manufacture 1 no. of Network Switch (meant for Type Test) and carrying out the Type Tests as per the tests specified at Annexure-1  Note: One set of all mating Circular Connectors (Power / Network) to be supplied along with the Network Switch		
* Delivery of Lot 1 items shall be 10 Weeks from Date of Approval of Analysis Report (Sl. No. A 1.d) by BHEL/Customer			
B) Items to be delivered in the 2 <sup>nd</sup> Lot			
1	Mil-Grade 8 Port L2 Manageable POE Network Switch (BHEL Mat Code - DS0830006703)  Note: One set of all mating Circular Connectors (Power / Network) to be supplied along with the Network Switch	6 Nos.	Refer (*)
* Delivery of Lot 2 items shall be 16 Weeks from Date of Approval of Analysis Report (Sl. No. A 1.d) by BHEL/Customer			
C) Items to be delivered in the 3 <sup>rd</sup> Lot			
1	Mil-Grade 8 Port L2 Manageable POE Network Switch (BHEL Mat Code - DS0830006703)  Note: One set of all mating Circular Connectors (Power / Network) to be supplied along with the Network Switch	6 Nos.	Refer (*)
* Delivery of Lot 3 items shall be 22 Weeks from Date of Approval of Analysis Report (Sl. No. A 1.d) by BHEL/Customer			
D) Items to be delivered in the 4 <sup>th</sup> Lot			
1	Mil-Grade 8 Port L2 Manageable POE Network Switch	12 Nos.	Refer (*)



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 8 Port L2 Manageable POE Network Switch**

PS No.: PS-460-189

Rev No.: 00

Page 9 of 26

Sl. No.	Item Description	Quantity	Schedule
	(BHEL Mat Code - DS0830006703) Note: One set of all mating Circular Connectors (Power / Network) to be supplied along with the Network Switch		
* Delivery of Lot 4 items shall be 30 Weeks from Date of Approval of Analysis Report (Sl. No. A 1.d) by BHEL/Customer			

**Note:**

- 1) Vendor to pack and despatch Network Switches in Reusable Wooden Box.
- 2) Vendor to provide Commissioning Support to BHEL at Site (onboard Naval Platform at Vishakhapatnam) during commissioning of the 1<sup>st</sup> System



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 8 Port L2 Manageable POE Network Switch**

PS No.: PS-460-189

Rev No.: 00

Page 10 of 26

**3. Review Meetings:**

It is mandatory for the Vendor to attend Review Meetings to be held at BHEL ESD, Bangalore, for reviewing the progress of the manufacturing.

**4. Technical Requirements:**

- 4.1 The design of the Mil-Grade 8 Port L2 Manageable POE Network Switch should be such that it does not exceed the Limiting Dimensions of 300 X 300 X 178 (W X D X H) mm.
- 4.2 The Power & Network Connections pertaining to the Network Switch should be Circular Connectors.
- 4.3 Vendor to use Circular RJ45 Cat6a Receptacle ED-IE-RJ45F-6A-B-68-FC of LAPP or PC4B0029-19NX-1-C of TE Connectivity or any other suitable equivalent Circular Connector.
- 4.4 Vendor to provide 1 set of all mating connectors for Power & Network Connections for each Network Switch.
- 4.5 External Earthing with suitable earth bonds/studs as per DND/SDG/24EMC-1 are to be provided.
- 4.6 The Network Switch should be provided with suitable protection against short circuit currents, voltage surges and overloads in the input supply and protect the electronic items/circuits from damage caused by transients and over-stresses.
- 4.7 The painting color of the enclosure is "Eau-De-Nil, Code No: 216 as per IS 5". Finishing and Painting shall be as per the document "Annexure-6".
- 4.8 The following shall be applicable:
  - a) The Vendor has to ensure that no deformation takes place due to overheating caused by welding and sand/grit blasting. These two processes have to be carried out in a controlled manner.
  - b) Unless otherwise mentioned, all junction point or edge due to bending operation has to be filled with welding material. Every junction must be water proof. Welding material in excess must be removed by grinding tool. Continuous electric welding on all external perimeters, external areas of the body shall not show evidences of welding.



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 8 Port L2 Manageable POE Network Switch**

PS No.: PS-460-189

Rev No.: 00

Page 11 of 26

- c) In case of any non-compliance to the Technical Specifications, the same shall be brought to the notice of BHEL and prior consent to be taken from BHEL before proceeding for further assembly.
- d) The Vendor has to ensure the uniformity and straightness of the enclosures after welding and sand blasting. The Vendor also has to ensure that there is no matching burrs and sharp corners and to be removed or trimmed.
- e) Name plate and Diagram plate shall be as per the document "Annexure-5"
- f) Any cut-outs internal or external to be made only with the consent of BHEL.



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 8 Port L2 Manageable POE Network Switch**

PS No.: PS-460-189

Rev No.: 00

Page 12 of 26

**5. Vendor Documentation:**

- 5.1 As part of Technical Proposal, Vendor has to provide a point wise compliance to each of the clauses of this specification document.
- 5.2 OEM's datasheets of all components (in the scope of the Vendor), satisfying the requirements stated in this document shall be furnished by Vendor to BHEL along with the technical offer.
- 5.3 Vendor needs to give a PSI call along with the relevant TCs /Test Reports.
- 5.4 Test Certificates, Warranty Certificate, COC, Packing List etc., have to be provided along with the supply.
- 5.5 During the execution of the project, Vendor shall maintain version-controlled documentation process related to manufacturing process and to be shared as and when required by BHEL including any approved deviations.

**6. Quality Assurance Plan:**

The Quality Assurance Plan to be followed as per "Annexure - 3"

**7. Packaging & Forwarding:**

The Packaging & Forwarding shall be as per "Annexure - 4" document.

**8. Testing & Inspection:**

- 8.1 The Vendor has to provide material test certificate for sheet metal from NABL accredited labs on chemical analysis, mechanical tests and hardness of the material (the test will be witnessed by BHEL/Customer). OEM's Certificate Of Conformity (COC) for bought out items (like Fasteners, Rivets, Gaskets, Air Filters, etc.). In addition to the above conformance, Vendor has to provide 3 nos. of samples of each item for subjecting to Salt Corrosion and Mould Growth Test. Also, the Vendor has to provide 3 nos. each of the representative samples of Raw Material Sheets (suitable for Naval Application) painted of size 5" x 5".
- 8.2 The Vendor has to inform BHEL at least 7 days in advance, for stage inspection after each process viz., Raw Material Inspection, Fabrication, Surface Preparation and Painting before starting the subsequent process. The next process can only be started after clearance from BHEL. Vendor has to facilitate inspection from



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 8 Port L2 Manageable POE Network Switch**

PS No.: PS-460-189

Rev No.: 00

Page 13 of 26

BHEL customer at any stage of the project. Vendor has to facilitate third party inspection for sample selection from the Raw Material. During the manufacturing process, any ambiguity or lack of information related to any process step as observed by Vendor to be resolved in consultation with BHEL.

**9. Supporting Documents:**

- 9.1 Document "Annexure – 1" for Details of Type Tests
- 9.2 Document "Annexure - 2" for Shock & Vibration
- 9.3 Document "Annexure - 3" for Quality Assurance Plan
- 9.4 Document "Annexure - 4" for Preservative Packaging
- 9.5 Document "Annexure - 5" for Name plate/Diagram plate
- 9.6 Document "Annexure - 6" for Finishing & Painting

**10. Confidentiality & Non-Disclosure Agreement:**

The Vendor has to enter into a confidentiality and non-disclosure agreement with BHEL to be eligible for participating in the bid and further execution of the contract / order.

**11. Warranty:**

The Vendor has to give a warranty of the product for a period of 36 months from the date of supply. The warranty includes the repair / replacement of the defective parts / items at Vendor works/BHEL/ONBOARD SHIP. The cost of logistics for movement of parts /items for repair/ replacement to be borne by the Vendor.



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 8 Port L2 Manageable POE Network Switch**

PS No.: PS-460-189

Rev No.: 00

Page 14 of 26

**Annexure – 1**

**List Of Type Tests To Be Carried Out**  
**On The Mil-Grade 8 Port L2 Manageable POE Network Switch**

Sl. No.	Type Test Description	Test Condition / Severity
1	High Temperature Test	53 ± 3°C for 24 hrs Procedure 6; Test Condition K Test No. 17 of JSS 55555
2	Low Temperature Test	-10°C for 16 hrs Procedure 4; Test Condition H Test No. 20 of JSS 55555
3	Damp Heat Test	40 ± 2°C at 93 ± 5% RH for 16 hrs Test No. 10 of JSS 55555
4	Mould Growth (On Representative Samples)	29°C to 90% RH for 28 days Test No. 21 of JSS 55555
5	Salt Corrosion (On Representative Samples)	0°C for 16 hrs Procedure 1 for 7 days Test No. 9 of JSS 55555
6	Air Borne Noise Test	As indicated at Annexure - 4
7	Shock / Impact Test	As indicated at Annexure - 4
8	Vibration Resistance Test	As indicated at Annexure - 4
9	High Voltage Test	As per Clause 0501-0518 of NES 511
10	Earth Bonding Test	As per Clause 0531-0533 of NES 511
11	Insulation Resistance Test	As per Clause 0519-0523 of NES 511
12	EMI/EMC Test	Test for CE-101, CE-102, CS-101, CS-103, CS-109, CS-114, CS-116, RE-101, RE-102, RE-103, RS-101, RS-103 and RS-06 As per MIL-STD 461E
13	IP Test	IP44 As per IEC 60529

**Note:**

- 1) Vendor have to be subject one number of Network Switch to Type Tests at any NABL accredited Lab and provide the Test Certificates.
- 2) Shock mounts required for Network Switch are not in the scope of supply of the Vendor, but Vendor should select the suitable shock mounts from the Data sheet provided by BHEL/Customer.



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 8 Port L2 Manageable POE Network Switch**

PS No.: PS-460-189

Rev No.: 00

Page 15 of 26

**Annexure – 2 (Shock, Vibration & Airborne Noise)**

**Details of Various Design Analysis of Equipment to be undertaken for Design Validation**

**1. Methodology for Shock Analysis of Equipment Using Finite Element Analysis:**

- (a) The shock analysis of equipment is required to be undertaken to ensure that the equipment will function properly without any failure under the specified shock pulse values given specifications. The shock pulse values in terms of acceleration and time as a full Sine wave has been specified for three mutually perpendicular directions. The shock pulse is to be considered acting in each direction separately and not acting simultaneously.
- (b) It is difficult to indicate minute details of the methodology and procedure of the analysis at this stage. It is therefore intended to broadly specify the methodology. The details of modeling and analysis procedure may be discussed and agreed upon between BHEL/Customer and the manufacturer. Shock analysis has to be carried out by finite element method and as far as possible physical modeling of the equipment shall be carried out with exact dimensions and material properties. The finite element model may be built up with shell element or solid elements or combination of the two depending on the design of the equipment. In each case, the designer should justify selection of elements. Whenever, shell elements are used, meshing should be done at the mid surfaces. Shock Analysis should be carried using Transient Dynamic Analysis approach only. The analysis should be carried out preferably in ANSYS software. However, if it is not possible to undertake in ANSYS, analysis may be carried out in ABAQUS software.
- (c) The Shock analysis should be performed by equivalent static load approach as well as transient dynamic analysis approach. Shock Analysis should be carried using Transient Dynamic approach only. For equivalent static load approach, the equipment should be analysed under static condition assuming that maximum shock amplitude is applied as inertia load. This analysis should be carried out separately for three mutually perpendicular directions in positive and negative axis. Apart from the inertia load, self-weight of the equipment as well as other operating loads, radial thrust, axial thrust, operating torque and any other loads acting on the equipment should be considered. For transient dynamic analysis, the entire analysis needs to be carried out in time domain and the shock pulse specified in the technical specifications of Purchase Order should be applied at the fixing points of the equipment as ground excitation, and the response of the equipment needs to be evaluated. Also in transient dynamic analysis, three separate analyses in mutually perpendicular directions should be carried out. In



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 8 Port L2 Manageable POE Network Switch**

PS No.: PS-460-189

Rev No.: 00

Page 16 of 26

all the above analyses, stresses and deflection should not exceed the allowable limit.

- (d) **Modal Analysis:** Apart from the above analysis, the designer/manufacture shall carry out normal mode dynamic analysis of the equipment to estimate the natural frequency of the equipment. Normal mode analysis should be carried out by Block-Lanczos method. The modal analysis of the equipment is to be carried out with and without the shock mounts. If the equipment natural frequency (without considering the shock mount) is very high i.e., above 160 Hz, the equipment will be considered as rigid and no transient analysis is required. In the analysis with shock mounts, the appropriate stiffness and the damping of the mount which is proposed to be used is to be considered as spring element in the analysis. The stiffness of the first connections like bellows, compensators, pipes, rubber hose, etc which is proposed in the actual on-board setup are to be considered in the analysis. The boundary condition below the SV mounts should be considered as a rigid grouted condition with all DOFs fixed. Adequate modes are to be extracted to cover the various operating frequencies such as shaft speed, blade pass frequencies, gear mesh frequency, etc., encountered during the operation of the equipment. Modal Analysis is not required for Shock Analysis and to be done for Vibration Analysis.
- (e) The shock mounts need not be modeled in the analysis as the shock amplitude specified in the specifications is above the shock mounts. Therefore, the fix points of the equipment (shock mount location) is to be modeled as translational restraints which means that all three translational degrees of freedom will be fixed (except in the direction of shock where base excitation is applied) and all three rotational degrees of freedom will be free.
- (f) Generation of solid/surface model of the equipment and consequent development of finite element model will vary from equipment to equipment depending on the shape, size, dimension and functioning of the equipment. Therefore, it is not possible to generalize the method of preparing the finite element model. The designer/manufacture shall discuss with BHEL/Customer before undertaking the analysis regarding above aspects. In case, entire equipment is not possible to be analysed as a single mode, it is permitted to undertake analysis with sub models. However, proper boundary conditions are to be considered while dividing the models. This should be discussed with BHEL/Customer in advance before undertaking the analysis and agreed upon.
- (g) The shock analysis report is to be submitted in hard copy as well as in soft copy. Apart from this, the final model and analysis files should be submitted by the firm along with the complete result files. For example, if the analysis is carried in ANSYS software, the firm should submit DB file, load step files, RST files etc. In all



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 8 Port L2 Manageable POE Network Switch**

PS No.: PS-460-189

Rev No.: 00

Page 17 of 26

cases, the analysis must be carried out as per the agreed methodology between BHEL/Customer and the firm. Therefore, the firm should ensure that all the details of modeling and analysis procedure is discussed with BHEL/Customer.

**2. Brief Methodologies for Various Analysis**

**(a) Finite Element Stress Analysis**

- i. Stress analysis by finite element method is to be carried out. The analysis is to be carried out in IDEAS/ANSYS software. In certain cases, ABAQUS software can also be used with prior approval of BHEL/Customer.
- ii. The basic procedure of modeling, meshing and FEM analysis is required to be followed. The stress analysis should be undertaken for normal operating condition. The boundary condition should simulate all the operating condition parameter like various forces, temperatures, restraints etc. It is not possible to specify the detailed procedure of analysis as it will vary from equipment to equipment. However, the objective of the analysis is to ensure that the equipment will meet the design requirement under operating condition and stresses and deflections are within the acceptable limit.
- iii. The firm should submit full report of stress analysis in hard and soft copies. The CAD model files of the components & assembly and FE model analysis database files and result files should be submitted in DVD or any other external storage media.
- iv. The firm should discuss with BHEL/Customer in advance regarding the type of model and meshing required to be developed and the various boundary conditions to be used.

**(b) Vibration Resistance Analysis**

- i. Vibration resistance analysis is basically to ensure that the equipment will perform its duties under propeller induced vibration. Also the frequency and the amplitude of the propeller induced vibration are indicated in the Purchase Order.
- ii. Vibration resistance analysis should be carried out by finite element method. The analysis should be carried out in ANSYS or IDEAS software, preferably in ANSYS software. This analysis is basically frequency response analysis and in the ANSYS it is described as spectrum analysis. The FEM model generated for stress analysis or shock analysis can be used for vibration resistance analysis. The objective of the analysis is to establish the response of the equipment under external vibration spectrum.



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 8 Port L2 Manageable POE Network Switch**

PS No.: PS-460-189

Rev No.: 00

Page 18 of 26

- iii. It is not possible to describe the details of analysis as it will vary from equipment to equipment. Therefore, the firm's rep should discuss the details methodology of the analysis with BHEL/Customer in advance so as to ensure proper modeling and analysis.
- iv. The firm should submit full report of vibration resistance analysis in hard and soft copies. The CAD & FE model analysis file and result file should be submitted in DVD or any other external storage media.

**(c) Brief Methodology For Air Borne Noise Measurement**

- i. Airborne Noise measurements should be carried out as per Standard ISO 3744 and levels of sound pressure measured are to be corrected accordingly
- ii. The points of measurement are to be located on the conformal measuring surface as per Fig-6 of ISO 3744 at a measuring distance of 1m.
- iii. From the results of the measurement, the average level of sound pressure for the measuring surface is to be calculated in accordance with ISO.

**(d) Reports:**

- i. Detailed calculation of Shock and vibration
- ii. Design confirmation to Shock and vibration
- iii. Analysis Reports



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 8 Port L2 Manageable POE Network Switch**

PS No.: PS-460-189

Rev No.: 00

Page 19 of 26

**Annexure – 3 (Quality Assurance Plan)**

Brief details for Quality Assurance Plan to be followed is as given below. Any changes needed will be notified during stage wise inspection

**1) Scope**

This Quality Assurance Plan (QAP) defines the quality assurance activities to be carried out by the Vendor for the supply of the following items (for the supplies, associated requirements, services, documentation and other items in accordance with the specifications)

This Quality Plan is a revisable document, and revisions will be made throughout the project if becomes necessary.

**2) Classification Of Tests**

Various tests to be carried out are classified as Visual/Physical Checks, Surveillance/Verification Check and Functional/Internal Factory Test for Quality Assurance check of the equipment's / stores manufactured by the Vendor to meet BHEL's requirements. These are as follows:

- A) Visual/Physical Check:** As part of the Visual/Physical Check the following will be carried out.
- Look for obvious sign and physical damage
  - Check that the enclosures have smooth finish and are free from dents, cracks, blowholes etc.
  - Check for proper painting
  - Check that the orientation of the connectors/glands as per drawings having no visible damages
  - Check that all nuts and screws at the connections are secured reliably
  - Check for the workmanship and finish. It should be satisfactory.
  - Ensure that all the Seals / Gaskets are intact for the sealed units / sub-assemblies.
  - Check the dimensions & weight



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 8 Port L2 Manageable POE Network Switch**

PS No.: PS-460-189

Rev No.: 00

Page 20 of 26

B) **Surveillance/Verification Check:** Quality Surveillance is the continuing monitoring and verification of the products and analysis of records in relation to stated references to ensure that specified requirements for quality are being met. This check will be carried out on Random basis of the records / Test results of QA check done by the manufacturer

C) **Functional/Internal Factory Test:** This test will be performed to check the key parameters (HW items) of the stores offered for inspection on 100 % (if not differently mentioned) of the offered lot. These will be carried out at the Vendor's premises by BHEL/QA Officer.

3) **Acceptance Criteria**

The Testing of items is performed in Three Levels. They are as follows:

- A. The First Level is the Goods In-Wards inspection which involves inspection of the Raw Material. In this stage the items are checked visually as described at para 2(A) above. In addition, the various Test Certificates obtained from the manufacturer is also verified. In case of COTS items, they are to be functionally tested. The Vendor has to maintain records of the tests carried out on each of the items and the same should be provided to BHEL/IN reps.
- B. The Second Level is the In-process Stage Inspection which involves Testing of Sub-assemblies. In the present case, In-process Stage Inspection is not applicable, as the items under supply do not have the requisite functional sub-assemblies.
- C. The Third Level of Testing is the System Acceptance Test or Final Factory Test. In this Level the final deliverable item will be tested by Vendor in the presence of BHEL/IN reps.



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 8 Port L2 Manageable POE Network Switch**

PS No.: PS-460-189

Rev No.: 00

Page 21 of 26

**Annexure – 4 (Preservative Packaging & Delivery)**

Brief details for Preservative Packaging and Delivery of the items are given below. Any changes needed will be notified during stage wise inspection.

**1) Packaging Details**

- a) All deliverables are to be packed in Re-Usable Wooden Pallet Box with Nuts & Bolts.
- b) The Re-usable wooden pallet box sizes are to be optimized as required. Sufficient cushioning material has to be provided between the equipment and the inner wall of the re-usable wooden pallet box, to prevent any damage to the equipment during transportation. All materials required for the packing like wooden cases, pallet and other cushioning/packing material are to be provided by the Vendor,
- c) The equipment has to be first sealed in a poly-ethylene cover containing adequate quantity of silica gel sachets as per the above standard, and then to be placed inside the re-usable wooden pallet box. Each type of fasteners 1) required for mounting the equipment onboard ship and 2) being supplied as additional quantity are to be packed, sealed in properly labeled separate polyethylene covers along with silica gel sachets and placed in suitable cardboard boxes for dispatch.
- d) Each Package (Wooden Pallet Boxes and the card board boxes) should be individually labeled with the following information:
  - i. Equipment Nomenclature
  - ii. BHEL's Part Number
  - iii. Item Serial no.
  - iv. Item Quantity
- e) BHEL PO No.
  - i. Date of Dispatch
  - ii. Each wooden box / Cardboard Box should be numbered and having a packing slip.



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 8 Port L2 Manageable POE Network Switch**

PS No.: PS-460-189

Rev No.: 00

Page 22 of 26

**Annexure – 5 (Name Plate Details)**

**1. Name plate/Tally plate:**

Contents of Name Plate: BHEL's, Part/sub-systems name (such as RTU, DMC, WMC, SWE, CCTV etc.), Part number(s), Sl. No., Contract no., Yard No. Modification record, etc. The drawing will be provided upon award of contract; a draft version is given below:

BHEL Logo					
Bharat Heavy Electricals Limited, Electronics Division, Bangalore					
DWG. No.:					
Order No. & Date					
Weight (kg)					
MOD RECORD	1	2	3	4	5

The material and the process shall be as per section 3, below.

**2. Tally plate/Diagram plate**

The diagram plate which is fixed on the rear side of the front door of electric panel should have complete wiring diagram with sub-component identification number. The same identification number should be engraved on the components fitted on electric panels.

The material and the process shall be as per section 3, below.

**3. Material and the Process for making Tally Plates**

- a) Tally plates shall be in English language and in SI units.
- b) Size of tally plate and their letters shall be conformed to specification NES-723.
- c) Material: 6082 AlSi1MgMn as per DIN EN 573-3.



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 8 Port L2 Manageable POE Network Switch**

PS No.: PS-460-189

Rev No.: 00

Page 23 of 26

- d) Material Treatment: As per MIL-A-8625F "Anodic Coating For Aluminum And Aluminum Alloys" Type II, Class 1 (Non-colored Sulphuric Anode Oxidation) and nickel acetate sealing.
- e) Text color for screen printing: RAL 9005
- f) Engraving and screen printing as per DIN 1451

Note: The above details provided is only a sample. The actual details will be provided during detail design.



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 8 Port L2 Manageable POE Network Switch**

PS No.: PS-460-189

Rev No.: 00

Page 24 of 26

**Annexure – 6 (Details For Painting The Mechanical Enclosure)**

**1. SCOPE**

Purpose of this document is to describe the painting (**Colour: Eau-di-Nil**) and surface preparation methods to apply on the metallic parts of the Enclosures.

**2. SURFACES PREPARATION PROCEDURES**

- a) Careful surface preparation is a must to ensure proper adhesion of the paint to the surface, which needs to be preserved. All metal surfaces must be clean and free from scale, rust or grease.
- b) Removal of corrosion by mechanical (Vacuum/ abrasive blasting/ rotary discs) or hand means (chipping/ wire brushing/emery). All surfaces where the thickness is greater than 3mm, corrosion is to be removed by blasting. In areas where the thickness is less than 3mm, where blasting is not feasible like in corners, etc. Only mechanical cleaning by chipping/ wire brushing followed by emery is to be carried out.
- c) Degreasing
- d) Drying
- e) In case of galvanized and phosphate treated steels only degreasing and drying are to be carried out. In the case of non-ferrous metals the surface has to be abraded a second time after degreasing and drying.

**3. Application of Primer:**

Primer is the first coat of paint which is applied on a prepared/ pre-treated surface which acts as a bond between the metal surface and the finishing coat of the paint scheme. The primer to be applied depends on the type of finishing paint to be used in the paint scheme. The various types of primer to be used are.

- a) Paint RFU priming Zinc Chromate to IS 1874 – All steel surfaces of equipment to be installed in areas other than machinery spaces
- b) Epoxy red oxide primer to NCD 1435 –All steel surfaces of equipment to be installed in machinery spaces
- c) Etch primer to DEF-STAN 80-15-All non-ferrous metals (Including aluminum) and stainless steel.



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 8 Port L2 Manageable POE Network Switch**

PS No.: PS-460-189

Rev No.: 00

Page 25 of 26

- d) The primer is to be applied within 4 hours of completing the surface preparation. This is essential to prevent formation of rust/accumulation of dust over the surface prior to the application of the primer. Further humidity levels at the time of primer application should not exceed 75% and temperature should not be below 15° Centigrade.

**4. Application of finishing coat:**

- a) The finishing coat of a paint scheme is the actual layer of the paint which needs to be selected depending upon the type of surface and type of environment under which the surface needs to be preserved. The various types of finishing paints to be used are:

1) Paint RFU finishing fire retardant to JSS 3-47-05. All steel surfaces of equipment to be installed in areas of other than machinery spaces and all non-ferrous metals.

2) Paint Epoxy Enamel two components glossy to IS 14209. All steel surfaces of equipment to be installed in machinery spaces.

**5. Precautions:**

- a) Care must be taken to avoid damaging plated, anodic coatings, screw threads etc during cleaning/ surface preparation.
- b) Surface should be absolutely dry before application of the paint scheme
- c) The primer has to be applied within 4 hours of completing the surface preparation
- d) The humidity levels at the time of paint application should not exceed 75%
- e) The temperature should not be below 15° centigrade at the time of paint application
- f) The paint thickness should not exceed the specified limits
- g) Only spray painting is to be carried out wherever possible



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 8 Port L2 Manageable POE Network Switch**

PS No.: PS-460-189

Rev No.: 00

Page 26 of 26

**6. Paint scheme:**

Sl No	Type of surface	Surface preparation	Primer	Paint Finishing
1	Steel Substrate	>3mm-vacuum/ grit blasting or wire brushing  Wherever blasting is not possible  <3mm –Wire brushing/emery, degreasing drying	Epoxy red oxide primer specification –NCD1435  No of coats - 2  DFT-25-30 microns (Each coat)	Epoxy enamel two component glossy specs- IS 14209  No of coats -2 (1 base coat+ 1 finishing coat)  DFT-30- 40Microns (Each coat)  Colour: <b>Eau- di-Nil</b> (Code No 216 as per IS 5)

**PURCHASE SPECIFICATION**  
**FOR DESIGN, DEVELOPMENT, MANUFACTURE, TESTING &**  
**SUPPLY OF MIL-GRADE 24 PORT L3 MANAGEABLE**  
**POE NETWORK SWITCH**  
**(PS No. PS-460-201)**



**BHEL- Electronic Systems Division**  
Plot No. 98, Electronic City  
Hosur Road, Bangalore - 560100

REVISION 00

APPROVED:

*Baradwaj*

PREPARED

*Reliance*

ISSUED

*Reliance*

DATE

24-08-20



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 24 Port L3 Manageable POE Network Switch**

PS No.: PS-460-201

Rev No.: 00

Page 2 of 25

**Revision History Sheet**

Rev. No.	Date	Nature Of Change	Prepared By	Verified By	Approved By
00	24.08.20	Nil	Mallaiah B	Parandaman S	Baradhi P

[Type here]



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 24 Port L3 Manageable POE Network Switch**

PS No.: PS-460-201

Rev No.: 00

Page 3 of 25

**Table Of Contents**

Sl. No.	Description	Page No.
01	Technical Specifications	4
02	Scope Of Work / Supply	6
03	Review Meetings	9
04	Technical Requirements	9
05	Vendor Documentation	11
06	Quality Assurance Plan	11
07	Packaging & Forwarding	11
08	Testing & Inspection	11
09	Supporting Documents	12
10	Confidentiality & Non-Disclosure Agreement	12
11	Warranty	12
12	Annexure - 1 (List Of Type Tests That The Mil-Grade 24 Port L3 Manageable POE Network Switch Should Be Designed For)	13
13	Annexure - 2 (Details Of Shock, Vibration & Airborne Noise)	14
14	Annexure - 3 (Quality Assurance Plan)	18
15	Annexure - 4 (Preservative Packaging & Delivery)	20
16	Annexure - 5 (Name Plate Details)	21
17	Annexure - 6 (Details For Painting The Mechanical Enclosure)	23



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 24 Port L3 Manageable POE Network Switch**

PS No.: PS-460-201

Rev No.: 00

Page 4 of 25

**1. Technical Specifications:**

- 1.1 This specification describes the details of Design, Development, Manufacture, Testing & Supply of Mil-Grade 24 Port L3 Manageable POE Network Switch meant for Naval Application (which will be installed onboard a Naval Platform).
- 1.2 The design of the Mil-Grade 24 Port L3 Manageable POE Network Switch should be such that it should meet all the Type Tests requirements specified at Annexure - 1.
- 1.3 The design, development, fabrication/manufacture, assemble and testing of Network Switch involves the following:
  - a) Design & development of Mil-Grade 24 Port L3 Manageable POE Network Switch suitable for Naval Application.
  - b) The design & construction of the Mechanical Enclosure for the Mil-Grade 24 Port L3 Manageable POE Network Switches should be the same as that of L2 Type (refer Note below), as Type Test will be carried out only on 24 Port L2 Type Network Switch and 24 Port L3 Type Network Switch will not undergo Type Test.
  - c) Manufacture of Mil-Grade 24 Port L3 Manageable POE Network Switches can be taken up only after Mil-Grade 24 Port L2 Manageable POE Network Switch passes all the Type Tests.

Note: Refer to Purchase Specification PS-460-188 - For Design, Development, Manufacture, Testing & Supply Of Mil-Grade 24 Port L2 Manageable POE Network Switch

- 1.4 It is not the intent to specify completely herein all the details of design and construction of the Network Switch. However, the Network Switch shall be complete in all respects conforming to high standards of components which may not have been specifically mentioned, but are essential for satisfactory and trouble-free operation/ maintenance of the equipment onboard Naval Ship.
- 1.5 The Vendor while quoting shall go through the specifications in detail and all attachments thereof and furnish all documentation as indicated elsewhere in the specification. Deviations from specifications, if any, should be clearly specified. Compliance shall be assumed if not mentioned otherwise.
- 1.6 The testing requirement of the Enclosure shall confirm to the specified standards stipulated in JSS 55555 document.
- 1.7 The Technical Details of the Mil-Grade 24 Port L3 Manageable POE Network Switch are as given below:



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 24 Port L3 Manageable POE Network Switch**

PS No.: PS-460-201

Rev No.: 00

Page 5 of 25

Sl. No.	Description
1	24 Ports POE ready
2	24 10/100/1000 Tx Gigabit Copper ports
3	Min 48 Gbps of switching fiber capacity
4	Switching forwarding rate of 32 Mpps or more
5	Broadcast/Multicast storm control to prevent degradation of switch performance from faulty end stations
6	Support for Ring Topology
7	IEEE 802.1Q Port and subnet based VLANs
8	Standard and Extended ACLs, port-based ACLs, VLAN ACLs
9	Integrated security feature like IP Source guard or equivalent, Dynamic ARP Inspection, IGMP Snooping, MAC Address binding
10	802.1x, RADIUS Authentication
11	Provision for Multicast traffic in the LAN through like protocols IGMP
12	The network manageable through NMS and supports for syslog server and features like Layer 3 trace route/IEEE802.1AG CFD/VCT/equivalent
13	Provision for backup and restore the configuration files
14	Port mirroring features for monitoring network traffic of a particular port/group of ports/entire switch
15	IPv6 compatibility support for all products
16	Network Switches to have Circular RJ45 Cat6a Receptacle with mating Connectors
17	IP rating 44
18	Not To Exceed Dimensions: 465 X 440 X 178 (W X D X H) mm

**Note:**

- 1) Vendor to use Circular RJ45 Cat6a Receptacle ED-IE-RJ45F-6A-B-68-FC of LAPP or PC4B0029-19NX-1-C of TE Connectivity or any other suitable equivalent
- 2) Vendor to provide 1 set of mating connectors for each Network Switch



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 24 Port L3 Manageable POE Network Switch**

PS No.: PS-460-201

Rev No.: 00

Page 6 of 25

**2. Scope Of Work/Supply**

- 2.1 The Network Switch shall be designed / developed / fabricated / manufactured / assembled & tested and supplied by the Vendor.
- 2.2 The design & construction of the Mechanical Enclosure for Mil-Grade 24 Port L3 Manageable POE Network Switches should be the same as that of L2 Type, as Type Test will be carried out only on 24 Port L2 Type Network Switch and 24 Port L3 Type Network Switch will not undergo Type Test.
- 2.3 The following shall be applicable:
- a) It is not the intent to specify completely herein all the details of design and construction of the Network Switch. However, the Network Switch shall be complete in all respects conforming to high standards of components which may not have been specifically mentioned, but are essential for satisfactory and trouble-free operation/ maintenance of the equipment onboard Naval Ship.
  - b) The Network Switch should be adequately provided with the following in order to qualify the list of Type Tests mentioned at Annexure-1:
    - i. Heating/Cooling arrangement (for High Temperature / Low Temperature / Humidity Tests)
    - ii. Protections (for Power / EMI / EMC / IP)
    - iii. Filters (for Power / EMI / EMC)
    - iv. Shock Absorbers if required within the Network Switch (for Vibration / Shock)
  - c) Scope of supply will also cover the following:
    - i. Procurement of all the required Raw Materials
    - ii. Raw Material (used for fabrication of Mechanical Enclosure) to be tested for Chemical Analysis, Mechanical & Hardness Test (NABL accredited Lab Test Certificates), the raw material testing will be witnessed by BHEL/Customer
    - iii. Sourcing of Mechanical/Electrical/Electronic Commercial–Off-The–Shelf (COTS) Components like Eye-Bolts, Fasteners, Rivets, Gaskets, Locks, Nuts, Bolts, Hinges, Cable Glands, Cables/Wires, Terminal Blocks, Fuse, Switches, Indicators, MCBs, EMI/EMC Filters, etc., as required for the manufacture of the Network Switch.



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 24 Port L3 Manageable POE Network Switch**

PS No.: PS-460-201

Rev No.: 00

Page 7 of 25

- iv. Only Screened and LSZH (Low Smoke Zero Halogen) Cables to be used for internal wiring.
- v. Assembly
- vi. Internal wiring
- vii. Surface preparation and painting (Colour: Eau-Di-Nil as per IS 5)
- viii. Inspection (by Third party / Customer / BHEL)
- ix. PSI is applicable and Vendor needs to give a PSI call along with the relevant TCs /Test Reports
- x. Packaging & Forwarding to BHEL Premises

Note: For detailed process of Preservative Packaging and Painting, please refer to documents "Annexure - 4" and "Annexure - 6" respectively.

- d) The scope of supply also includes final packing of the Network Switches and dispatching them to BHEL - Electronics Systems Division, Electronic City, Hosur Road, Bangalore – 560100.
- e) Schedule Of Design, Development, Manufacture & Type Testing
  - i. The Vendor shall submit the Detailed Design Drawing (2D & 3D) including the Cable Scheme within 2 weeks from the date of receipt of BHEL's PO.
  - ii. Upon clearance of Detailed Design Drawing, the Vendor should carry out the Analysis and submit the Analysis Report within 4 weeks.
  - iii. The Analysis Report should contain all details like CG (Centre of Gravity), Heat Dissipation, Power Requirement in watts (Voltage and Current), Heating/Cooling Arrangements, Weight, Shock, Vibration, CFD, etc.
  - iv. Subsequent to acceptance of the Analysis Report, BHEL shall give manufacturing clearance for Mil-Grade 24 Port L3 Manageable POE Network Switches to the Vendor only after the Mil-Grade 24 Port L2 Manageable POE Network Switch passes all the Type Tests specified at Annexure-1 (refer Purchase Specs PS-460-188).
- f) The List Of Deliverables and the schedule for their deliveries are as indicated below:



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 24 Port L3 Manageable POE Network Switch**

PS No.: PS-460-201

Rev No.: 00

Page 8 of 25

Sl. No.	Item Description	Quantity	Schedule
A) Items to be delivered in the 1 <sup>st</sup> Lot			
1	Mil-Grade 24 Port L3 Manageable POE Network Switch (BHEL Mat Code - DS0830006695) Note: One set of all mating Circular Connectors (Power / Network) to be supplied along with the Network Switch	2 Nos.	Refer (*)
* As type Test will not be carried out on 24 Port L3 Network Switch, delivery of Lot 1 items shall be 06 Weeks from Date of Mil-Grade 24 Port L2 Manageable POE Network Switch passing all the Type Tests			
B) Items to be delivered in the 2 <sup>nd</sup> Lot			
1	Mil-Grade 24 Port L3 Manageable POE Network Switch (BHEL Mat Code - DS0830006695) Note: One set of all mating Circular Connectors (Power / Network) to be supplied along with the Network Switch	2 Nos.	Refer (*)
* As type Test will not be carried out on 24 Port L3 Network Switch, delivery of Lot 2 items shall be 12 Weeks from Date of Mil-Grade 24 Port L2 Manageable POE Network Switch passing all the Type Tests			
C) Items to be delivered in the 3 <sup>rd</sup> Lot			
1	Mil-Grade 24 Port L3 Manageable POE Network Switch (BHEL Mat Code - DS0830006695) Note: One set of all mating Circular Connectors (Power / Network) to be supplied along with the Network Switch	2 Nos.	Refer (*)
* As type Test will not be carried out on 24 Port L3 Network Switch, delivery of Lot 3 items shall be 20 Weeks from Date of Mil-Grade 24 Port L2 Manageable POE Network Switch passing all the Type Tests			

**Note:**

- 1) As Type Test will not be carried out on Mil-Grade 24 Port L3 Manageable POE Network Switches, BHEL shall give manufacturing clearance for Mil-Grade 24 Port L3 Manageable POE Network Switches to the Vendor only after the Mil-Grade 24 Port L2 Manageable POE Network Switch passes all the Type Tests specified at Annexure-1 (refer Purchase Specs PS-460-188).
- 2) Vendor to pack and despatch Network Switches in Reusable Wooden Box.
- 3) Vendor to provide Commissioning Support to BHEL at Site (onboard Naval Platform at Vishakhapatnam) during commissioning of the 1<sup>st</sup> System



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 24 Port L3 Manageable POE Network Switch**

PS No.: PS-460-201

Rev No.: 00

Page 9 of 25

**3. Review Meetings:**

It is mandatory for the Vendor to attend Review Meetings to be held at BHEL ESD, Bangalore, for reviewing the progress of the manufacturing.

**4. Technical Requirements:**

- 4.1 The design of the Mil-Grade 24 Port L3 Manageable POE Network Switch should be such that it does not exceed the Limiting Dimensions of 465 X 440 X 178 (W X D X H) mm.
- 4.2 The design & construction of the Mechanical Enclosure for Mil-Grade 24 Port Manageable POE Network Switches should be the same for L2 Type and L3 Type, as Type Test will be carried out only on 24 Port L2 Type Network Switch and 24 Port L3 Type Network Switch will not undergo Type Test.
- 4.3 The Power & Network Connections pertaining to the Network Switch should be Circular Connectors.
- 4.4 Vendor to use Circular RJ45 Cat6a Receptacle ED-IE-RJ45F-6A-B-68-FC of LAPP or PC4B0029-19NX-1-C of TE Connectivity or any other suitable equivalent Circular Connector.
- 4.5 Vendor to provide 1 set of all mating connectors for Power & Network Connections for each Network Switch.
- 4.6 External Earthing with suitable earth bonds/studs as per DND/SDG/24EMC-1 are to be provided.
- 4.7 The Network Switch should be provided with suitable protection against short circuit currents, voltage surges and overloads in the input supply and protect the electronic items/circuits from damage caused by transients and over-stresses.
- 4.8 The painting color of the enclosure is "Eau-De-Nil, Code No: 216 as per IS 5". Finishing and Painting shall be as per the document "Annexure-6".
- 4.9 The following shall be applicable:
  - a) The Vendor has to ensure that no deformation takes place due to overheating caused by welding and sand/grit blasting. These two processes have to be carried out in a controlled manner.
  - b) Unless otherwise mentioned, all junction point or edge due to bending operation has to be filled with welding material. Every junction must be



## Purchase Specification

For Design, Development, Manufacture, Testing & Supply  
Of Mil-Grade 24 Port L3 Manageable POE Network Switch

PS No.: PS-460-201

Rev No.: 00

Page 10 of 25

water proof. Welding material in excess must be removed by grinding tool. Continuous electric welding on all external perimeters, external areas of the body shall not show evidences of welding.

- c) In case of any non-compliance to the Technical Specifications, the same shall be brought to the notice of BHEL and prior consent to be taken from BHEL before proceeding for further assembly.
- d) The Vendor has to ensure the uniformity and straightness of the enclosures after welding and sand blasting. The Vendor also has to ensure that there is no matching burrs and sharp corners and to be removed or trimmed.
- e) Name plate and Diagram plate shall be as per the document "Annexure-5"
- f) Any cut-outs internal or external to be made only with the consent of BHEL.



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 24 Port L3 Manageable POE Network Switch**

PS No.: PS-460-201

Rev No.: 00

Page 11 of 25

**5. Vendor Documentation:**

- 5.1 As part of Technical Proposal, Vendor has to provide a point wise compliance to each of the clauses of this specification document.
- 5.2 OEM's datasheets of all components (in the scope of the Vendor), satisfying the requirements stated in this document shall be furnished by Vendor to BHEL along with the technical offer.
- 5.3 Vendor needs to give a PSI call along with the relevant TCs /Test Reports.
- 5.4 Test Certificates, Warranty Certificate, COC, Packing List etc., have to be provided along with the supply.
- 5.5 During the execution of the project, Vendor shall maintain version-controlled documentation process related to manufacturing process and to be shared as and when required by BHEL including any approved deviations.

**6. Quality Assurance Plan:**

The Quality Assurance Plan to be followed as per "Annexure - 3"

**7. Packaging & Forwarding:**

The Packaging & Forwarding shall be as per "Annexure - 4" document.

**8. Testing & Inspection:**

- 8.1 The Vendor has to provide material test certificate for sheet metal from NABL accredited labs on chemical analysis, mechanical tests and hardness of the material (the test will be witnessed by BHEL/Customer). OEM's Certificate Of Conformity (COC) for bought out items (like Fasteners, Rivets, Gaskets, Air Filters, etc.). In addition to the above conformance, Vendor has to provide 3 nos. of samples of each item for subjecting to Salt Corrosion and Mould Growth Test. Also, the Vendor has to provide 3 nos. each of the representative samples of Raw Material Sheets (suitable for Naval Application) painted of size 5" x 5".
- 8.2 The Vendor has to inform BHEL at least 7 days in advance, for stage inspection after each process viz., Raw Material Inspection, Fabrication, Surface Preparation and Painting before starting the subsequent process. The next process can only be started after clearance from BHEL. Vendor has to facilitate inspection from



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 24 Port L3 Manageable POE Network Switch**

PS No.: PS-460-201

Rev No.: 00

Page 12 of 25

BHEL customer at any stage of the project. Vendor has to facilitate third party inspection for sample selection from the Raw Material. During the manufacturing process, any ambiguity or lack of information related to any process step as observed by Vendor to be resolved in consultation with BHEL.

**9. Supporting Documents:**

- 9.1 Document "Annexure – 1" for Details of Type Tests
- 9.2 Document "Annexure - 2" for Shock & Vibration
- 9.3 Document "Annexure - 3" for Quality Assurance Plan
- 9.4 Document "Annexure - 4" for Preservative Packaging
- 9.5 Document "Annexure - 5" for Name plate/Diagram plate
- 9.6 Document "Annexure - 6" for Finishing & Painting

**10. Confidentiality & Non-Disclosure Agreement:**

The Vendor has to enter into a confidentiality and non-disclosure agreement with BHEL to be eligible for participating in the bid and further execution of the contract / order.

**11. Warranty:**

The Vendor has to give a warranty of the product for a period of 36 months from the date of supply. The warranty includes the repair / replacement of the defective parts / items at Vendor works/BHEL/ONBOARD SHIP. The cost of logistics for movement of parts /items for repair/ replacement to be borne by the Vendor.



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 24 Port L3 Manageable POE Network Switch**

PS No.: PS-460-201

Rev No.: 00

Page 13 of 25

**Annexure – 1**

**List Of Type Tests That The Mil-Grade 24 Port L3 Manageable POE Network Switch  
Should Be Designed For**

Sl. No.	Type Test Description	Test Condition / Severity
1	High Temperature Test	53 ± 3°C for 24 hrs Procedure 6; Test Condition K Test No. 17 of JSS 55555
2	Low Temperature Test	-10°C for 16 hrs Procedure 4; Test Condition H Test No. 20 of JSS 55555
3	Damp Heat Test	40 ± 2°C at 93 ± 5% RH for 16 hrs Test No. 10 of JSS 55555
4	Mould Growth (On Representative Samples)	29°C to 90% RH for 28 days Test No. 21 of JSS 55555
5	Salt Corrosion (On Representative Samples)	0°C for 16 hrs Procedure 1 for 7 days Test No. 9 of JSS 55555
6	Air Borne Noise Test	As indicated at Annexure - 4
7	Shock / Impact Test	As indicated at Annexure - 4
8	Vibration Resistance Test	As indicated at Annexure - 4
9	High Voltage Test	As per Clause 0501-0518 of NES 511
10	Earth Bonding Test	As per Clause 0531-0533 of NES 511
11	Insulation Resistance Test	As per Clause 0519-0523 of NES 511
12	EMI/EMC Test	Test for CE-101, CE-102, CS-101, CS-103, CS-109, CS-114, CS-116, RE-101, RE-102, RE-103, RS-101, RS-103 and RS-06 As per MIL-STD 461E
13	IP Test	IP44 As per IEC 60529

**Note:**

- 1) Shock mounts required for Network Switch are not in the scope of supply of the Vendor, but Vendor should select the suitable shock mounts from the Data sheet provided by BHEL/Customer.



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 24 Port L3 Manageable POE Network Switch**

PS No.: PS-460-201

Rev No.: 00

Page 14 of 25

**Annexure – 2 (Shock, Vibration & Airborne Noise)**

**Details of Various Design Analysis of Equipment to be undertaken for Design Validation**

**1. Methodology for Shock Analysis of Equipment Using Finite Element Analysis:**

- (a) The shock analysis of equipment is required to be undertaken to ensure that the equipment will function properly without any failure under the specified shock pulse values given specifications. The shock pulse values in terms of acceleration and time as a full Sine wave has been specified for three mutually perpendicular directions. The shock pulse is to be considered acting in each direction separately and not acting simultaneously.
- (b) It is difficult to indicate minute details of the methodology and procedure of the analysis at this stage. It is therefore intended to broadly specify the methodology. The details of modeling and analysis procedure may be discussed and agreed upon between BHEL/Customer and the manufacturer. Shock analysis has to be carried out by finite element method and as far as possible physical modeling of the equipment shall be carried out with exact dimensions and material properties. The finite element model may be built up with shell element or solid elements or combination of the two depending on the design of the equipment. In each case, the designer should justify selection of elements. Whenever, shell elements are used, meshing should be done at the mid surfaces. Shock Analysis should be carried using Transient Dynamic Analysis approach only. The analysis should be carried out preferably in ANSYS software. However, if it is not possible to undertake in ANSYS, analysis may be carried out in ABAQUS software.
- (c) The Shock analysis should be performed by equivalent static load approach as well as transient dynamic analysis approach. Shock Analysis should be carried using Transient Dynamic approach only. For equivalent static load approach, the equipment should be analysed under static condition assuming that maximum shock amplitude is applied as inertia load. This analysis should be carried out separately for three mutually perpendicular directions in positive and negative axis. Apart from the inertia load, self-weight of the equipment as well as other operating loads, radial thrust, axial thrust, operating torque and any other loads acting on the equipment should be considered. For transient dynamic analysis, the entire analysis needs to be carried out in time domain and the shock pulse specified in the technical specifications of Purchase Order should be applied at the fixing points of the equipment as ground excitation, and the response of the equipment needs to be evaluated. Also in transient dynamic analysis, three separate analyses in mutually perpendicular directions should be carried out. In



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 24 Port L3 Manageable POE Network Switch**

PS No.: PS-460-201

Rev No.: 00

Page 15 of 25

all the above analyses, stresses and deflection should not exceed the allowable limit.

- (d) **Modal Analysis:** Apart from the above analysis, the designer/manufacture shall carry out normal mode dynamic analysis of the equipment to estimate the natural frequency of the equipment. Normal mode analysis should be carried out by Block-Lanczos method. The modal analysis of the equipment is to be carried out with and without the shock mounts. If the equipment natural frequency (without considering the shock mount) is very high i.e., above 160 Hz, the equipment will be considered as rigid and no transient analysis is required. In the analysis with shock mounts, the appropriate stiffness and the damping of the mount which is proposed to be used is to be considered as spring element in the analysis. The stiffness of the first connections like bellows, compensators, pipes, rubber hose, etc which is proposed in the actual on-board setup are to be considered in the analysis. The boundary condition below the SV mounts should be considered as a rigid grouted condition with all DOFs fixed. Adequate modes are to be extracted to cover the various operating frequencies such as shaft speed, blade pass frequencies, gear mesh frequency, etc., encountered during the operation of the equipment. Modal Analysis is not required for Shock Analysis and to be done for Vibration Analysis.
- (e) The shock mounts need not be modeled in the analysis as the shock amplitude specified in the specifications is above the shock mounts. Therefore, the fix points of the equipment (shock mount location) is to be modeled as translational restraints which means that all three translational degrees of freedom will be fixed (except in the direction of shock where base excitation is applied) and all three rotational degrees of freedom will be free.
- (f) Generation of solid/surface model of the equipment and consequent development of finite element model will vary from equipment to equipment depending on the shape, size, dimension and functioning of the equipment. Therefore, it is not possible to generalize the method of preparing the finite element model. The designer/manufacture shall discuss with BHEL/Customer before undertaking the analysis regarding above aspects. In case, entire equipment is not possible to be analysed as a single mode, it is permitted to undertake analysis with sub models. However, proper boundary conditions are to be considered while dividing the models. This should be discussed with BHEL/Customer in advance before undertaking the analysis and agreed upon.
- (g) The shock analysis report is to be submitted in hard copy as well as in soft copy. Apart from this, the final model and analysis files should be submitted by the firm along with the complete result files. For example, if the analysis is carried in ANSYS software, the firm should submit DB file, load step files, RST files etc. In all



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 24 Port L3 Manageable POE Network Switch**

PS No.: PS-460-201

Rev No.: 00

Page 16 of 25

cases, the analysis must be carried out as per the agreed methodology between BHEL/Customer and the firm. Therefore, the firm should ensure that all the details of modeling and analysis procedure is discussed with BHEL/Customer.

**2. Brief Methodologies for Various Analysis**

**(a) Finite Element Stress Analysis**

- i. Stress analysis by finite element method is to be carried out. The analysis is to be carried out in IDEAS/ANSYS software. In certain cases, ABAQUS software can also be used with prior approval of BHEL/Customer.
- ii. The basic procedure of modeling, meshing and FEM analysis is required to be followed. The stress analysis should be undertaken for normal operating condition. The boundary condition should simulate all the operating condition parameter like various forces, temperatures, restraints etc. It is not possible to specify the detailed procedure of analysis as it will vary from equipment to equipment. However, the objective of the analysis is to ensure that the equipment will meet the design requirement under operating condition and stresses and deflections are within the acceptable limit.
- iii. The firm should submit full report of stress analysis in hard and soft copies. The CAD model files of the components & assembly and FE model analysis database files and result files should be submitted in DVD or any other external storage media.
- iv. The firm should discuss with BHEL/Customer in advance regarding the type of model and meshing required to be developed and the various boundary conditions to be used.

**(b) Vibration Resistance Analysis**

- i. Vibration resistance analysis is basically to ensure that the equipment will perform its duties under propeller induced vibration. Also the frequency and the amplitude of the propeller induced vibration are indicated in the Purchase Order.
- ii. Vibration resistance analysis should be carried out by finite element method. The analysis should be carried out in ANSYS or IDEAS software, preferably in ANSYS software. This analysis is basically frequency response analysis and in the ANSYS it is described as spectrum analysis. The FEM model generated for stress analysis or shock analysis can be used for vibration resistance analysis. The objective of the analysis is to establish the response of the equipment under external vibration spectrum.



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 24 Port L3 Manageable POE Network Switch**

PS No.: PS-460-201

Rev No.: 00

Page 17 of 25

- iii. It is not possible to describe the details of analysis as it will vary from equipment to equipment. Therefore, the firm's rep should discuss the details methodology of the analysis with BHEL/Customer in advance so as to ensure proper modeling and analysis.
- iv. The firm should submit full report of vibration resistance analysis in hard and soft copies. The CAD & FE model analysis file and result file should be submitted in DVD or any other external storage media.

**(c) Brief Methodology For Air Borne Noise Measurement**

- i. Airborne Noise measurements should be carried out as per Standard ISO 3744 and levels of sound pressure measured are to be corrected accordingly
- ii. The points of measurement are to be located on the conformal measuring surface as per Fig-6 of ISO 3744 at a measuring distance of 1m.
- iii. From the results of the measurement, the average level of sound pressure for the measuring surface is to be calculated in accordance with ISO.

**(d) Reports:**

- i. Detailed calculation of Shock and vibration
- ii. Design confirmation to Shock and vibration
- iii. Analysis Reports



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 24 Port L3 Manageable POE Network Switch**

PS No.: PS-460-201

Rev No.: 00

Page 18 of 25

**Annexure – 3 (Quality Assurance Plan)**

Brief details for Quality Assurance Plan to be followed is as given below. Any changes needed will be notified during stage wise inspection

**1) Scope**

This Quality Assurance Plan (QAP) defines the quality assurance activities to be carried out by the Vendor for the supply of the following items (for the supplies, associated requirements, services, documentation and other items in accordance with the specifications)

This Quality Plan is a revisable document, and revisions will be made throughout the project if becomes necessary.

**2) Classification Of Tests**

Various tests to be carried out are classified as Visual/Physical Checks, Surveillance/Verification Check and Functional/Internal Factory Test for Quality Assurance check of the equipment's / stores manufactured by the Vendor to meet BHEL's requirements. These are as follows:

**A) Visual/Physical Check:** As part of the Visual/Physical Check the following will be carried out.

- Look for obvious sign and physical damage
- Check that the enclosures have smooth finish and are free from dents, cracks, blowholes etc.
- Check for proper painting
- Check that the orientation of the connectors/glands as per drawings having no visible damages
- Check that all nuts and screws at the connections are secured reliably
- Check for the workmanship and finish. It should be satisfactory.
- Ensure that all the Seals / Gaskets are intact for the sealed units / sub-assemblies.
- Check the dimensions & weight



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 24 Port L3 Manageable POE Network Switch**

PS No.: PS-460-201

Rev No.: 00

Page 19 of 25

B) **Surveillance/Verification Check:** Quality Surveillance is the continuing monitoring and verification of the products and analysis of records in relation to stated references to ensure that specified requirements for quality are being met. This check will be carried out on Random basis of the records / Test results of QA check done by the manufacturer

C) **Functional/Internal Factory Test:** This test will be performed to check the key parameters (HW items) of the stores offered for inspection on 100 % (if not differently mentioned) of the offered lot. These will be carried out at the Vendor's premises by BHEL/QA Officer.

3) **Acceptance Criteria**

The Testing of items is performed in Three Levels. They are as follows:

- A. The First Level is the Goods In-Wards inspection which involves inspection of the Raw Material. In this stage the items are checked visually as described at para 2(A) above. In addition, the various Test Certificates obtained from the manufacturer is also verified. In case of COTS items, they are to be functionally tested. The Vendor has to maintain records of the tests carried out on each of the items and the same should be provided to BHEL/IN reps.
- B. The Second Level is the In-process Stage Inspection which involves Testing of Sub-assemblies. In the present case, In-process Stage Inspection is not applicable, as the items under supply do not have the requisite functional sub-assemblies.
- C. The Third Level of Testing is the System Acceptance Test or Final Factory Test. In this Level the final deliverable item will be tested by Vendor in the presence of BHEL/IN reps.



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 24 Port L3 Manageable POE Network Switch**

PS No.: PS-460-201

Rev No.: 00

Page 20 of 25

**Annexure – 4 (Preservative Packaging & Delivery)**

Brief details for Preservative Packaging and Delivery of the items are given below. Any changes needed will be notified during stage wise inspection.

**1) Packaging Details**

- a) All deliverables are to be packed in Re-Usable Wooden Pallet Box with Nuts & Bolts.
- b) The Re-usable wooden pallet box sizes are to be optimized as required. Sufficient cushioning material has to be provided between the equipment and the inner wall of the re-usable wooden pallet box, to prevent any damage to the equipment during transportation. All materials required for the packing like wooden cases, pallet and other cushioning/packing material are to be provided by the Vendor,
- c) The equipment has to be first sealed in a poly-ethylene cover containing adequate quantity of silica gel sachets as per the above standard, and then to be placed inside the re-usable wooden pallet box. Each type of fasteners 1) required for mounting the equipment onboard ship and 2) being supplied as additional quantity are to be packed, sealed in properly labeled separate polyethylene covers along with silica gel sachets and placed in suitable cardboard boxes for dispatch.
- d) Each Package (Wooden Pallet Boxes and the card board boxes) should be individually labeled with the following information:
  - i. Equipment Nomenclature
  - ii. BHEL's Part Number
  - iii. Item Serial no.
  - iv. Item Quantity
- e) BHEL PO No.
  - i. Date of Dispatch
  - ii. Each wooden box / Cardboard Box should be numbered and having a packing slip.



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 24 Port L3 Manageable POE Network Switch**

PS No.: PS-460-201

Rev No.: 00

Page 21 of 25

**Annexure – 5 (Name Plate Details)**

**1. Name plate/Tally plate:**

Contents of Name Plate: BHEL's, Part/sub-systems name (such as RTU, DMC, WMC, SWE, CCTV etc.), Part number(s), Sl. No., Contract no., Yard No. Modification record, etc. The drawing will be provided upon award of contract; a draft version is given below:

BHEL Logo					
Bharat Heavy Electricals Limited, Electronics Division, Bangalore					
DWG. No.:					
Order No. & Date					
Weight (kg)					
MOD RECORD	1	2	3	4	5

The material and the process shall be as per section 3, below.

**2. Tally plate/Diagram plate**

The diagram plate which is fixed on the rear side of the front door of electric panel should have complete wiring diagram with sub-component identification number. The same identification number should be engraved on the components fitted on electric panels.

The material and the process shall be as per section 3, below.

**3. Material and the Process for making Tally Plates**

- a) Tally plates shall be in English language and in SI units.
- b) Size of tally plate and their letters shall be conformed to specification NES-723.
- c) Material: 6082 AlSi1MgMn as per DIN EN 573-3.



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 24 Port L3 Manageable POE Network Switch**

PS No.: PS-460-201

Rev No.: 00

Page 22 of 25

- d) Material Treatment: As per MIL-A-8625F "Anodic Coating For Aluminum And Aluminum Alloys" Type II, Class 1 (Non-colored Sulphuric Anode Oxidation) and nickel acetate sealing.
- e) Text color for screen printing: RAL 9005
- f) Engraving and screen printing as per DIN 1451

Note: The above details provided is only a sample. The actual details will be provided during detail design.



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 24 Port L3 Manageable POE Network Switch**

PS No.: PS-460-201

Rev No.: 00

Page 23 of 25

**Annexure – 6 (Details For Painting The Mechanical Enclosure)**

**1. SCOPE**

Purpose of this document is to describe the painting (**Colour: Eau-di-Nil**) and surface preparation methods to apply on the metallic parts of the Enclosures.

**2. SURFACES PREPARATION PROCEDURES**

- a) Careful surface preparation is a must to ensure proper adhesion of the paint to the surface, which needs to be preserved. All metal surfaces must be clean and free from scale, rust or grease.
- b) Removal of corrosion by mechanical (Vacuum/ abrasive blasting/ rotary discs) or hand means (chipping/ wire brushing/emery). All surfaces where the thickness is greater than 3mm, corrosion is to be removed by blasting. In areas where the thickness is less than 3mm, where blasting is not feasible like in corners, etc. Only mechanical cleaning by chipping/ wire brushing followed by emery is to be carried out.
- c) Degreasing
- d) Drying
- e) In case of galvanized and phosphate treated steels only degreasing and drying are to be carried out. In the case of non-ferrous metals the surface has to be abraded a second time after degreasing and drying.

**3. Application of Primer:**

Primer is the first coat of paint which is applied on a prepared/ pre-treated surface which acts as a bond between the metal surface and the finishing coat of the paint scheme. The primer to be applied depends on the type of finishing paint to be used in the paint scheme. The various types of primer to be used are.

- a) Paint RFU priming Zinc Chromate to IS 1874 – All steel surfaces of equipment to be installed in areas other than machinery spaces
- b) Epoxy red oxide primer to NCD 1435 –All steel surfaces of equipment to be installed in machinery spaces
- c) Etch primer to DEF-STAN 80-15-All non-ferrous metals (Including aluminum) and stainless steel.



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 24 Port L3 Manageable POE Network Switch**

PS No.: PS-460-201

Rev No.: 00

Page 24 of 25

- d) The primer is to be applied within 4 hours of completing the surface preparation. This is essential to prevent formation of rust/accumulation of dust over the surface prior to the application of the primer. Further humidity levels at the time of primer application should not exceed 75% and temperature should not be below 15° Centigrade.

**4. Application of finishing coat:**

- a) The finishing coat of a paint scheme is the actual layer of the paint which needs to be selected depending upon the type of surface and type of environment under which the surface needs to be preserved. The various types of finishing paints to be used are:

1) Paint RFU finishing fire retardant to JSS 3-47-05. All steel surfaces of equipment to be installed in areas of other than machinery spaces and all non-ferrous metals.

2) Paint Epoxy Enamel two components glossy to IS 14209. All steel surfaces of equipment to be installed in machinery spaces.

**5. Precautions:**

- a) Care must be taken to avoid damaging plated, anodic coatings, screw threads etc during cleaning/ surface preparation.
- b) Surface should be absolutely dry before application of the paint scheme
- c) The primer has to be applied within 4 hours of completing the surface preparation
- d) The humidity levels at the time of paint application should not exceed 75%
- e) The temperature should not be below 15° centigrade at the time of paint application
- f) The paint thickness should not exceed the specified limits
- g) Only spray painting is to be carried out wherever possible



**Purchase Specification**  
**For Design, Development, Manufacture, Testing & Supply**  
**Of Mil-Grade 24 Port L3 Manageable POE Network Switch**

PS No.: PS-460-201

Rev No.: 00

Page 25 of 25

**6. Paint scheme:**

Sl No	Type of surface	Surface preparation	Primer	Paint Finishing
1	Steel Substrate	>3mm-vacuum/ grit blasting or wire brushing  Wherever blasting is not possible  <3mm –Wire brushing/emery, degreasing drying	Epoxy red oxide primer specification –NCD1435  No of coats - 2  DFT-25-30 microns (Each coat)	Epoxy enamel two component glossy specs- IS 14209  No of coats -2 (1 base coat+ 1 finishing coat)  DFT-30-40Microns (Each coat)  Colour: <b>Eau-di-Nil</b> (Code No 216 as per IS 5)

**Commercial Terms Discussion For ANK0000258 - MIL GRADE 8/24 PORT L2/L3 MANAGEABLE POE NETWORK SWITCHES**

Sl. No.	BHEL Terms	Complied (Yes/No)	Remarks
1	<b>Payment Terms-For quotes in INR</b> 100% within 45 days after receipt and acceptance of material		
2	<b>Payment Terms-For quotes other than INR</b> 100% against sight draft with 45 days credit on negotiation of complete set of documents.		
3	<b>Penalty</b> (0.5% per week on the basic value of the undelivered quantity max upto 10%)		
4	<b>Delivery Period</b> Delivery will be as per cl. 2.3.(f) of Purchase Specification PS-460-188 Rev.00, PS-460-189 Rev.00 and PS-460-201 Rev.00.		
5	<b>Price Firm</b> (PVC not acceptable- Prices should be firm till execution of order)		
6	<b>Packing And Forwarding By Supplier</b>		
7	<b>Delivery Terms:</b> <b>For quotes in INR</b> -Free Door Delivery at BHEL ESD, Electronic City		
8	<b>Delivery Terms:</b> <b>For quotes other than INR</b> -FCA International Gateway Airport (For shipment by air, Refer Annexure II for details) OR CIF, ICD Bangalore. Port of discharge either Mumbai/Chennai (for shipment by sea)		
9	<b>Offer Validity</b> (90 days from the tender opening )		
10	<b>Taxes &amp; duties to be mentioned in offer (Applicable GST%)</b>		
11	<b>HSN Code</b>		
12	<b>Documents to be submitted along with Technical offer</b>		
a	Datasheets/Catalogs		
b	Distributor's authorisation certificate, if any		
13	<b>Documents to be submitted along with supply</b>		
a	Test Certificates, Warranty Certificate, COC, Packing List		
14	<b>WARRANTY: 36 months from the date of supply as per cl. 11 of Purchase Specification PS-460-188 Rev.00, PS-460-189 Rev.00 and PS-460-201 Rev.00.</b>		
15	<b>PSI is applicable, and Vendor needs to give a PSI call along with the relevant TCs /Test Reports.</b>		

**Price bid - ANK0000258**

Sl. No.	Description	Quantity	Currency	Unit Price	Total Price	Remarks
1a	DS0830006851 8 Port L2 Manageable Switch-Type Test	1 NO				
1b	GST for Supply of DS0830006851 8 Port L2 Manageable Switch-Type Test (if applicable indicating%)	%				
2a	DS0830006703 8 Port L2 Manageable POE Network Switch	24 NO				
2b	GST for Supply of DS0830006703 8 Port L2 Manageable POE Network Switch (if applicable indicating%)	%				
3a	DS0830006869 24 Port L2 Manageable Switch-Type Test	1 NO				
3b	GST for Supply of DS0830006869 24 Port L2 Manageable Switch-Type Test (if applicable indicating%)	%				
4a	DS0830006687 24 Port L2 Manageable POE Network Switch	23 NO				
4b	GST for Supply of DS0830006687 24 Port L2 Manageable POE Network Switch (if applicable indicating%)	%				
5a	DS0830006695 24 Port L3 Manageable POE Network Switch	6 NO				
5b	GST for Supply of DS0830006695 24 Port L3 Manageable POE Network Switch (if applicable indicating%)	%				
<b>A</b>	Total cost including applicable taxes (in figures)					
	Total cost including applicable taxes (in words)					

<b>TABLE of CONTENTS</b>		
<b>S No</b>	<b>Contents</b>	<b>Page No</b>
01	DOC NO :BHEL:EDN:ITB-SHOP:REV03 Instructions to Bidders / Sellers	01-08
02	DOC NO: BHEL:EDN:GCC-SHOP: REV:01 General Conditions of Contract for Purchase	09-14
03	ANNEXURES	
	ANNEXURE I Guidelines for Indian Agent	15-17
	ANNEXURE II List of International Gateway Airports	18
	ANNEXURE III Extract from :Manual on Policies & Procedures for Purchase of Goods"- Non Conformities between the figures and words of the quoted prices	19
	ANNEXURE IVList of Consortium Banks/ Bank Gaurantee Format	20-23
	ANNEXURE V Electronic Fund Transfer(EFT) or Paylink direct credit form	24
	ANNEXURE VI Process Compliance form for RA and RA Price confirmation Breakup	25-26
	ANNEXURE VII Purchase Preference for MSE Vendors	27-28
	ANNEXURE VIII Preference to Make in India	29
	ANNEXURE IX Integrity Pact	30-34
	ANNEXURE X List of Documents to be submitted during despatch of Goods	36

## Instructions to Bidders / Sellers

### **A. Scope and Applicability.**

These Instructions along with all the details, terms & conditions in the RFQ and General Conditions of Contract (Document No: BHEL: EDN: SHOP: GCC: Rev01) shall apply for this REQUEST FOR QUOTATION (RFQ) and any resulting Order(s) / Agreement(s).

### **B. Definitions.**

Throughout the documents referred to in A above the following terms shall have the meanings assigned to them, unless the subject matter or the context requires otherwise.

• **The Purchaser** means Bharat Heavy Electricals Limited (a Central Public Sector Enterprise) incorporated under the Companies Act, 1956 having its registered office at BHEL House, Siri Fort, New Delhi-110049, India acting through its Electronics Division / Electronics Systems Division at Bangalore and shall be deemed to include its successors and assigns. It may also be referred to as BHEL.

• **The Bidder** means the person, firm, company or organization to whom the RFQ is addressed / submits an offer against such RFQ and shall be deemed to include its successors, representative heirs, executors and administrator as the case may be. It may also be referred to as Seller, Contractor, Supplier or Vendor.

### **C. General**

1. All correspondence / clarifications shall be addressed to the contact person given in the RFQ / Purchase Order/Agreement.
2. In case of non-participation in the tender, regret letter with reason shall be sent by the vendor to the purchaser. If a vendor fails to respond against three consecutive tenders for the same item, he will be liable for removal as a registered vendor of BHEL for the item.
3. All timings are Indian Standard Time (IST).
4. Bidders shall not engage the services of the firms banned by BHEL. List of such banned firms is available at website [www.bhel.com](http://www.bhel.com).
5. Offers of the bidders who are on the banned list/who engage the services of banned firms shall be rejected.
6. The bidder along with its associate/collaborators/ sub-contractors/sub-vendors/consultants/service providers shall strictly adhere to BHEL Fraud Prevention Policy displayed on BHEL website <http://www.bhel.com> and shall immediately bring to the notice of BHEL Management about any fraud or suspected fraud as soon as it comes to their notice.
7. Procurement directly from the manufacturers is preferred. However, if the OEM/ Principal insist on engaging the services of an agent, such agent shall not be allowed to represent more than one manufacturer/ supplier in the same tender. Moreover, either the agent could bid on behalf of the manufacturer/ supplier or the manufacturer/ supplier could bid directly but not both. Agent/Representative authorized by the OEM/Principal in turn cannot further sub authorize any other firm for submitting the offer or for placement of order.

In case bids are received from the manufacturer/ supplier and his agent, bid received from the agent shall be ignored.

8. Any consultant or consultant firm including any of its affiliates or associates shall not be eligible to participate in tender / s for the related goods or works or services for the same project, for which they were engaged for the consultancy services by BHEL.
9. If an Indian representative/associate/liaison office quotes on behalf of a foreign based bidder, such representative shall furnish the following documents:
  - (a) Authorization letter to quote and negotiate on behalf of such foreign-based bidder.
  - (b) Undertaking from such foreign based bidder that such contract will be honoured and executed according to agreed scope of supply and commercial terms and conditions.
  - (c) Undertaking shall be furnished by the Indian representative stating that the co-ordination and smooth execution of the contract and settlement of shortages/damages/replacement/repair of imported scope till the equipment is commissioned and handed over to customer will be the sole responsibility of the Indian representative/associates/agent/liaison office.
  - (d) Refer **Annexure I** on "Guidelines for Indian Agents".
10. In case of imported scope of supply, customs clearance & customs duty payment will be to BHEL account after the consignment is received at Indian Airport /Seaport. Bidders must provide all original documents required for completing the customs clearance along with the shipment. Warehousing charges due to incomplete or missing documentation will be to supplier's account. All offers for imported scope of supply by air, must be made from any of the gateway ports (within the country) indicated (**Refer Annexure II**).
11. Regret letter (either through post or by mail or by EPS) indicating reasons for not quoting must be submitted without fail, in case of non-participation in this tender. Supplier shall be liable for removal as a registered vendor of BHEL when the supplier fails to quote against four consecutive tender enquiries for the same item or all enquiries in last two years for the same item, whichever is earlier.

#### **The Purchaser Reserves the Right to :-**

- (a) Cancel / retender the RFQ at any time before placement of Purchase Order / Agreement, without assigning any reason.
- (b) Change the quantity to be ordered and the delivery schedule before placement of PO with mutual agreement with the seller.
- (c) Adopt any method(s) of bidding including Reverse Auction (RA) instead of opening the sealed envelope price bid, submitted by the bidder. This will be decided after techno-commercial evaluation. All bidders to give their acceptance for participation in RA. Non-acceptance to participate in RA may result in non-consideration of their bids, in case BHEL decides to go for RA.



# Bharat Heavy Electricals Limited

Electronics Division,  
Mysore Road-Bangalore

Ref BHEL: EDN: ITB – SHOP: Rev03

- (d) Split the quantity in the RFQ among bidders for ordering.
- (e) Accept / not accept whole / part of any offers.
- (f) Accept / Reject any of the counter terms / deviations offered by bidder.
- (g) Seek information / clarifications / confirmations relevant to the RFQ from the bidder(s) and fix deadlines for furnishing of the same by the bidder(s) and not to consider the offer(s) of such bidder(s) for further processing who fail to provide such information / clarifications / confirmations within the deadline fixed.
- (h) Negotiate with the L1 bidder.
- (i) Take necessary action as per prevalent BHEL Policy, with regard to the bidder(s) / vendor(s) who is/are :-
  - I. Non-responsive
  - II. Found to have been involved in unfair practices / actions contrary to business ethics / actions restricting competition.
  - III. Withdraw offers after opening of Part 1 Bid(s)

## D. Guidelines for Making the Offer :-

1. Quotation shall be submitted in Single Part Bid, Two Part Bid or Three Part Bid, as called for in the tender:
  - **SINGLE PART BID:** Technical and Commercial Bid with prices along with price summary & filled in BHEL Standard Commercial terms and conditions in a single sealed envelope.
  - **TWO PART BID:** Unpriced offer i.e. "Techno-commercial Bid" with filled in BHEL Standard Commercial terms and conditions in a sealed envelope **along with the copy of the "Price Bid "without the prices** should be enclosed in one cover and the cover must be super scribed "**Techno-commercial offer**" and Priced offer i.e. "Price Bid "containing price summary in a separate sealed envelope and must be super scribed "**Price Bid**". Both these envelopes shall be enclosed in a single sealed envelope superscribed with enquiry number, due date of tender and any other details as called for in the tender document.
  - **THREE PART BID:** Pre-qualification Bid (Part-I), Techno Commercial Bid with filled in BHEL Standard Commercial terms and conditions (Part-II), and Price Bid (Part-III). All three envelopes shall be enclosed in a single sealed envelope superscribed with enquiry number, due date of tender and any other details as called for in the tender document.

If any of the offers (Part I, Part II or Part III) are not submitted before the due date and time of submission (or) if any part of the offer is incomplete, the entire offer of the bidder is liable for rejection.

2. Supplier shall ensure to superscribe each envelope with RFQ number, RFQ Date, RFQ Due date and time, Item Description and Project clearly & boldly. Also mention on the envelope whether it is "Techno Commercial Bid" or "Price Bid" or "Pre-Qualification Bid". Please ensure complete address, department name and purchase executive name is mentioned on the envelope (before dropping in the tender box or handing over) so that the tender is available in time for bid opening.
3. BHEL standard Commercial Terms and Conditions (duly filled, signed & stamped) must accompany Technical-Commercial offer without fail and should be submitted in original only.

The above indicated submission of Offers in "sealed envelope/hard copy" as mentioned in points D.1-D.3 is applicable for tenders that are not floated through E-Procurement System (EPS).

4. Any of the terms and conditions not acceptable to supplier, shall be explicitly mentioned in the Techno-Commercial Bid. If no deviations are brought out in the offer it will be treated as if all terms and conditions of this enquiry are accepted by the supplier without deviation.
5. Deviation to this specification/item description, if any, shall be brought out clearly indicating "DEVIATION TO BHEL SPECIFICATION" without fail, as a part of Techno-Commercial Bid. If no deviations are brought out in the offer it will be treated as if the entire specification of this enquiry is accepted without deviation.
6. Suppliers shall submit one set of original catalogue, datasheets, bill of materials, dimensional drawings, mounting details and/or any other relevant documents called in purchase specification as part of Technical Bid.
7. "Price Bid" shall be complete in all respects containing price break-up of all components along with all applicable taxes and duties, freight charges (if applicable) etc. Once submitted no modification / addition / deletion will be allowed in the "Price Bid." Bidders are advised to thoroughly check the unit price, total price to avoid any discrepancy.
8. In addition, bidder shall also quote for erection & commissioning charges/erection supervision & commissioning charges (E&C service charges) if applicable, documentation charges, testing Charges (type & routine), training charges etc. as applicable along with corresponding tax. The price summary must indicate all the elements clearly.
9. Prices should be indicated in both figures & words. Bid should be free from correction/overwriting, using corrective fluid, etc. Any interlineation, cutting, erasure or overwriting shall be valid only if they are attested under full signature(s) of person(s) signing the bid else bid shall be liable for rejection. Any typographical error, totalling mistakes, currency mistake, multiplication mistake, summing mistakes etc. observed in the price bids will be evaluated as per **Annexure III** "Guidelines for dealing with Discrepancy in Words & Figures – quoted in price bid" and BHEL decision will be final.



## Bharat Heavy Electricals Limited

Electronics Division,  
Mysore Road-Bangalore

Ref BHEL: EDN: ITB - SHOP: Rev03

10. Offers of Vendors who already have a valid Technical/Commercial MOU with BHEL-EDN for the items of the RFQ shall mention the relevant MOU reference No and give only such other details not covered in the MOU.
11. Documents submitted with the offer shall be signed and stamped in each page by authorized representative of the bidder. However, this requirement is not mandatory for offers uploaded through E-Procurement System (EPS).
12. Offer shall have a minimum validity period of 90 days from the due date of the RFQ.
13. The Under mentioned clauses a, & b will not be applicable for EPS tenders.
  - (a) Offers / Quotations must be dropped in tender box before 13.00 Hrs. on or before due date mentioned in RFQ. The offers are to be dropped in the proper slot of the Tender Box kept in our reception area with caption "CE, SC&PV, DEFENCE". Tenders are opened on 3 days in a week (Monday/Wednesday/Friday). Tender must be deposited in the slot corresponding to the day (Monday - Box no.4/Wednesday - Box no. 6 /Friday - Box no.8) while depositing the offer.
  - (b) E-mail-Mail/ Internet/EDI offers received in time shall be considered only when such offers are complete in all respects. In case of offers received through E-mail, please send the offer to the email ID specified in the RFQ.
14. In cases where tender documents are bulky, or due to some reasons tender documents are required to be submitted by hand or through posts/couriers, the offers are to be handed over to the purchase officer whose name is mentioned in the RFQ.
15. Tenders will be opened on due date, time and venue as indicated in the RFQ in the presence of bidders at the venue indicated in the RFQ. For EPS tenders, e-mail notifications will be automatically generated and forwarded to registered e-mail ID/s of bidders during opening of tenders.
16. Bidder will be solely responsible
  - (a) For submission of offers before due date and time. Offers submitted after due date and time will be treated as "Late offers" and will be rejected.
  - (b) For submission of offers in the correct compartment of the tender box based on the day of due date (Monday/Wednesday/Friday). Please check before dropping your offer in the correct tender box.
  - (c) For depositing offers in proper sealed condition in the tender box. If the bidder drops the tender in the wrong tender box (or) if the tender document is handed over to the wrong person, BHEL will not be responsible for any such delays.
  - (d) For offers received through email etc., suppliers are fully responsible for lack of secrecy on information and ensuring timely receipt of such offers in the tender box before due date & time (This clause will not be applicable for EPS tenders).

The above indicated submission of Offers as mentioned in points 16.a-16.d is applicable for tenders that are not floated through EPS.

17. In case of e-tender, all required documents should be uploaded before due date and time. Availability of power, internet connections, system/software requirements etc. will be the sole responsibility of the bidder. Wherever assistance is needed for submission of e-tenders, help-line numbers as available in the web-site of service provider of BHEL may be contacted.

**Purchase Executive/ BHEL shall not be responsible for any of the activities relating to submission of offer.**

### **E. Pre-Qualification Bid**

The Bid submitted shall contain all details required as per RFQ along with relevant documents.

### **F. TECHNO COMMERCIAL Bid**

- (a) The bid shall include include BHEL material code and description as per RFQ and details of the item offered including make/model/part no along with relevant documents like drawings/data sheets/catalogs/BOMs etc. as applicable.
- (b) Commercial terms such as delivery period, delivery terms, payment terms, taxes and duties as applicable. Delivery quoted shall be earliest firm in terms of no of days/weeks/months from the date of PO/Drawing Approval/Manufacturing clearance as applicable. It is recommended to avoid delivery terms such as 'ex-stock', 'subject to prior sale' or 'delivery at the earliest', 'subject to release of PO within ----- period' and 'delivery range eg X-Y weeks'. (Please Refer Clause 15 of General Conditions of Contract (Document No: BHEL: EDN: SHOP: GCC: Rev01) is applicable for delayed deliveries).
- (c) In case bidder quotes for imported material, to be supplied directly to BHEL / Destination, the minimum amount of CVD that will be passed on to BHEL for availing CENVAT credit

### **G. Price Bid**

- a. Most competitive Price(s) to be offered.
- b. Shall include such as currency, item unit price, total price, discounts if any, packing forwarding charges, freight, insurance, taxes and duties indicating the nature (IGST, CGST/SGST/ Cess) as applicable.
- c. **Quoted price(s) shall be FIRM and valid till the complete execution of Purchase Order / Agreement, except where price variation is specifically included in RFQ terms in which case the price(s) quoted shall be in accordance with the price variation formula given in the RFQ.**

- d. Prices in both figures and words to be indicated.
- e. Applicable documents shall be submitted to the purchaser at the time of supply for availing Input Tax credits.
- f. The price quoted against each item shall be for units stated in the RFQ. Where quotation is in terms of a unit other than that in the RFQ, relationship between the two units shall be clearly brought out.
- g. Registration details of the bidder such as GSTIN number, ECC number, applicable shall be mentioned (applicable for bidders within India).

## H. Purchaser's Standard Commercial Terms:-

1. Unless specified otherwise in the RFQ, following are the Purchaser's standard commercial terms

SI No	Description	For Purchase within India	For Foreign Purchase(Direct Imports)
i	Delivery Terms	<p><b>For High Sea Sales(HSS) :-</b> CIF Destination Airport (Name of Airport as given in the RFQ)</p> <p><b>For other than HSS :-</b> Door Delivery to BHEL Stores ,Bangalore with Freight and Insurance paid</p>	FCA International Gateway Airport (For shipment by air, Refer <b>Annexure II</b> for details) <b>OR</b> FOB Sea Port (for shipment by sea)
ii	Payment Terms	<p><b>100% direct payment with 45 days credit from the date of :</b></p> <p>a) Receipt of material for Door delivery BHEL stores b) Receipt of complete set of documents for High Sea Sales c) Invoice for Ex-works delivery</p>	100% against sight draft with 45 days credit on negotiation of complete set of documents
iii	Reckoning of Delivery Date	<p><b>For Door Delivery at BHEL Stores:-</b> Date of receipt of material at BHEL Stores.</p> <p><b>For High Sea Sales(HSS) :-</b> Date of receipt of complete set of High Sea Sales documents</p> <p><b>For Delivery Terms of Ex-works /Negotiation of Documents Through Bank:-</b> Date of invoice</p> <p><b>Where Pre Shipment Inspection at seller's works is applicable :-</b> Inspection call for the date on which material is ready for inspection supported with documents such as TC's/ COC's as applicable.</p>	<p><b>For Delivery Terms of Ex-works/ FCA :-</b> Date of Intimation for pickup /Date of Invoice, whichever is earlier</p> <p><b>For Delivery Terms of CIF/CIP/ FOB</b> Date of House Airway Bill(HAWB) / Bill of Lading / Date of receipt by BHEL's Freight Forwarder whichever is earlier</p>
iv.	Penalty for Delayed Delivery	As per clause 15 of General Conditions of Contract (DOC.NO.BHEL:EDN:GCC-SHOP:REV:01)	
v	Cancellation/ Termination of Contract & Risk Purchase	As per Clause 24 of General Conditions of Contract ( DOC.NO.BHEL:EDN:GCC – SHOP :REV:01)	

2. When Bank Guaranty (BG) is applicable as per RFQ terms, the same shall be from any one of the BHEL Consortium of Banks (Refer **Annexure IV**) in the prescribed format as per **Annexure V**. The bank Guarantee shall be sent directly to BHEL by the issuing bank.

**I. Commercial Deviations / Offered Terms & Loading of Offers**

Unless specified otherwise in the RFQ and if the Purchaser decides to accept offers with deviations in respect of the standard commercial terms given at Clause No. E1 above, such offers will be subjected to loading on the **quoted basic material value** as detailed below:-

Sl No	Deviation on	Nature of Deviation / Offered Terms	Loading %
I	Delivery Terms	<b>For Purchase within India :-</b> Other than Sl No.1 (i) of clause H above.	10
ii.	Payment Terms	<b>For Purchase within India :-</b>	
		1) Payment against documents through bank – Delivery of material on production of consignee copy of LR	15*
		2) Payment against documents through bank with consignment door delivered to BHEL stores	2*
		<b>For Foreign purchase :-</b>	4.5
		1) Payment through At Sight Letter of Credit	
		2) Payment through Letter of Credit with usance credit of 45 days	2.5
iii	Penalty for Delayed Delivery	3) Sight Draft with credit period less than 45 days	1
		1) Non – Acceptance	10
		2) Partial Acceptance ( X% )	(10 – X)

\* All Bank Charges shall be to sellers account If bank charges of BHEL banker are to BHEL's account then **additional loading of 2% on the quoted basic value** is applicable.

Note : Offer/s with payment terms other than the standard payment terms indicated at H1(ii) or Deviated payment terms with loading indicated at I(ii) above are liable for rejection.

**J. Submission of Offer on e-Procurement Portal**
**a) Invitation for bid**

Bids shall be submitted through e-Procurement portal

<https://bhel.abcpocure.com> of M/s e-Procurement Technologies, Ahmedabad who is our solution provider.

**b) Hardware and Software requirements for participating in e-tender**

Requirement for participating in e-Procurement is as under:

- A Computer with internet connectivity (Internet Explorer 9.0 (32-bit Browser only) & above)
- Digital Signature Certificate (Class 3- SHA2-2048 BIT- with both Signing and Encryption component separately).
- JAVA (Version 1.8 Update 45 and above).
- Steps for Hardware and software configuration is detailed at <https://bhel.abcpocure.com/EPROC/> under title "Minimum system requirements and Settings Document for BHEL User and Bidders".

**K. Processing of Offers Received**

- Only offers received in the mode and within the due date and time indicated in RFQ will be considered for processing.
- The following offers may not be considered for processing
  - Incomplete
  - Conditional
  - With deviations other than listed in clause I above



3. If non acceptance to any of the terms & conditions of the RFQ or deviations if any are not clearly mentioned in the offer, it will be treated that all the terms & conditions of the RFQ are accepted by the bidder in total.
4. If offer is revised within the due date and time of the RFQ on e-Procurement System, latest will be available for processing. In other cases the latest offer will be considered for processing only when there is a clear indication of the same, otherwise BHEL reserves the right to consider/not consider any of the offers received.
5. **For offers on EPS, in case of any contradictions/inconsistency between the offered details on the bid template and those in the attachments, the offered details on the bid template only will be considered.**
6. If a range is given for delivery, longest duration in the given range will be considered as the quoted delivery. If any drawing / sample / technical datasheets/Quality Assurance Plan approval or Manufacturing Clearance by Purchaser is involved the quoted delivery will be considered from the date of such Approval / Clearance by the Purchaser. Bidder to clearly indicate the time (in terms of no of days / weeks from the date of PO) for submission of such Drawings /Data Sheets/ Samples/QAP to the Purchaser.
7. Changes in offer (Impact Bid)/Discounts or revised offers given after opening of Part-I bid will not be considered unless the same is sought by the Purchaser due to any change(s) in technical scope and / or specifications and / or commercial terms & conditions. In case of withdrawal of any Technical/Commercial deviation(s) by the bidder before opening of price bids, revision of price/impact bid will not be considered.
8. Any discount on the already submitted offer by the bidder on its own will be considered provided it is received on or before the due date and time of offer submission and clearly mentions "Discount offer to be considered along with the original offer "(on the envelope also). The discount will be applied on pro-rata basis to all the items unless mentioned otherwise by the bidder.
9. In case of two / three part bids, price bids of the techno-commercially accepted offers, only will be opened on a subsequent date, with prior intimation.
10. Offers considered with commercial deviations will be subject to loading as per clause I above.
11. In case BHEL decides to go for Reverse Auction Guidelines as **per Annexure VI** are applicable. Only those bidders who have given their acceptance to participate in RA will be allowed to participate in the Reverse Auction. Those bidders who have given their acceptance to participate in Reverse Auction will have to necessarily submit "**online sealed bid**" in the Reverse Auction. Non submission of "**online sealed bid**" by the bidder will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines in vogue. In case BHEL decides **NOT to adopt Reverse Auction** method of bidding, the sealed price bids and price impacts if any, of all the techno commercially qualified bidders already submitted and available with BHEL shall be opened as per BHEL's standard practice.
12. Evaluation of Price bids will be done on the basis of "**Total Cost to Purchaser**" taking into consideration
  - a) Basic Material value, taxes and duties, packing and forwarding charges, freight and insurance, any other costs and loading for deviations if any, as applicable.
  - b) Input tax credit benefits available to BHEL
  - c) Calculated costs of freight, insurance and clearance charges as applicable, for foreign purchases.
  - d) RFQ item wise prices unless specified otherwise in the RFQ terms.
  - e) The offered quantity if offered quantity is more than the RFQ quantity
  - f) For offers in foreign currency, the exchange rate (TT selling rate of State Bank Of India (SBI)) will be taken as under :-
 

**Single Part Bid** : Date of Tender Opening

**Two/ Three(Part)/ Reverse Auction**: Date of Part 1 Bid Opening

If the relevant day happens to be a bank holiday then the FOREX rate (TT selling rate) as on the previous bank (SBI) working day will be taken.
13. Ranking (L-1, L-2 etc.) will be done only for the techno-commercially accepted offers.
14. Purchase Preference for MSE Vendors will be considered as per **Annexure VII**.
15. Public Procurement (Preference to Make in India) as per **Annexure VIII**

#### **L. Despatch, Invoicing and Documentation.**

1. All goods shall be consigned to the Consignee details as given in the Purchase Order.
2. Quantity of goods in invoice / delivery challan shall tally with the goods delivered.
3. For delivery terms Ex-Works, the Seller shall intimate the readiness of goods to BHEL/BHEL's authorized freight forwarder/BHEL's authorized transporter and the goods shall be handed over to the BHEL's authorized freight forwarder/BHEL authorized transporter / agency assigned by BHEL. Goods can also be despatched as mutually agreed between BHEL and Seller.
4. Packing shall be road / rail / air / sea worthy as applicable for adequate protection against transit damages and the packaging shall be complied as per Section V of the Environment (Protection) Act-1986.



5. **Delivery timings at BHEL stores(On all working days) :-**  
09.00 AM to 03.00 PM (Monday to Friday)  
09.00 AM to 11.00 AM (Saturday)  
Deliveries other than the timings indicated shall be done with prior permission from the purchase executive.
6. The invoice shall be in accordance with the PO duly supported with documents as called in the PO and shall contain the following details :-  
BHEL PO No and PO Item no., BHEL material code and description, Quantity, Vendor's name, Address.
7. The rates shall be as per applicable Purchase Order Rates. Indicate the basic rate, duties and taxes as applicable along with Vendor GSTIN (applicable for dispatches from within India)
8. **Documents :-**  
Seller shall arrange to send the documents as applicable as per Annexure IX to the Purchaser, along with dispatch of goods. Any addition / exclusion to such documents shall be as specified in the Purchase Order

**M. Information on Processing of Payment.**

1. All direct payments will be made through Electronic Fund transfer (EFT). Vendor shall furnish e-payment particulars duly authenticated by their respective Bankers as per BHEL standard format (Refer **Annexure X**), if not registered with the purchaser earlier.
2. In case of High Sea Sales and Foreign Purchases, customs clearance of the consignment landed on Indian Sea / Air ports will be done by BHEL based on the original documents provided by Seller. All warehousing charges due to delay in submission of complete and or correct documents to BHEL may be charged to Seller's account.
3. Statutory deductions, if any, will be made and the deduction certificate shall be issued. In case Seller does not provide PAN details, the TDS deduction shall be at the maximum percentage stipulated as per the provisions of Income Tax Act.
4. Bills/Invoices will be processed for payment only if they are complete in all respects, correct and supported with relevant documents as applicable. Any delays in this regard will result in consequent delays in payment

**N. Terms and Conditions to be complied under GST regime**

1. All invoices to contain BHEL-EDN (buyer) GSTIN number: 29AAACB4146P1ZB. However for CGST +SGST/UGST billing outside the state of Karnataka, invoice has to be generated with BHEL's Nodal Agency GSTIN number. Address of Nodal Agency along with GSTIN number will be provided by BHEL at the time of issuing dispatch clearance.
2. The Bidder shall mention Bidder's GSTIN number in all quotations and Invoices submitted.
3. The Bidder shall also mention HSN (Harmonized System of Nomenclature) / SAC (Services Accounting Code) mandatorily in all quotations and invoices submitted.
4. Invoice submitted should be in the format as specified under GST Laws viz., all details as mentioned in Invoice Rules like GST registration number(GSTIN), invoice number with date of issue, quantity, rate, value, taxes with nomenclature – CGST, SGST, UGST, IGST mentioned separately, HSN Code / SAC Code etc. Invoice should be submitted in original for buyer plus duplicate for credit availment.
5. Payment of GST to Vendor will be made only if it is matching with data uploaded by the Vendor in GST portal.
6. For invoices paid on Reverse charge basis – "Tax payable on reverse charge basis" to be mentioned on the invoice.
7. In case GST credit is delayed/denied to BHEL due to non/delayed receipt of goods and/or tax invoice or expiry of timeline prescribed in GST law for availing such ITC, or any other reasons not attributable to BHEL, GST amount will be recoverable from vendor along with interest levied/ leviable on BHEL.
8. In case vendor delays declaring such invoice in his return and GST credit availed by BHEL is denied or reversed subsequently as per GST law, GST amount paid by BHEL towards such ITC reversal as per GST law will be recoverable from vendor/contractor along with interest levied/ leviable on BHEL.
9. Vendor should intimate BHEL immediately on the same date of invoicing without any delay.
10. In case of discrepancy in the data uploaded by supplier in the GSTN portal or in case of any shortages or rejection in the supply, then BHEL will not be able to avail the tax credit and will notify the supplier of the same. Supplier has to rectify the data discrepancy in the GSTN portal or issue credit note (details to be uploaded in GSTN portal) for the shortages or rejections in the supplies, within the calendar month notified by BHEL.
11. Bidders to note that Rules & Regulations pertaining to E-way bill system are to be strictly adhered to, as and when notified by Govt. authorities.

**O. INTEGRITY COMMITMENT IN THE TENDER PROCESS, AND EXECUTION OF CONTRACTS:**

1. Commitment by BHEL: BHEL commits to take all measures necessary to prevent corruption in connection with the Tender process and execution of the Contract. BHEL will, during the tender process, treat all bidder / suppliers in a transparent and fair manner, and with equity.
2. Commitment by Bidder(s)/ Contractor(s):
  - (a) The Bidder(s)/ Contractor(s) commit(s) to take all measures to prevent corruption and will not directly or indirectly try to influence any decision or benefit which he is not legally entitled to.
  - (b) The Bidder(s)/ Contractor(s) will not enter with other Bidder(s) into any undisclosed agreement or understanding or any actions to restrict competition.
  - (c) The Bidder(s)/ Contractor(s) will not commit any offence under the relevant Acts. The Bidder(s)/ Contractor(s) will not use improperly, for purposes of competition or personal gain or pass on to others, any information or document provided by BHEL as part of business relationship.
  - (d) The Bidder(s)/ Contractor(s) will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract and shall adhere to the relevant guidelines issued from time to time by Government of India/ BHEL.

If the Bidder(s) / Contractor(s), before award or during execution of the Contract commit(s) a transgression of the above or in any other manner such as to put his reliability or credibility in question, BHEL is entitled to disqualify the Bidder(s) / Contractor (s) from the tender process or terminate the contract and/ or take suitable action as deemed fit.

**P. Integrity Pact( If Called in RFQ)**

- (a) IP is a tool to ensure that activities and transactions between the Company and its Bidders/ Contractors are handled in a fair, transparent and corruption free manner.  
A panel of independent External Monitors (IEMs) have been appointed to oversee implementation of IP in BHEL.  
The IP as enclosed with the tender is to be submitted (duly signed by authorized signatory who signs in the offer) along with techno-commercial bid. Only those Bidders who have entered into such an IP with BHEL would be competent to participate in the bidding. In other words, entering into this Pact would be a preliminary qualification.
- (b) Please refer Section-8 of the IP for Role and Responsibilities of IEMs (Annexure IX). In case of any complaint arising out of the tendering process, the matter may be referred to the IEM mentioned in the tender.

Note: No routine correspondence shall be addressed to the IEM (phone/ post/ email) regarding the clarifications, time extensions or any other administrative queries, etc. on the tender issued. All such clarification/ issues shall be addressed directly to the tender issuing (procurement) department."

**GENERAL CONDITIONS OF CONTRACT****1. Applicable Conditions:-**

These General Conditions of Contract for Purchase (GCP) apply to all enquiries, tenders, requests for quotations, orders and agreements concerning the supply of goods and the rendering of related services (hereinafter referred to as "deliveries") to Bharat Heavy Electricals Limited, Electronics Division / Electronics Systems Division (hereinafter referred to as "BHEL" or the Purchaser) or its projects / customers. Any deviations from or additions to these 'General Conditions of Contract for Purchase' require Purchaser's express written consent. The general terms of business or sale of the Seller shall not apply to the Contract. Acceptance or receipt of shipments or services or effecting payment shall not mean that the general terms of business or sale of the Seller have been accepted by the Purchaser. Purchase orders, Orders, agreements and amendments thereto shall be binding if made or confirmed by the Purchaser in writing.

**2. Definitions**

Throughout these conditions and in the specifications, the following terms shall have the meanings as assigned hereunder, unless the subject matter or the context requires otherwise

- (a) '**Purchaser**' means Bharat Heavy Electricals Limited (a Central Public Sector Enterprise) incorporated under the Companies Act, 1956 having its registered office at BHEL House, Siri Fort, New Delhi-110049, India acting through its Unit Electronics Division / Electronics Systems Division at Bangalore and shall be deemed to include its successors and assigns. It may also be referred to as BHEL.
- (b) '**Seller**' means the person, firm, company or organization on whom the Purchase Order is placed and shall be deemed to include the seller's successors, permitted assigns, representatives, heirs, executors and administrators, as the case may be. It may also be referred to as Contractor, Supplier or Vendor.
- (c) '**Contract**' shall mean and include the Purchase Order (also referred to as the "Order" or 'PO'), letter of intent (LOI) / letter of acceptance or award (LOA) along with tender / offer / bid submitted by the Seller, the General Conditions of Contract and Special Conditions of Contract for Purchase, Specifications, Inspection / Quality Plan, Schedule of Prices and Quantities, Drawings, if any enclosed or to be provided and the samples or patterns if any to be provided under the provisions of the Contract, by the Purchaser or his representative. Any conditions or terms stipulated by the tenderer / bidder in the tender / offer / bid or subsequent letters shall not form part of the Contract unless specifically accepted in writing by the Purchaser.
- (d) '**Parties to the Contract**' shall mean the Seller and the Purchaser and Party shall mean either the Seller or the Purchaser.

**3. Order of Precedence**

In case of any inconsistency or contradiction between any of the documents, the order of precedence shall be Purchase Order, LOI / LOA, specific agreement, Special Conditions of Contract and General Conditions of Contract for commercial conditions; and specific agreement on technical conditions, Special Technical Conditions and General Technical conditions, RFQ/ Offer.

**4. Interpretation:-**

In the contract, except where the context requires otherwise

- (a) words indicating one gender include all genders;
- (b) words indicating the singular also include the plural and words indicating the plural also include the singular;
- (c) provisions including the word "agree", "agreed" or "agreement" require the agreement to be recorded in writing, and
- (d) "Written" or "in writing" means hand-written, type-written, printed or electronically made, and resulting in a permanent record.

**5. Ordering and confirmation of Order**

The Seller shall send the acceptance of the LOI / Purchase Order within two weeks or such other period as specified/agreed by BHEL from the date of LOI / Purchase Order. Purchaser reserves the right to revoke the order placed if the order acceptance differs from the original order placed. Purchaser shall only be bound after it has agreed explicitly in writing to be in agreement with the deviations. The acceptance of deliveries or supplies by Purchaser as well as payments made in this regard shall not imply acceptance of any deviations. The Purchase order will be deemed to have been accepted by the Seller, if no communication to the contrary is received within two weeks (or the time limit as specified / agreed by the Purchaser) of the receipt of the order.

**6. Execution**

The Seller shall execute the whole contract in the most approved, substantial and workman like manner as per the contracted terms. The Seller shall comply with all laws, ordinances, rules, and regulations bearing upon the performance of its obligations under the terms of the Contract.

**7. Progress Reports and Documentation**

After receipt of Purchase Order, seller should submit required documents like drawings, bill of materials, datasheets, catalogues, quality plan, test procedure, type test report, O & M Manuals and / or any other relevant documents as per Specification / Purchase Order, as indicated in the Purchase order. At any stage within the contract period, the seller shall notify of any error, fault or other defect found in BHEL's documents / specifications or any other items for reference. If and to the extent that (taking account of cost and time) any seller exercising due care would have discovered the error, fault or other defect when examining the documents / specifications before submitting the tender, the time for completion shall not be extended. However if errors, omissions, ambiguities, inconsistencies, inadequacies or other defects are found in the seller's documents, they shall be corrected at his cost, notwithstanding any consent or approval. The Seller shall submit periodic reports as to the progress in execution of the contract and in such form as may be called for by the Purchaser. The submission and acceptance of such reports shall not prejudice the rights of the Purchaser in any manner.

**8. Product Information, Drawings and Documents :-**

The Seller shall, as per agreed date / s but not later than the date of delivery, provide information and drawings which are necessary to permit the Purchaser to use, erect, commission, operate and maintain the product. Such information and drawings shall be supplied in the number of copies agreed upon.

**9. Non-disclosure and Information Obligations :-**

The Seller shall provide Purchaser with all information pertaining to the delivery in so far as it could be of importance to Purchaser. The Seller shall not reveal any confidential information (including price) in relation to the contract in general and those which it may acquire from the purchaser during the course of execution of the contract in particular, to its own employees not involved with the tender / Contract & its execution and delivery or to third parties, or make use of such information pertaining to any data, designs, drawings, specifications and other information furnished to it by the Purchaser, unless Seller seeks a permission to do so from the Purchaser and the Purchaser has agreed to this in writing beforehand. The Seller shall not be entitled to use the Purchaser's name in advertisements and other commercial publications without prior written permission from Purchaser

**10. Intellectual Property Rights, Licenses**

If any patent design, trade mark, copyright, trade secret or any other intellectual property rights apply to the products / goods supplied, or delivery or accompanying documentation, Purchaser or its Customer shall be entitled to the legal use thereof free of charges by means of a non-exclusive, assignable, transferrable, sub-licensable, worldwide, perpetual license as duly granted by the owner or licensor of such right. All intellectual property rights that arise or developed during or due to the execution of the contract or delivery of the goods by the Seller and by its employees or third parties involved by the Seller for performance of the Contract belong to Purchaser. The Seller is obliged under the contract to do everything necessary to obtain or establish the above mentioned rights in favour of Purchaser. The Seller guarantees that the execution of the contract including goods and its delivery does not infringe any of the intellectual property rights of third parties. The Seller shall do everything necessary to obtain or establish the alternate acceptable arrangement pending resolution of such (alleged) claims by third parties, if any. The Seller agrees to indemnify, defend, and hold harmless Purchaser, its officers, employees, agents, representatives, successors, assigns, or any of the Purchaser's customers buying or using the goods or services, against any actual or alleged infringement of such intellectual property interests or claims by third parties in this regard and shall reimburse Purchaser for any liabilities, damages, penalties, injuries, claims, demands, actions, costs and expenses (including, without limitation, reasonable legal and other professional fees and expenses) suffered as a result thereof.

**11. Inspection and Testing**

Prior written notice of at least 10 days shall be given along with internal test certificates / COC and applicable test certificates. Materials will be inspected by BHEL-EDN-QS/CQS or BHEL nominated Third Party Inspection Agency (TPIA) or BHEL authorized Inspection Agency or Customer / Consultant or jointly by BHEL & Customer / consultant. All tests have to be conducted as applicable in line with approved Quality plan or QA Checklist or Purchase specification and original reports shall be furnished to BHEL for verification / acceptance for issue of dispatch clearance. All costs related to inspections & re-inspections shall be borne by vendor. Whether the Contract provides for tests on the premises of the vendor or any of his Sub-contractor/s, vendor shall be responsible to provide such assistance, labour, materials, electricity, fuels, stores, apparatus, instruments as may be required and as may be reasonably demanded to carry out such tests efficiently. Cost of any type test or such other special tests shall be borne by BHEL only if specifically agreed to in the purchase order.

**12. Quality and Condition of the Delivery**

The Seller shall guarantee that the delivery:-

- (a) Is of good quality and free from defects and in the case of services rendered that they are performed by skilled personnel and that new materials are used;
- (b) corresponds exactly with the provisions of the Contract, the reasonable expectations of Purchaser regarding the characteristics, quality and reliability of the delivery;
- (c) is suitable for the purpose for which it is intended by its very nature or which is evident from the specifications or the Contract;



- (d) Complies with legal requirements applicable in India and other (international) Government regulations, as applicable.
  - (e) Complies with the customary norms and standards in the relevant branch of trade or industry.
- The seller shall be responsible for compliance with applicable technical, safety, quality, environmental requirements and other regulations in relation to its products, packaging, and raw and ancillary materials.

13. Packaging and Dispatch

The seller shall package the deliverables safely and carefully and pack them suitably in all respects considering the peculiarity of the material for normal safe transport by Sea / Air / Rail / Road to its destination suitably protected against loss, damage, corrosion in transit and the effect of tropical salt laden atmosphere. The packages shall be provided with fixtures / hooks and sling marks as may be required for easy and safe handling by mechanical means. Each package must be marked with consignee name, P.O Number, BHEL Material code, Package No., Gross weight & Net weight, Dimensions (LxBxH) and seller's name. The packing shall allow for easy removal and checking of goods on receipt and comply with carrier's conditions of packing or established trade practices. **Packing list of goods inside each package with P.O item no. & Quantity must also be fixed securely outside the box to indicate the contents. If any consignment needs special handling instruction, the same shall be clearly marked with standard symbols / instructions. Hazardous material should be notified as such and their packing, transportation and other protection must conform to relevant regulations.**

14. Delivery

Delivery shall be as per Purchase Order delivery terms. Trade terms such as DDL, FOR, EXW, FOB, CFR etc., if stipulated in the order shall be construed in accordance with the version of the INCOTERMS applicable at the time of ordering, without prejudice to the provisions contained in these conditions. The delivery date(s) or delivery period(s) as stipulated in the Contract shall be firm and binding and shall apply to the entire delivery for each PO item. Partial shipments may, however, be permitted by the purchaser.

15. Penalty

The time or period of delivery as stipulated in the schedule of delivery shall be deemed to be the essence of the contract. Should circumstances arise whereby the deadline for an agreed delivery date(s) or period(s) is expected to be exceeded, the seller shall inform purchaser hereof without delay. If delay in delivery is caused by any of the circumstances mentioned in clause 25 (Force Majeure) or which are caused exclusively by the acts of purchaser, the purchaser shall extend the time for delivery by a period which is reasonable having regard to all the circumstances in the case.

a) **For delay in documentation :-**

In the event of delay in submission of complete set of documents (like drawings, bill of materials, datasheets, catalogues, quality plan etc. as called in tender specifications including soft copies wherever applicable) in required sets beyond three weeks (or as agreed / indicated in the Purchase Order) from the date of Purchase Order, penalty at 0.5% (half percent) per week or part thereof, limited to a maximum of 5% (five percent) of the basic material value of the Purchase Order will be applicable.

b) **For delay in delivery :-**

In the event of delay in agreed contractual delivery as per Purchase Order, penalty @ 0.5 % (half percent) per week or part thereof but limited to a max of 10% (ten percent) value of delayed portion (basic material cost) will be applicable. Delivery will commence from the date of document approval by customer / BHEL or date of issue of manufacturing clearance, whichever is later in cases where such approval/manufacturing clearance is applicable as per PO. Where pre shipment inspection is applicable, the date for which Inspection call is issued by vendor along with test certificates / test reports / Certificate of Conformance / calibration reports, as proof of completion of manufacturing will be treated as date of deemed delivery for penalty calculation. In the absence of furnishing such document indicated above as proof of completion of manufacturing along with inspection call, actual date of inspection will be considered as date of deemed delivery and BHEL will not be responsible for delay in actual date of inspection. Penalty for delayed documentation/delayed delivery, if applicable, shall be deducted at the time of first payment. If penalty is applicable for duration of less than a week, penalty @ 0.5% (half percent) of the basic material value will be deducted.

Imposition, recovery or settlement of this penalty shall not affect any rights of the purchaser to claim enforcement of specific performance of the contract, compensation and/or to terminate the contract.

16. Assignment of Rights & Obligations; Subcontracting

Vendor is not permitted to subcontract the delivery or any part thereof to third party or to assign the rights and obligations resulting from this agreement in whole or in part to third parties without prior written permission from BHEL. Any permission or approval given by BHEL shall, however, not absolve the vendor of the responsibility of his obligations under the Contract.


**17. Transfer of Ownership , Title and Risk:-**

The risk for the delivery remains with the Seller until the goods are delivered at the agreed place and acknowledged by the Purchaser/his authorized representative.

**18. Price Invoicing and Payment:-**

The agreed prices are fixed prices in the currency as specified in the Purchase Order. They shall include packing, forwarding, loading and carriage to the place specified by the Purchaser and are inclusive of all applicable taxes, duties etc. except for those specifically agreed between the Seller and Purchaser. Further, Seller shall indemnify and hold harmless Purchaser from all claims and liabilities, damages, penalties, injuries, claims, demands, actions, costs and expenses (including, without limitation, reasonable legal and other professional fees and expenses) arising from Seller's failure to report or pay any taxes, tariffs or duties for which Seller is responsible. The method of invoicing shall be without prejudice to the parties' agreement as to the place of performance. Indian Agent's commission if payable and so specified in the Purchase Order shall be paid in Indian Rupees, considering the SBI TT selling exchange rate prevailing on the date of Purchase Order, after successful completion of the contract. If so stipulated in the order, the Seller shall furnish, on receipt of the Purchase Order or along with order acknowledgement, the Billing break-up of prices (BBU) for approval by the Purchaser in respect of the major items / components going into the equipment. This BBU is required by the Purchaser for admitting the claims of the Seller if part shipments are contemplated and also to facilitate custom clearance after payment of applicable duties in case of imports. Purchaser shall be entitled to suspend payment for as long as required supporting documents / details remain outstanding and any consequential demurrage / wharfage shall be to the account of the Seller. Payment does not imply in any respect whatsoever a waiver of Purchaser's right to performance of the Contract. Purchaser is entitled to set off claimable debts against claimable liabilities with the Seller by means of a set off note.

**19. Contract Variations; Increase or Decrease in the Scope of Supply :-**

The purchaser may vary the contracted quantities during execution, due to exigencies of project requirements with mutual consent of the seller.

**20. Guarantee / Warranty :-**

Wherever required, and so provided in the specifications / Purchaser Order, the Seller shall guarantee that the goods supplied shall comply with the specifications laid down, for materials, workmanship and performance. If within the guarantee period, the delivery is found to be non-compliant including those with the stipulations in Clause 12 (Quality and Condition of Delivery) of these Conditions, the Seller shall, for its own account, replace, repair, or re-execute the delivery at Purchaser's discretion when first requested to do so within two weeks or mutually agreed period, without prejudice to Purchaser's other legal rights. If the Seller continues to default on its obligations, Purchaser has the right to proceed to replace, repair or re-execute the order at the Seller's expense, with or without help from third parties. Purchaser shall notify the Seller of the exercise of this right in advance where possible. Unless otherwise specified, guarantee period shall be minimum 12 months from the date of commissioning or 18 months from the date of supply whichever is earlier. The guarantee period shall be extended by the period during which the goods are not in compliance with the stipulations in Clause 12 (Quality and Condition of Delivery). A guarantee period as described above shall apply afresh to replaced, repaired or re executed parts of a delivery. The decision of the Purchaser in regard to the Seller's liability under this clause shall be conclusive. This clause shall survive termination / completion of contract

**21. Shortages /Replacements**

In the event of shortage on receipt of goods and / or on opening of packages at BHEL, all such shortages shall be made good within a reasonable time that BHEL may allow from such intimation and free of cost.

**22. Transit Damages.**

In the event of receipt of goods in damaged condition or having found them so upon opening of packages at BHEL Supplier shall make good of all such damages within a reasonable time from such intimation by BHEL. In case BHEL raises an insurance claim, the cost of material limited to insurance settled amount less handling charges will be reimbursed.

**23. Rejection/ Replacement**

The Seller shall arrange replacement / repair under its obligation under the contract within two weeks from the date of intimation or mutually agreed period. The rejected goods shall be taken away by the Seller and replaced on DDP (Delivered duty Paid)/ FOR - BHEL Stores / designated destination basis within such period. In the event of the Seller's failure to comply, Purchaser may take appropriate action including disposal of rejections and replacements, at the cost and risk of the Seller. In case defects attributable to Seller are detected during processing of the goods at purchaser's / his subcontractor works, the Seller shall be responsible for replacement / repair of the goods as required by the Purchaser at Seller's cost. In such cases expiry of guarantee/warranty will not be applicable.

**24. Cancellation / Termination of Contract and Risk Purchase:-**

a) Purchaser shall have the right to completely or partially terminate the Contract by means of written notice to that effect without prejudicing its other rights and remedies, in an event of default by the Seller :-

**Events of default:-**

- (i) The Seller fails to perform within the time specified in the Contract or any extension thereof;
- (ii) The Seller defaults on one or more of the obligations or program of work as contained in the Contract.

- (iii) The Seller is declared bankrupt or insolvent or is ordered to be wound up, its business has been shut down or liquidated, a substantial part of its assets have been attached, or the business has been transferred to a third party. In case of partnership firm any dissolution of partnership shall be also considered as an event of default.
- (iv) Any misrepresentation or hiding of material fact if detected at a later stage
- (v) The delivery is rejected after inspection or re-inspection.
- (vi) Export license not granted to Seller by the concerned Government.
- (vii) Incapacity of seller for any other reason to deliver or perform the contract.

BHEL shall have the right to cancel / foreclose the Order / Contract, wholly or in part, in case it is constrained to do so, on account of any decline, diminution, curtailment or stoppage of the business. In the event of termination, the risk and liability attached to the items already delivered but not of use to Purchaser, as determined by Purchaser, remains with the Seller. Such items shall then be at the Seller's disposal and they are to be collected or removed by the Seller. The Seller shall immediately refund any payments in respect of such items if already made by the Purchaser before the termination, and in any case not later than 30 days.

- b) In the event of termination due to reasons or defaults by the Seller, the Purchaser may at his option procure from any source, on such terms and in such manner as he deems appropriate, goods not delivered or others of similar description where goods exactly complying are not readily procurable, in the opinion of the Purchaser, which opinion shall be final, at the risk and cost of the Seller and the Seller shall be liable to the Purchaser for any risks and excess cost. The cost of purchases made by the Purchaser at the risk and cost of the Seller shall be worked out after loading 10% overhead / handling charges on the cost of materials and related services procured from alternate source / s. Provided, however, that the Seller shall continue the performance of the Contract to the extent not cancelled or terminated under the provisions of this clause. The Seller shall on no account be entitled to any gain on such re-purchases by the Purchaser.
- c) Termination of the Contract, from whatever cause arising, shall be without prejudice to the rights of the parties accrued under the Contract up to the time of termination.

## 25. Force Majeure

Notwithstanding anything contained in the purchase order or any other document relevant thereto, neither party shall be liable for any failure or delay in performance to the extent said failures or delays are caused by the "Act of God" and occurring without its fault or negligence, provided that, force majeure will apply only if the failure to perform could not be avoided by the exercise of due care and vendor doing everything reasonably possible to resume its performance. A party affected by an event of force majeure shall give the other party written notice, with full details as soon as possible and in any event not later than three (3) calendar days of the occurrence of the cause relied upon. If force majeure applies, dates by which performance obligations are scheduled to be met will be extended for a period of time equal to the time lost due to any delay so caused.. Notwithstanding above provisions, Purchaser shall reserve the right to cancel the order / Contract, wholly or partly, in order to meet the overall project schedule and make alternative arrangements for completion of deliveries and other schedules. Purchaser may takeover partly processed material at a mutually agreed price.

## 26. Indemnification:

Vendor is fully responsible for ensuring that all legal compliances and safety guidelines are followed in course of the contract. Notwithstanding any other clause herein to the contrary, the Seller shall indemnify, hold and save harmless, and defend, at its own expense, the Purchaser, its officials, agents, servants and employees from and against all suits, claims, demands, and liability of any nature or kind, including their costs and expenses, arising out of acts or omissions of the Seller, or the Seller's employees, officers, agents or sub-contractors, in the performance of this Contract. This provision shall extend, inter alia, to claims and liability in the nature of employee's compensation and products liability. The obligations under this clause do not lapse upon termination of this Contract.

## 27. Non waiver of Defaults

If any individual provision of the contract is invalid, the other provisions shall not be affected.

- a) To enforce any of the terms and conditions of the Contract.

Or

- b) To exercise any right or privilege granted to Purchaser.

Under the Contract or under law shall not release the Seller from any of the warranties or obligations under the Contract and shall not be construed as a waiver thereof and the same shall continue in full force and effect.

## 28. Limitation of Liability

Vendor's liability towards this contract is limited to a maximum of 100% of the contract value and consequential damages are excluded. However the limits of liability will have no effect in cases of criminal negligence or willful misconduct. The total liability of Vendor for all claims arising out of or relating to the performance or breach of the Contract or use of any Products or Services or any orderr shall not exceed the total Contract price.



29. Settlement of Disputes

Except as otherwise specifically provided in the Purchase Order, decision of BHEL shall be binding on the vendor with respect to all questions relating to the interpretation or meaning of the terms and conditions and instructions herein before mentioned and as to the completion of supplies / work / services, other questions, claim, right, matter or things whatsoever in any way arising out of or relating to the contract, instructions, orders or these conditions or otherwise concerning the supply or the execution or failure to execute the order, whether arising during the schedule of supply / work or after the completion or abandonment thereof. Any disputes or differences among the parties shall to the extent possible be settled amicably between the parties thereto, failing which the disputed issues shall be settled through arbitration. Vendor shall continue to perform the contract, pending settlement of dispute(s).

30. Arbitration Clause

(a) Arbitration Clause in case of Contract with vendors other than Public Sector Enterprise (PSE) or a Government Department  
**ARBITRATION & CONCILIATION**

The parties shall attempt to settle any disputes or difference arising out of the formation, breach, termination, validity or execution of the Contract; or, the respective rights and liabilities of the parties; or, in relation to interpretation of any provision of the Contract or, in any manner touching upon the Contract, or in connection with this contract through friendly discussions. In case no amicable settlement can be reached between the parties through such discussions, in respect of any dispute; then, either Party may, by a notice in writing to the other Party refer such dispute or difference to the sole arbitration of an arbitrator appointed by Head of the BHEL-EDN. Such Sole Arbitrator appointed, shall conduct the arbitration in English language.

The Arbitrator shall pass a reasoned award and the award of the Arbitration shall be final and binding upon the Parties.

Subject as aforesaid, the provisions of Arbitration and Conciliation Act 1996 (India) or statutory modifications or re-enactments thereof and the rules made thereunder and for the time being in force shall apply to the arbitration proceedings under this clause.

The seat of arbitration shall be Bangalore.

The cost of arbitration shall be borne as decided by the Arbitrator upon him entering the reference.

Subject to the Arbitration Clause as above, the Courts at Bangalore alone shall have exclusive jurisdiction over any matter arising out of or in connection with this Contract.

Notwithstanding the existence or any dispute or differences and/or reference for the arbitration, the parties shall proceed with and continue without hindrance the performance of its obligations under this Contract with due diligence and efficiency in a professional manner except where the Contract has been terminated by either Party in terms of this Contract

(b) Arbitration Clause in case of Contract with a Public Sector Enterprise (PSE) or a Government Department

In the event of any dispute or difference relating to the interpretation and application of the provisions of the Contract, such dispute or difference shall be referred by either party for Arbitration to the Sole Arbitrator in the Department of Public Enterprises to be nominated by the Secretary to the Government of India in-charge of the Department of Public Enterprises. The Arbitration and Conciliation Act, 1996 shall not be applicable to arbitration under this clause. The award of the Arbitrator shall be binding upon the parties to the dispute, provided, however, any Party aggrieved by such Award may make further reference for setting aside or revision of the Award to the Law Secretary, Department of Legal Affairs, Ministry of Law and Justice, Government of India. Upon such reference the dispute shall be decided by the Law Secretary or the Special Secretary or Additional Secretary when so authorized by the Law Secretary, whose decision shall bind the Parties hereto finally and conclusively. The Parties to the dispute will share equally the cost of arbitration as intimated by the Arbitrator.'

31. Applicable Laws and Jurisdiction of Courts

Prevailing Indian laws both substantive and procedural, including modifications thereto, shall govern the Contract. Subject to the conditions as aforesaid, the competent courts in Bangalore alone shall have jurisdiction to consider over any matters touching upon this contract.

32. General Terms

That any non-exercise, forbearance or omission of any of the powers conferred on BHEL and /or any of its authorities will not in any manner constitute waiver of the conditions hereto contained in these presents.

That the headings used in this agreement are for convenience of reference only.

That all notices etc., to be given under the Purchase order shall be in writing, type script or printed and if sent by registered post or by courier service to the address given in this document shall be deemed to have been served on the date when in the ordinary course, they would have been delivered to the addressee.

Annexure

Annexure I  
Guidelines for Indian Agents

- **Definition of Indian Agent:** An Indian Agent of foreign principal is an individual, a partnership, an association of persons, a private or public company, that carries out specific obligation(s) towards processing of BHEL tender or finalization or execution of BHEL's contract on behalf of the foreign supplier.

In case of yes, vendor to note the following and reply accordingly:

- i. BHEL shall deal directly with foreign vendors, wherever required, for procurement of goods. However, if the foreign principal desires to avail of the services of an Indian agent, then the foreign principal should ensure compliance to regulatory guidelines - which require mandatory submission of an Agency Agreement.
- ii. It shall be incumbent on the Indian agent and the foreign principal to adhere to the relevant guidelines of Government of India, issued from time to time.
- iii. The Agency Agreement should specify the precise relationship between the foreign OEM / foreign principal and their Indian agent and their mutual interest in the business. All services to be rendered by agent/ associate, whether of general nature or in relation to the particular contract, must be clearly stated by the foreign supplier/ Indian agent. Any payment, which the agent or associate receives in India or abroad from the OEM, whether as commission or as a general retainer fee should be brought on record in the Agreement and be made explicit in order to ensure compliance to laws of the country.
- iv. Any agency commission to be paid by BHEL to the Indian agent shall be in Indian currency only.
- v. Tax deduction at source is applicable to the agency commission paid to the Indian agent as per the prevailing rules.
- vi. In the absence of any agency agreement, BHEL shall not deal with any Indian agent (authorized representatives / associate / consultant, or by whatever name called) and shall deal directly with the foreign principal only for all correspondence and business purposes.
- vii. The "Guidelines for Indian Agents of Foreign Suppliers" enclosed at annexure - 'A' shall apply in all such cases.

- viii. The supply and execution of the Purchase Order (including indigenous supplies/ service) shall be in the scope of the OEM/ foreign principal. The OEM/ foreign principal should submit their offer inclusive of all indigenous supplies/ services and evaluation will be based on 'total cost to BHEL'. In case OEM/ foreign principal recommends placement of order(s) towards indigenous portion of supplies/ services on Indian supplier(s)/ agent on their behalf, the credentials/ capacity/ capability of the Indian supplier(s)/ agent to make the supplies/ services shall be checked by BHEL as per the extant guidelines of Supplier Evaluation, Approval & Review Procedure (SEARP), before opening of price bids. In this regard, details may be checked as per Annexure-B (copy enclosed). It will be the responsibility of the OEM/ foreign principal to get acquainted with the evaluation requirements of Indian supplier/ agent as per SEARP available on [www.bhel.com](http://www.bhel.com).

The responsibility for successful execution of the contract (including indigenous supplies/ services) lies with the OEM/ foreign principal. All bank guarantees to this effect shall be in the scope of the OEM/ foreign principal.

--X--

Vendor's Signature with Seal

Annexure-A

**Guidelines for Indian Agents of Foreign Suppliers**

- 1.0 There shall be compulsory registration of agents for all Global (Open) Tender and Limited Tender. An agent who is not registered with BHEL shall apply for registration in the registration form in line with SEARP.
- 1.1 Registered agents will file an authenticated Photostat copy duly attested by a Notary Public/Original certificate of the Principal confirming the agency agreement and giving the status being enjoyed by the agent and the commission/ remuneration/ salary/ retainerhip being paid by the principal to the agent before the placement of order by BHEL.
- 1.2 Wherever the Indian representatives have communicated on behalf of their principals and the foreign parties have stated that they are not paying any commission to the Indian agents, and the Indian representative is working on the basis of salary or as retainer, a written declaration to this effect should be submitted by the party (i.e. Principal) before finalizing the order.
- 2.0 **Disclosure of particulars of agents/ representatives in India, if any.**
- 2.1 Tenderers of Foreign nationality shall furnish the following details in their offers:
  - 2.1.1 The Bidder(s)/ Contractor(s) of foreign origin shall disclose the name and address of the agents/ representatives in India if any and the extent of authorization and authority given to commit the Principals. In case the agent/ representative be a foreign Company, it shall be confirmed whether it is existing Company and details of the same shall be furnished.
  - 2.1.2 The amount of commission/ remuneration included in the quoted price(s) for such agents/ representatives in India.
  - 2.1.3 Confirmation of the Tenderer that the commission/ remuneration, if any, payable to his agents/ representatives in India, may be paid by BHEL in Indian Rupees only.
- 2.2 Tenderers of Indian Nationality shall furnish the following details in their offers:
  - 2.2.1 The Bidder(s)/ Contractor(s) of Indian Nationality shall furnish the name and address of the foreign principals, if any, indicating their nationality as well as their status, i.e. whether manufacturer or agents of manufacturer holding the Letter of Authority of the Principal specifically authorizing the agent to make an offer in India in response to tender either directly or through the agents/ representatives.
  - 2.2.2 The amount of commission/ remuneration included in the price (s) quoted by the Tenderer for himself.
  - 2.2.3 Confirmation of the foreign principals of the Tenderer that the commission/ remuneration, if any, reserved for the Tenderer in the quoted price(s), may be paid by BHEL in India in equivalent Indian Rupees on satisfactory completion of the Project or supplies of Stores and Spares in case of operation items.
- 2.3 In either case, in the event of contract materializing, the terms of payment will provide for payment of the commission/ remuneration, if any payable to the agents/ representatives in India in Indian Rupees on expiry of 90 days after the discharge of the obligations under the contract.
- 2.4 Failure to furnish correct and detailed information as called for in paragraph 2.0 above will render the concerned tender liable to rejection or in the event of a contract materializing, the same liable to termination by BHEL. Besides this there would be a penalty of banning business dealings with BHEL or damage or payment of a named sum.

**ANNEXURE - II**  
**LIST OF INTERNATIONAL GATEWAY AIRPORTS**

For air based consignment, terms of delivery will be on FCA basis from following listed airports only. Vendors are requested to verify this list for use before submission of offer.

SCHEDULE NO	COUNTRY	CURRENCY CODE	AIRPORT
D01	UK	GBP	LONDON (HEATHROW)
D02	UK	GBP	NEW CASTLE
D03	UK	GBP	OXFORD, CHETLAM
D04	UK	GBP	BRISTOL, WELLINGBOROUGH
D05	UK	GBP	BIRMINGHAM
D06	UK	GBP	EAST MIDLANDS
D07	UK	GBP	MANCHESTER
D08	UK	GBP	LEEDS
D09	UK	GBP	GLASGOW
D10	FRANCE	EURO	PARIS (ROISSY) & LYON
D11	SWEDEN	EURO	STOCKHOLM
D12	SWEDEN	EURO	GOTHENBERG & MALMO
D13	ITALY	EURO	ROMA, MILAN
D14	ITALY	EURO	TURIN, BOLOGNA, FLORENCE
D15	NETHERLANDS	EURO	AMSTERDAM, ROTTERDAM
D16	AUSTRIA	EURO	VIENNA, LINZ, GRAZ
D17	BELGIUM	EURO	ANTWERP, BRUSSELS
D18	DENMARK	DKK	COPENHAGEN
D19	JAPAN	JPY	TOKYO, OSAKA
D20	SINGAPORE	SGD	SINGAPORE
D21	CANADA	CAD	TORONTO
D22	CANADA	CAD	MONTREAL
D23	USA	USD	NEW YORK, BOSTON
D24	USA	USD	CHICAGO
D25	USA	USD	SAN FRANCISCO, LOS ANGELES
D26	USA	USD	ALANTA, HOUSTON
D27	GERMANY	EURO	MUNICH, KOLN, DUSSELDORF, HANNOVER, HAMBURG, STUTTGART, DAMSTADT, MANIHIEM, NURUMBERG
D28	GERMANY	EURO	FRANKFURT
D29	GERMANY	EURO	BERLIN
D30	SWITZERLAND	SFR	BASLE, ZURICH, GENEVA
D31	SPAIN	EURO	BARCELONA
D32	AUSTRALIA	AUD	SYDNEY
D33	AUSTRALIA	AUD	MELBOURNE
D34	AUSTRALIA	AUD	PERTH
D35	CZECH	EURO	PRAGUE
D36	HONG KONG	HKD	HONG KONG
D37	NEW ZELAND	NZD	AUCKLAND
D38	RUSSIA	USD	MOSCOW
D39	SOUTH KOREA	USD	KIMPO INTERNATIONAL, INCHEON
D40	FINLAND	EURO	HELSINKI
D41	ROMANIA	EURO	BUCHAREST
D42	NORWAY	EURO	OSLO
D43	IRELAND	EURO	DUBLIN
D44	ISRAEL	USD	TEL AVIV
D45	UAE	USD	DUBAI
D46	OMAN	USD	MUSCAT
D47	EGYPT	USD	CAIRO
D48	TAIWAN	USD	TAIPEI
D49	UKRAINE	USD	KIEV
D50	CHINA	USD	SHANGHAI, SHENZHEN
D51	PHILIPINES	USD	MANILA
D52	MALAYSIA	USD	KUALALUMPUR, PE NANG
D53	CYPRUS	USD	LARNACA
D54	SOUTH AFRICA	USD	JOHANNESBERG, DURBAN
D55	SLOVAKIA	EURO	BARTISLOVA
D56	SAUDI ARABIA	SAR	RIYADH
D57	TURKEY	EURO	ISTANBUL
D58	THAILAND	USD	BANGKOK
D59	BRAZIL	USD	SAO PAULO, RIO DE JANEIRO

**ANNEXURE – III**  
**DISCREPANCY IN WORDS & FIGURES – QUOTED IN PRICE BID**

Following guidelines will be followed in case of discrepancy in words & figures-quoted in price bid:

(a) If, in the price structure quoted for the required goods/services/works, there is discrepancy between the unit price and the total price (which is obtained by multiplying the unit price by the quantity), the unit price shall prevail and the total price corrected accordingly, unless in the opinion of the purchaser there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted shall govern and the unit price corrected accordingly.

(b) If there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and

(c) If there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to (a) and (b) above.

(d) If there is such discrepancy in an offer, the same shall be conveyed to the bidder with target date upto which the bidder has to send his acceptance on the above lines and if the bidder does not agree to the decision of the purchaser, the bid is liable to be ignored.

ANNEXURE IV  
**LIST OF CONSORTIUM BANKS**

**BANK GUARANTEE (BG) SHALL BE ISSUED FROM THE FOLLOWING BANKS ONLY:**

	<b>Nationalized Banks</b>		<b>Nationalized Banks</b>
1	Allahabad Bank	19	Vijaya Bank
2	Andhra Bank		<b>Public Sector Banks</b>
3	Bank of Baroda	20	IDBI
4	Canara Bank		<b>Foreign Banks</b>
5	Corporation Bank	21	CITI Bank N.A
6	Central Bank	22	Deutsche Bank AG
7	Indian Bank	23	The Hong Kong and Shanghai Banking Corporation Ltd. (HSBC)
8	Indian Overseas Bank	24	Standard Chartered Bank
9	Oriental Bank of Commerce	25	The Royal Bank of Scotland N.V.
10	Punjab National Bank	26	J P Morgan
11	Punjab & Sindh Bank		<b>Private Banks</b>
12	State Bank of India	27	Axis Bank
13	State Bank of Hyderabad	28	The Federal Bank Limited
14	Syndicate Bank	29	HDFC Bank
15	State Bank of Travancore	30	Kotak Mahindra Bank Ltd
16	UCO Bank	31	ICICI Bank
17	Union Bank of India	32	IndusInd Bank
18	United Bank of India	33	Yes Bank

**Note:**

- BG should be directly sent to BHEL by the issuing Bank along with covering letter.
- All BGs must be issued from BHEL consortium banks listed above.
- BHEL may accept BG from other Public Sector Banks also which are not listed above.
- BG will not be accepted from Scheduled Banks and Co-operative Banks.
- In case BG is issued from a bank located outside Indian Territory and is issued in foreign currency, the BG must be routed through and confirmed by any one of the above mentioned consortium banks.
- This list is subject to changes. Hence vendors are requested to check this list every time before issuing BGs.

## BANK GUARANTEE FOR PERFORMANCE SECURITY

Bank Guarantee No:

Date:

To

NAME

&amp; ADDRESSES OF THE BENEFICIARY

Dear Sirs,

In consideration of Bharat Heavy Electricals Limited (hereinafter referred to as the 'Employer' which expression shall unless repugnant to the context or meaning thereof, include its successors and permitted assigns) incorporated under the Companies Act, 1956 and having its registered office at \_\_\_\_\_<sup>1</sup> through its Unit at \_\_\_\_\_ (name of the Unit) having awarded to (Name of the Vendor / Contractor / Supplier) with its registered office at \_\_\_\_\_<sup>2</sup> hereinafter referred to as the 'Vendor / Contractor / Supplier', which expression shall unless repugnant to the context or meaning thereof, include its successors and permitted assigns), a contract Ref No. \_\_\_\_\_ dated \_\_\_\_\_<sup>3</sup> valued at Rs. \_\_\_\_\_<sup>4</sup> (Rupees \_\_\_\_\_)/FC. \_\_\_\_\_ (in words \_\_\_\_\_) for \_\_\_\_\_<sup>5</sup> (hereinafter called the 'Contract') and the Vendor / Contractor / Supplier having agreed to provide a Contract Performance Bank Guarantee, equivalent to \_\_\_\_\_ % (.... Percent) of the said value of the Contract to the Employer for the faithful performance of the Contract,

we, \_\_\_\_\_, (hereinafter referred to as the Bank), having registered/Head office at \_\_\_\_\_ and inter alia a branch at \_\_\_\_\_ being the Guarantor under this Guarantee, hereby, irrevocably and unconditionally undertake to forthwith and immediately pay to the Employer any sum or sums upto a maximum amount of Rs. \_\_\_\_\_<sup>6</sup> (Rupees \_\_\_\_\_) without any demur, immediately on first demand from the Employer and without any reservation, protest, and recourse and without the Employer needing to prove or demonstrate reasons for its such demand.

Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. \_\_\_\_\_.

We undertake to pay to the Employer any money so demanded notwithstanding any dispute or disputes raised by the Vendor / Contractor / Supplier in any suit or proceeding pending before any Court or Tribunal, Arbitrator or any other authority, our liability under this present being absolute and unequivocal.

The payment so made by us under this Guarantee shall be a valid discharge of our liability for payment thereunder and the Vendor / Contractor / Supplier shall have no claim against us for making such payment.

We the \_\_\_\_\_ bank further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Contract/satisfactory completion of the performance guarantee period as per the terms of the Contract and that it shall continue to be enforceable till

all the dues of the Employer under or by virtue of the said Contract have been fully paid and its claims satisfied or discharged.

We .....BANK further agree with the Employer that the Employer shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Contract or to extend time of performance by the said Vendor / Contractor / Supplier from time to time or to postpone for any time or from time to time any of the powers exercisable by the Employer against the said Vendor / Contractor / Supplier and to forbear or enforce any of the terms and conditions relating to the said Contract and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Vendor / Contractor / Supplier or for any forbearance, act or omission on the part of the Employer or any indulgence by the Employer to the said Vendor / Contractor / Supplier or by any such matter or thing whatsoever which under the law relating to sureties would but for this provision have effect of so relieving us.

The Bank also agrees that the Employer at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor, in the first instance without proceeding against the Vendor / Contractor / Supplier and notwithstanding any security or other guarantee that the Employer may have in relation to the Vendor / Contractor / Supplier 's liabilities.

This Guarantee shall remain in force upto and including .....<sup>7</sup> and shall be extended from time to time for such period as may be desired by Employer.

This Guarantee shall not be determined or affected by liquidation or winding up, dissolution or change of constitution or insolvency of the Vendor / Contractor / Supplier but shall in all respects and for all purposes be binding and operative until payment of all money payable to the Employer in terms thereof.

Unless a demand or claim under this guarantee is made on us in writing on or before the .....<sup>8</sup> we shall be discharged from all liabilities under this guarantee thereafter.

We, ..... BANK lastly undertake not to revoke this guarantee during its currency except with the previous consent of the Employer in writing.

Notwithstanding anything to the contrary contained hereinabove:

- a) The liability of the Bank under this Guarantee shall not exceed.....<sup>6</sup>
- b) This Guarantee shall be valid up to .....<sup>7</sup>
- c) Unless the Bank is served a written claim or demand on or before .....<sup>8</sup> all rights under this guarantee shall be forfeited and the Bank shall be relieved and discharged from all liabilities under this guarantee irrespective of whether or not the original bank guarantee is returned to the Bank.

We, \_\_\_\_\_ Bank, have power to issue this Guarantee under law and the undersigned as a duly authorized person has full powers to sign this Guarantee on behalf of the Bank.

For and on behalf of  
(Name of the Bank)

Dated.....

Place of Issue.....

<sup>1</sup> NAME AND ADDRESS OF EMPLOYER I.e Bharat Heavy Electricals Limited

<sup>2</sup> NAME AND ADDRESS OF THE VENDOR /CONTRACTOR / SUPPLIER.

<sup>3</sup> DETAILS ABOUT THE NOTICE OF AWARD/CONTRACT REFERENCE

<sup>4</sup> CONTRACT VALUE

<sup>5</sup> PROJECT/SUPPLY DETAILS

<sup>6</sup> BG AMOUNT IN FIGURES AND WORDS

<sup>7</sup> VALIDITY DATE

<sup>8</sup> DATE OF EXPIRY OF CLAIM PERIOD

**Note:**

1. Units are advised that expiry of claim period may be kept 3-6 months after validity date. It may be ensured that the same is in line with the agreement/ contract entered with the Vendor.
2. The BG should be on Non-Judicial Stamp paper/e-stamp paper of appropriate value as per Stamp Act prevailing in the State(s) where the BG is submitted or is to be acted upon or the rate prevailing in the State where the BG was executed, whichever is higher. The Stamp Paper/e-stamp paper shall be purchased in the name of Vendor/Contractor/Supplier /Bank issuing the guarantee.
3. In line with the GCC, SCC or contractual terms, Unit may carry out minor modifications in the Standard BG Formats. If required, such modifications may be carried out after taking up appropriately with the Unit/Region's Law Deptt.
4. **In Case of Bank Guarantees submitted by Foreign Vendors-**
  - a. **From Nationalized/Public Sector / Private Sector/ Foreign Banks (BG issued by Branches in India)** can be accepted subject to the condition that the Bank Guarantee should be enforceable in the town/city or at nearest branch where the Unit is located i.e. Demand can be presented at the Branch located in the town/city or at nearest branch where the Unit is located.
  - b. **From Foreign Banks (wherein Foreign Vendors intend to provide BG from local branch of the Vendor country's Bank)**
    - b.1 In such cases, in the Tender Enquiry/ Contract itself, it may be clearly specified that Bank Guarantee issued by **any of the Consortium Banks only** will be accepted by BHEL. As such, Foreign Vendor needs to make necessary arrangements for issuance of Counter- Guarantee by Foreign Bank in favour of the Indian Bank's (BHEL's Consortium Bank) branch in India. It is advisable that all charges for issuance of Bank Guarantee/ counter- Guarantee should be borne by the Foreign Vendor. The tender stipulation should clearly specify these requirements.
    - b.2 **In case, Foreign Vendors intend to provide BG from Overseas Branch** of our Consortium Bank (e.g. if a BG is to be issued by SBI Frankfurt), the same is acceptable. However, the procedure at **sl.no. b.1** will required to be followed.
    - b.3 The BG issued may preferably be subject to Uniform Rules for Demand Guarantees (URDG) 758 (as amended from time to time). The BG Format provided to them should clearly specify the same.

**ANNEXURE – V****Electronic Funds Transfer (EFT) OR Paylink Direct Credit Form**Please Fill up the form in **CAPITAL LETTERS** only.TYPE OF REQUEST(Tick one): ☐ CREATE ☐ CHANGE

BHEL Vendor / Supplier Code:

Company Name :

Permanent Account Number(PAN):

Address

City:

PINCODE

STATE

Contact Person(s)

Telephone No:

Fax No:

e-mail id:

1 Bank Name:

2 Bank Address:

3 Bank Telephone No:

4 Bank Account No:

5 Account Type: Savings/Cash Credit

6 9 Digit Code Number of Bank and branch  
appearing on MICR cheque issued by Bank

7 Bank swift Code(applicable for EFT only)

8 Bank IFSC code(applicable for RTGS)

9 Bank IFSC code(applicable for NEFT)

- A I hereby certify that the particulars given above are true, correct and complete and that I, as a representative for the for the above named Company, hereby authorise BHEL, EDN, Bangalore to electronically deposit payments to the designated bank account
- B If the transaction is delayed or not effected at all for reasons of incomplete or incorrect information , I would not hold BHEL / transferring Bank responsible.
- C This authority remains in full force until BHEL, EDN, BANGALORE receives written notification requesting a change or cancellation.
- D I have read the contents of the covering letter and agree to discharge the responsibility expected of me as a participant under ECS / EFT.

Date:

Authorised Signatory:

Designation:

Telephone NO. with STD Code

**Bank Certificate**

We certify that \_\_\_\_\_ has an Account No \_\_\_\_\_ with us and  
we confirm that the bank details given above are correct as per our records.

Date:

Place:

(.....)

Signature

Please return completed form along with a blank cancelled cheque or photocopy thereof to:

Bharath Heavy Electricals Ltd,

Attn:

Electronics Division, Mysore Road,

BANGALORE - 560 026

In case of any Query, please call : concerned Purchase Executive

ANNEXURE VIProcess Compliance Form

(The bidders are required to print this on their company's letterhead and sign, stamp before faxing)

To

- M/s. {Service provider}
- Postal address}

**Sub: Agreement to the Process related Terms and Conditions**

Dear Sir,

This has reference to the Terms & Conditions for the Reverse Auction mentioned in the RFQ document for {Items} against BHEL enquiry/ RFQ no.{.....} dt. {.....}

This letter is to confirm that:

- 1) The undersigned is authorized official/ representative of the company to participate in RA and to sign the related documents.
- 2) We have studied the Reverse Auction Terms & Conditions and the Business rules governing the Reverse Auction as mentioned in your letter and confirm our agreement to them.
- 3) We also confirm that we have taken the training on the auction tool and have understood the functionality of the same thoroughly.
- 4) We also confirm that, in case we become L1 bidder, we will email/ fax the price confirmation & break up of our quoted price (including that of line items) as per pg.7 of Annexure- V within **two** working days (of BHEL) after completion of RA event, besides sending the same by registered post/ courier both to M/s. BHEL and M/s. {Service provider.}

We, hereby confirm that we will honor the Bids placed by us during the auction process.

With regards

Signature with company seal

Name –

Company / Organization

Designation within Company / Organization

Address of Company / Organization

- Sign this document and Fax it to M/s {Service provider} at {.....} prior to start of the Event.
- Attach a signed copy of the RFQ document along with the Agreement Form/ Process Compliance form and  
d/s{Service provider}

**RA price confirmation and breakup****To**

- **M/s. Service provider**
- **Postal address**

CC: M/s BHEL

{Unit-  
Address-}**Sub: Final price quoted during Reverse Auction and price breakup**

Dear Sir,

We confirm that we have quoted.

**Rs.{\_\_\_\_\_} for item covered under tender enquiry No. {...} dt.{...}**

Total price of the items covered under above cited enquiries is inclusive of {Packing & forwarding, E.D., C.S.T., freight and insurance charges upto {.....} District,{.....} State and Type Test Charges etc., (exclusive of service tax), other as per NIT} as our final landed prices as quoted during the Reverse Auction conducted today {date} which will be valid for a period of {\_\_\_\_\_} days.

The price break-up including that of line items is as given below.

Total - Rs.

Thanking you and looking forward to the valuable order from BHEL.

Yours sincerely,

For \_\_\_\_\_

**Name:****Company:****Date:****Seal:**

**ANNEXURE VII****Provisions Applicable for MSE (Micro and Small Vendors)**

Benefits/facilities as applicable for Micro and Small Enterprises (MSEs) shall be available to MSEs registered with Government designated authorities as per the Purchase & Price Preference Policy of the Government subject to them becoming eligible otherwise.

Vendors who qualify as MSE vendors are requested to submit applicable certificates (as specified by the Ministry of Micro, Small and Medium Enterprises) at the time of vendor registration. Vendors have to submit any of the following documents along with the tender documents in the Part I / Technical bid to avail the applicable benefits:

- a. Attested copy of valid NSIC certificate or
- b. Attested copy of either Entrepreneur's Memorandum part II (EM II) certificate/Udyog Aadhar certificate having deemed validity (five years from the date of issue of acknowledgement in EM II/Udyog Aadhar) or
- c. EM II/ Udyog Aadhaar certificate along with attested copy of a CA certificate (Format enclosed at Annexure VIII where deemed validity of EM II certificate/ Udyog Aadhar certificate of five years have expired) applicable for the relevant financial year (latest audited).

Date to be reckoned for determining the deemed validity will be the date of bid opening (Part-I in case of two-part bid and three-part bid).

Documents have to be notarized/attested by a Gazetted officer and must be valid as on the date of part I bid opening for the vendors to be eligible for the benefits applicable for MSE vendors. Please note that no benefit shall be applicable if any deficiency in the above required documents are not submitted before the price bid opening/Reverse Auction. If the tender is to be submitted through e-procurement portal, then the above required documents are to be uploaded on the portal.

Bidders to however note the documents that shall be furnished in order to establish credentials as MSE vendor should be as per the extant statutory requirements specified by the Ministry of Micro, Small and Medium Enterprises.

**Evaluation of Offer for MSEs**

- A) MSE vendors quoting within a price band of L1 + 15% shall be allowed to supply up to 25% of the requirement against this tender provided.
- B) The MSE Vendor matches the L1 Price.
- C) L1 Price is from Non MSE Vendor.
- D) L1 Price will be offered to the nearest vendor nearest to L1 in terms of price ranking (L2 - nearest to L1). In case of non-acceptance by the MSE vendor (L2) next ranking vendor will be offered who is within the L1 + 15% band (if L3 is also within 15% band).

- E) 25% of the 25% (i.e. 6.25% of the total enquired quantity) will be earmarked for SC/ST owned MSE firms provided conditions as mentioned in (A) and (B) are fulfilled.

Minimum 3% reservation for women owned MSEs within the above mentioned 25% reservation

- F) In case no vendor under SC / ST category firms are meeting the conditions mentioned in (A) and (B) or have not participated in the tender, in such cases the 4% quantity will be distributed among the other eligible MSE vendors who have participated in the tender.
- G) Serial no. A to E will not be applicable wherever it is not possible to split the tendered quantity/items on account of customer contract requirement, or the items tendered are systems.

**Certificate by Chartered Accountant on Letter Head**

This is to certify that M/s

.....(Hereinafter referred to as 'Company') having its registered office at ..... is registered under MSMED Act 2006, (Entrepreneur Memorandum No ((Part-II) ..... dtd ..... Category: ..... (Micro/Small). (Copy enclosed).

Further verified from the Books of Accounts that the investment of the company as per the latest audited financial year ..... as per **MSMED Act 2006** is as follows:

1. **For Manufacturing Enterprises:** Investment in plant and machinery ( i.e., original cost excluding land and building and the items specified by the Ministry of Small Industries vide its notification No.S.O.1722 (E) dated October 5, 2006:  
Rs. ....Lacs.
2. **For Service Enterprises:** Investment in equipment (original cost excluding land and

building and furniture, fittings and other items not directly related to the service rendered or as may be notified under the MSMED Act, 2006:

Rs. ....Lacs.

The above investment of Rs. .... Lacs in within permissible limit of Rs..... Lacs for.....Micro / Small (Strike off which is not applicable) Category under MSMED Act 2006.

(or)

The company has been graduated from its original category (Micro/Small) (Strike off which is not applicable) and the date of graduation of such enterprise from its original category is .....(dd/mm/yy) which is within the period of 3 years from the date of graduation of such enterprise from its original category as notified vide S.O.No.3322(E) dated 01.11.2013 published in the gazette notification dated 04.11.2013 by Ministry of MSME.

Date:

(Signature)

ANNEXURE VIIIPublic Procurement( Preference to Make in India)

As per the directives of Government of India, Ministry of Commerce & Industry, Department of Industrial Policy & Promotion, purchase preference shall be given to the local suppliers.

**"For this Procurement , Public Procurement (Preference to Make in India) order 2017 dated 15.06.2017 & dated 28.05.2018 dated 28-05-2018 and subsequent orders issued by the respective Nodal Ministry shall be applicable even if issued after issue of the RFQ but before finalisation of Contract/ Purchase order / Work Order against the RFQ. In the event of any Nodal Ministry prescribing higher or lower percentage of purchase preference and / or local content in respect of this procurement, same shall be applicable."**

**ANNEXURE - IX**

Annexure-1

**INTEGRITY PACT****Between**

Bharat Heavy Electricals Ltd. (BHEL), a company registered under the Companies Act 1956 and having its registered office at "BHEL House", Siri Fort, New Delhi - 110049 (India) hereinafter referred to as "The Principal", which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the ONE PART

**and**

\_\_\_\_\_, (description of the party along with address), hereinafter referred to as "The Bidder/ Contractor" which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the OTHER PART

**Preamble**

The Principal intends to award, under laid-down organizational procedures, contract/s for \_\_\_\_\_

\_\_\_\_\_. The Principal values full compliance with all relevant laws of the land, rules and regulations, and the principles of economic use of resources, and of fairness and transparency in its relations with its Bidder(s)/ Contractor(s).

In order to achieve these goals, the Principal will appoint Independent External Monitor(s), who will monitor the tender process and the execution of the contract for compliance with the principles mentioned above.

**Section 1- Commitments of the Principal**

1.1 The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles:-

1.1.1 No employee of the Principal, personally or through family members, will in connection with the tender for, or the execution of a contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.

1.1.2 The Principal will, during the tender process treat all Bidder(s) with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential/ additional information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.

1.1.3 The Principal will exclude from the process all known prejudiced persons.

1.2 If the Principal obtains information on the conduct of any of its employees which is a penal offence under the Indian Penal Code 1860 and Prevention of Corruption Act 1988 or any other statutory penal enactment, or if there be a substantive suspicion in this regard, the Principal will inform its Vigilance Office and in addition can initiate disciplinary actions:

**Section 2 - Commitments of the Bidder(s)/ Contractor(s)**

- 2.1 The Bidder(s)/ Contractor(s) commit himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the tender process and during the contract execution.
- 2.1.1 The Bidder(s)/ Contractor(s) will not, directly or through any other person or firm, offer, promise or give to the Principal or to any of the Principal's employees involved in the tender process or the execution of the contract or to any third person any material, immaterial or any other benefit which he/ she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.
- 2.1.2 The Bidder(s)/ Contractor(s) will not enter with other Bidder(s) into any illegal or undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.
- 2.1.3 The Bidder(s)/ Contractor(s) will not commit any penal offence under the relevant Indian Penal Code (IPC) and Prevention of Corruption Act; further the Bidder(s)/ Contractor(s) will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.
- 2.1.4 Foreign Bidder(s)/ Contractor(s) shall disclose the name and address of agents and representatives in India and Indian Bidder(s)/ Contractor(s) to disclose their foreign principals or associates. The Bidder(s)/ Contractor(s) will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.
- 2.2 The Bidder(s)/ Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.
- 2.3 The Bidder(s)/ Contractor(s) shall not approach the Courts while representing the matters to IEMs and will await their decision in the matter.

**Section 3 - Disqualification from tender process and exclusion from future contracts**

If the Bidder(s)/ Contractor(s), before award or during execution has committed a transgression through a violation of Section 2 above, or acts in any other manner such as to put his reliability or credibility in question, the Principal is entitled to disqualify the Bidder(s)/ Contractor(s) from the tender process or take action as per the separate "Guidelines on Banning of Business dealings with Suppliers/ Contractors", framed by the Principal.

**Section 4 - Compensation for Damages**

- 4.1 If the Principal has disqualified the Bidder from the tender process prior to the award according to Section 3, the Principal is entitled to demand and recover the damages equivalent Earnest Money Deposit/ Bid Security.
- 4.2 If the Principal has terminated the contract according to Section 3, or if the Principal is entitled to terminate the contract according to section 3, the Principal shall be entitled to

demand and recover from the Contractor liquidated damages equivalent to 5% of the contract value or the amount equivalent to Security Deposit/ Performance Bank Guarantee, whichever is higher.

### **Section 5 - Previous Transgression**

- 5.1 The Bidder declares that no previous transgressions occurred in the last 3 years with any other company in any country conforming to the anti-corruption approach or with any other Public Sector Enterprise in India that could justify his exclusion from the tender process.
- 5.2 If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

### **Section 6 - Equal treatment of all Bidders/ Contractors / Sub-contractors**

- 6.1 The Principal will enter into agreements with identical conditions as this one with all Bidders and Contractors. In case of sub-contracting, the Principal contractor shall be responsible for the adoption of IP by his sub-contractors and shall continue to remain responsible for any default by his sub-contractors.
- 6.2 The Principal will disqualify from the tender process all bidders who do not sign this pact or violate its provisions.

### **Section 7 - Criminal Charges against violating Bidders/ Contractors /Subcontractors**

If the Principal obtains knowledge of conduct of a Bidder, Contractor or Subcontractor, or of an employee or a representative or an associate of a Bidder, Contractor or Subcontractor which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the Vigilance Office.

### **Section 8 - Independent External Monitor(s)**

- 8.1 The Principal appoints competent and credible Independent External Monitor for this Pact. The task of the Monitor is to review independently and objectively, whether and to what extent the parties comply with the obligations under this agreement.
- 8.2 The Monitor is not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the CMD, BHEL.
- 8.3 The Bidder(s)/ Contractor(s) accepts that the Monitor has the right to access without restriction to all contract documentation of the Principal including that provided by the Bidder(s)/ Contractor(s). The Bidder(s)/ Contractor(s) will grant the monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his contract documentation. The same is applicable to Sub-contractor(s). The Monitor is under contractual obligation to treat the information and documents of the Bidder(s)/ Contractor(s) / Sub-contractor(s) with confidentiality in line with Non- disclosure agreement.
- 8.4 The Principal will provide to the Monitor sufficient information about all meetings among the parties related to the contract provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the Monitor the option to participate in such meetings.

- 8.5 The role of IEMs is advisory, would not be legally binding and it is restricted to resolving issues raised by an intending bidder regarding any aspect of the tender which allegedly restricts competition or bias towards some bidders. At the same time, it must be understood that IEMs are not consultants to the Management. Their role is independent in nature and the advice once tendered would not be subject to review at the request of the organization.
- 8.6 For ensuring the desired transparency and objectivity in dealing with the complaints arising out of any tendering process, the matter should be examined by the full panel of IEMs jointly as far as possible, who would look into the records, conduct an investigation, and submit their joint recommendations to the Management.
- 8.7 The IEMs would examine all complaints received by them and give their recommendations/ views to CMD, BHEL, at the earliest. They may also send their report directly to the CVO and the Commission, in case of suspicion of serious irregularities requiring legal/ administrative action. IEMs will tender their advice on the complaints within 10 days as far as possible.
- 8.8 The CMD, BHEL shall decide the compensation to be paid to the Monitor and its terms and conditions.
- 8.9 IEM should examine the process integrity, they are not expected to concern themselves with fixing of responsibility of officers. Complaints alleging mala fide on the part of any officer of the organization should be looked into by the CVO of the concerned organisation.
- 8.10 If the Monitor has reported to the CMD, BHEL, a substantiated suspicion of an offence under relevant Indian Penal Code/ Prevention of Corruption Act, and the CMD, BHEL has not, within reasonable time, taken visible action to proceed against such offence or reported it to the Vigilance Office, the Monitor may also transmit this information directly to the Central Vigilance Commissioner, Government of India.
- 8.11 The number of Independent External Monitor(s) shall be decided by the CMD, BHEL.
- 8.12 The word 'Monitor' would include both singular and plural.

## **Section 9 - Pact Duration**

- 9.1 This Pact shall be operative from the date IP is signed by both the parties till the final completion of contract for successful bidder and for all other bidders 6 months after the contract has been awarded. Issues like warranty / guarantee etc. should be outside the purview of IEMs.
- 9.2 If any claim is made/ lodged during currency of IP, the same shall be binding and continue to be valid despite the lapse of this pact as specified above, unless it is discharged/ determined by the CMD, BHEL.

## **Section 10 - Other Provisions**

- 10.1 This agreement is subject to Indian Laws and jurisdiction shall be registered office of the Principal, i.e. New Delhi.

- 10.2 Changes and supplements as well as termination notices need to be made in writing. Side agreements have not been made.
- 10.3 If the Contractor is a partnership or a consortium, this agreement must be signed by all partners or consortium members.
- 10.4 Should one or several provisions of this agreement turn out to be invalid, the remainder of this agreement remains valid. In this case, the parties will strive to come to an agreement to their original intentions.
- 10.5 Only those bidders / contractors who have entered into this agreement with the Principal would be competent to participate in the bidding. In other words, entering into this agreement would be a preliminary qualification.

-----  
For & On behalf of the Principal

(Office Seal)

Place-----

Date-----

-----  
For & On behalf of the Bidder/

Contractor

(Office Seal)

Witness:-----

(Name & Address) -----  
-----

Witness:-----

(Name & Address) -----  
-----

Clause on IP in the tender**"Integrity Pact (IP)"**

- (a) IP is a tool to ensure that activities and transactions between the Company and its Bidders/ Contractors are handled in a fair, transparent and corruption free manner. Following Independent External Monitors (IEMs) on the present panel have been appointed by BHEL with the approval of CVC to oversee implementation of IP in BHEL.

Sl	IEM	Address	Phone & Email
1.	Shri D.R.S Chaudhary, IAS (Retd.)	E-1/164, Arera Colony Bhopal 462016 (M.P.)	<a href="mailto:dilip.chaudhary@icloud.com">dilip.chaudhary@icloud.com</a>
2.	Mrs. Pravin Tripathi, IA & AS (Retd.)	D-243, Anupam Gardens, Lane IB, Neb Sarai, Sainik Farms, New Delhi – 110 068	<a href="mailto:pravin.tripathi@gmail.com">pravin.tripathi@gmail.com</a>

- (b) The IP as enclosed with the tender is to be submitted (duly signed by authorized signatory) along with techno-commercial bid (Part-I, in case of two/ three part bid). Only those bidders who have entered into such an IP with BHEL would be competent to participate in the bidding. In other words, entering into this Pact would be a preliminary qualification.
- (c) Please refer Section-8 of IP for Role and Responsibilities of IEMs. In case of any complaint arising out of the tendering process, the matter may be referred to any of the above IEM(s). All correspondence with the IEMs shall be done through email only.

Note:

*No routine correspondence shall be addressed to the IEM (phone/ post/ email) regarding the clarifications, time extensions or any other administrative queries, etc on the tender issued. All such clarification/ issues shall be addressed directly to the tender issuing (procurement) department's officials whose contact details are provided below:*

Details of contact person(s):

(1)  
 Name: \_\_\_\_\_  
 Deptt: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 Phone: (Landline/ Mobile) \_\_\_\_\_  
 Email: \_\_\_\_\_  
 Fax: \_\_\_\_\_

(2)  
 Name: \_\_\_\_\_  
 Deptt: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 Phone: (Landline/ Mobile) \_\_\_\_\_  
 Email: \_\_\_\_\_  
 Fax: \_\_\_\_\_

**ANNEXURE – X****LIST OF DOCUMENTS TO BE SUBMITTED DURING DESPATCH OF GOODS :-**

Seller shall arrange to send the following documents to the Purchaser, immediately on dispatch of goods: Any addition / exclusion to such documents shall be as specified in the Purchase Order.

**For despatches from within India :-**

To be sent with the material			To be sent to purchase executive		
1	Delivery challan	(1 copy)	1	Commercial invoice	(1 original +1 extra copy)
2	Transporters copy of invoice, waybill, packing list, any other specific documents called in PO.	(1 copy)	2	Inspection report / Test report Test certificate (if called for in the PO )	(1 copy)
3	Inspection report / Test report Test certificate (if called for in the PO )	(1 copy)	3	Warranty certificate(if called for in the PO )	(1 copy)
			4	PSI call letter, if PSI is applicable	(1 copy)

**For despatches from outside India :-**

To be given to BHEL Freight Forwarder	To be submitted to bank
Invoice & Packing list	Set of documents as per PO / LC

**For high sea sales (HSS) :-**

01	Original Invoice in Indian Rupees : three copies
02	Original High sea sales agreement on Rs. 200/- stamp paper (notorised) with two Xerox copies
03	Original Cargo Arrival Notice : with two copies
04	Original Invoice in Foreign Currency : with two copies
05	Original packing list : two copies
06	Original AWB copy (duly endorsed) : two copies
07	Original letter to Customs Officer - either Mumbai or Bangalore ( depending on the airport of destination ) : with one copy
08	Original Letter to OCTROI Officer : with one copy
09	Original Delivery Order copy from the freight forwarder : with one copy

F.No.6/18/2019-PPD  
Ministry of Finance  
Department of Expenditure  
Public Procurement Division

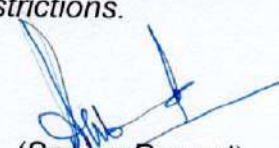
161, North Block,  
New Delhi  
23rd July, 2020

**Office Memorandum**

**Subject: Insertion of Rule 144 (xi) in the General Financial Rules (GFRs), 2017**

Rule 144 of the General Financial Rules 2017 entitled 'Fundamental principles of public buying', has been amended by inserting sub-rule (xi) as under:

*Notwithstanding anything contained in these Rules, Department of Expenditure may, by order in writing, impose restrictions, including prior registration and/or screening, on procurement from bidders from a country or countries, or a class of countries, on grounds of defence of India, or matters directly or indirectly related thereto including national security; no procurement shall be made in violation of such restrictions.*

  
(Sanjay Prasad)  
Joint Secretary (PPD)  
Email ID: [js.pfc2.doe@gov.in](mailto:js.pfc2.doe@gov.in)  
Telephone: 011-23093882

To,

- (1) Secretaries of All Ministries/ Departments of Government of India
- (2) Chief Secretaries/ Administrators of Union Territories/ National Capital Territory of Delhi

F.No.6/18/2019-PPD  
Ministry of Finance  
Department of Expenditure  
Public Procurement Division

161, North Block,  
New Delhi  
23rd July, 2020

**Order (Public Procurement No. 1)**

**Subject: Restrictions under Rule 144 (xi) of the General Financial Rules (GFRs), 2017**

Attention is invited to this office OM no. 6/18/2019-PPD dated 23<sup>rd</sup> July 2020 inserting Rule 144 (xi) in GFRs 2017. In this regard, the following is hereby ordered under Rule 144 (xi) on the grounds stated therein:

**Requirement of registration**

1. Any bidder from a country which shares a land border with India will be eligible to bid in any procurement whether of goods, services (including consultancy services and non-consultancy services) or works (including turnkey projects) only if the bidder is registered with the Competent Authority, specified in **Annex I**.
2. This Order shall not apply to (i) cases where orders have been placed or contract has been concluded or letter/notice of award/ acceptance (LoA) has been issued on or before the date of this order; and (ii) cases falling under **Annex II**.

**Transitional cases**

3. Tenders where no contract has been concluded or no LoA has been issued so far shall be handled in the following manner: -
  - a) *In tenders which are yet to be opened, or where evaluation of technical bid or the first exclusionary qualificatory stage (i.e. the first stage at which the qualifications of tenderers are evaluated and unqualified bidders are excluded) has not been completed:* No contracts shall be placed on bidders from such countries. Tenders received from bidders from such countries shall be dealt with as if they are non-compliant with the tender conditions and the tender shall be processed accordingly.
  - b) *If the tendering process has crossed the first exclusionary qualificatory stage:* If the qualified bidders include bidders from such countries, the

entire process shall be scrapped and initiated *de novo*. The *de novo* process shall adhere to the conditions prescribed in this Order.

- c) As far as practicable, and in cases of doubt about whether a bidder falls under paragraph 1, a certificate shall be obtained from the bidder whose bid is proposed to be considered or accepted, in terms of paras 8, 9 and 10 read with para 1 of this Order.

#### Incorporation in tender conditions

- 4. In tenders to be issued after the date of this order, the provisions of paragraph 1 and of other relevant provisions of this Order shall be incorporated in the tender conditions.

#### Applicability

- 5. Apart from Ministries / Departments, attached and subordinate bodies, notwithstanding anything contained in Rule 1 of the GFRs 2017, this Order shall also be applicable
  - a. to all Autonomous Bodies;
  - b. to public sector banks and public sector financial institutions; and
  - c. subject to any orders of the Department of Public Enterprises, to all Central Public Sector Enterprises; and
  - d. to procurement in Public Private Partnership projects receiving financial support from the Government or public sector enterprises/ undertakings.
  - e. Union Territories, National Capital Territory of Delhi and all agencies/ undertakings thereof

#### Definitions

- 6. "Bidder" for the purpose of this Order (including the term 'tenderer', 'consultant' 'vendor' or 'service provider' in certain contexts) means any person or firm or company, including any member of a consortium or joint venture (that is an association of several persons, or firms or companies), every artificial juridical person not falling in any of the descriptions of bidders stated hereinbefore, including any agency, branch or office controlled by such person, participating in a procurement process.
- 7. "Tender" for the purpose of this Order will include other forms of procurement, except where the context requires otherwise.
- 8. "Bidder from a country which shares a land border with India" for the purpose of this Order means

- a) An entity incorporated, established or registered in such a country; or
- b) A subsidiary of an entity incorporated, established or registered in such a country; or
- c) An entity substantially controlled through entities incorporated, established or registered in such a country; or
- d) An entity whose *beneficial owner* is situated in such a country; or
- e) An Indian (or other) agent of such an entity; or
- f) A natural person who is a citizen of such a country; or
- g) A consortium or joint venture where any member of the consortium or joint venture falls under any of the above

9. "Beneficial owner" for the purpose of paragraph 8 above will be as under:

- (i) In case of a company or Limited Liability Partnership, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person(s), has a controlling ownership interest or who exercises control through other means.

Explanation—

- a. "Controlling ownership interest" means ownership of, or entitlement to, more than twenty-five per cent of shares or capital or profits of the company;
- b. "Control" shall include the right to appoint the majority of the directors or to control the management or policy decisions, including by virtue of their shareholding or management rights or shareholders agreements or voting agreements;

- (ii) In case of a partnership firm, the beneficial owner is the natural person(s) who, whether acting alone or together, or through one or more juridical person, has ownership of entitlement to more than fifteen percent of capital or profits of the partnership;

- (iii) In case of an unincorporated association or body of individuals, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person, has ownership of or entitlement to more than fifteen percent of the property or capital or profits of such association or body of individuals;

- (iv) Where no natural person is identified under (i) or (ii) or (iii) above, the beneficial owner is the relevant natural person who holds the position of senior managing official;

4/12

(v) In case of a trust, the identification of beneficial owner(s) shall include identification of the author of the trust, the trustee, the beneficiaries with fifteen percent or more interest in the trust and any other natural person exercising ultimate effective control over the trust through a chain of control or ownership.

10. "Agent" for the purpose of this Order is a person employed to do any act for another, or to represent another in dealings with third persons.

#### Sub-contracting in works contracts

11. In works contracts, including turnkey contracts, contractors shall not be allowed to sub-contract works to any contractor from a country which shares a land border with India unless such contractor is registered with the Competent Authority. The definition of "contractor from a country which shares a land border with India" shall be as in paragraph 8 above. This shall not apply to sub-contracts already awarded on or before the date of this Order.

#### Certificate regarding compliance

12. A certificate shall be taken from bidders in the tender documents regarding their compliance with this Order. If such certificate given by a bidder whose bid is accepted is found to be false, this would be a ground for immediate termination and further legal action in accordance with law.

#### Validity of registration

13. In respect of tenders, registration should be valid at the time of submission of bids and at the time of acceptance of bids. In respect of supply otherwise than by tender, registration should be valid at the time of placement of order. If the bidder was validly registered at the time of acceptance / placement of order, registration shall not be a relevant consideration during contract execution.

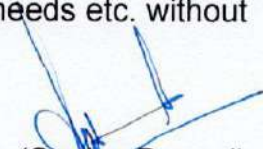
#### Government E-Marketplace

14. The Government E-Marketplace shall, as soon as possible, require all vendors/ bidders registered with GeM to give a certificate regarding compliance with this Order, and after the date fixed by it, shall remove non-compliant entities from GeM unless/ until they are registered in accordance with this Order.

5/12

Model Clauses/ Certificates

15. Model Clauses and Model Certificates which may be inserted in tenders / obtained from Bidders are enclosed as **Annex III**. While adhering to the substance of the Order, procuring entities are free to appropriately modify the wording of these clauses based on their past experience, local needs etc. without making any reference to this Department.

  
(Sanjay Prasad)  
Joint Secretary (PPD)  
Email ID: [js.pfc2.doe@gov.in](mailto:js.pfc2.doe@gov.in)  
Telephone: 011-23093882

To

- (1) Secretaries of All Ministries/ Departments of Government of India for information and necessary action. They are also requested to inform these provisions to all procuring entities.
- (2) Secretary, Department of Public Enterprises with a request to immediately reiterate these orders in respect of Public Enterprises.
- (3) Secretary DPIIT with a request to initiate action as provided under Annex I
- (4) Chief Secretaries/ Administrators of Union Territories/ National Capital Territory of Delhi

6/12

## Annex I: Competent Authority and Procedure for Registration

- A. The Competent Authority for the purpose of registration under this Order shall be the Registration Committee constituted by the Department for Promotion of Industry and Internal Trade (DPIIT)\*.
- B. The Registration Committee shall have the following members\*:
- i. An officer, not below the rank of Joint Secretary, designated for this purpose by DPIIT, who shall be the Chairman;
  - ii. Officers (ordinarily not below the rank of Joint Secretary) representing the Ministry of Home Affairs, Ministry of External Affairs, and of those Departments whose sectors are covered by applications under consideration;
  - iii. Any other officer whose presence is deemed necessary by the Chairman of the Committee.
- C. DPIIT shall lay down the method of application, format etc. for such bidders as stated in para 1 of this Order.
- D. On receipt of an application seeking registration from a bidder from a country covered by para 1 of this Order, the Competent Authority shall first seek political and security clearances from the Ministry of External Affairs and Ministry of Home Affairs, as per guidelines issued from time to time. Registration shall not be given unless political and security clearance have both been received.
- E. The Ministry of External Affairs and Ministry of Home Affairs may issue guidelines for internal use regarding the procedure for scrutiny of such applications by them.
- F. The decision of the Competent Authority, to register such bidder may be for all kinds of tenders or for a specified type(s) of goods or services, and may be for a specified or unspecified duration of time, as deemed fit. The decision of the Competent Authority shall be final.
- G. Registration shall not be granted unless the representatives of the Ministries of Home Affairs and External Affairs on the Committee concur\*.
- H. Registration granted by the Competent Authority of the Government of India shall be valid not only for procurement by Central Government and its agencies/ public enterprises etc. but **also for procurement by State Governments and their agencies/ public enterprises etc. No fresh registration at the State level shall be required.**

7/12

- I. The Competent Authority is empowered to cancel the registration already granted if it determines that there is sufficient cause. Such cancellation by itself, however, will not affect the execution of contracts already awarded. Pending cancellation, it may also suspend the registration of a bidder, and the bidder shall not be eligible to bid in any further tenders during the period of suspension.
- J. For national security reasons, the Competent Authority shall not be required to give reasons for rejection / cancellation of registration of a bidder.
- K. In transitional cases falling under para 3 of this Order, where it is felt that it will not be practicable to exclude bidders from a country which shares a land border with India, a reference seeking permission to consider such bidders shall be made by the procuring entity to the Competent Authority, giving full information and detailed reasons. The Competent Authority shall decide whether such bidders may be considered, and if so shall follow the procedure laid down in the above paras.
- L. Periodic reports on the acceptance/ refusal of registration during the preceding period may be required to be sent to the Cabinet Secretariat. Details will be issued separately in due course by DPIIT.

[\*Note:

- i. In respect of application of this Order to procurement by/ under State Governments, all functions assigned to DPIIT shall be carried out by the State Government concerned through a specific department or authority designated by it. The composition of the Registration Committee shall be as decided by the State Government and paragraph G above shall not apply. However, the requirement of **political and security clearance as per para D shall remain and no registration shall be granted without such clearance.**
- ii. Registration granted by State Governments shall be valid only for procurement by the State Government and its agencies/ public enterprises etc. and shall not be valid for procurement in other states or by the Government of India and their agencies/ public enterprises etc.]

8/12

## Annex II: Special Cases

- A. Till 31<sup>st</sup> December 2020, procurement of medical supplies directly related to containment of the Covid-19 pandemic shall be exempt from the provisions of this Order.
- B. *Bona fide* procurements made through GeM without knowing the country of the bidder till the date fixed by GeM for this purpose, shall not be invalidated by this Order.
- C. *Bona fide* small procurements, made without knowing the country of the bidder, shall not be invalidated by this Order.
- D. In projects which receive international funding with the approval of the Department of Economic Affairs (DEA), Ministry of Finance, the procurement guidelines applicable to the project shall normally be followed, notwithstanding anything contained in this Order and without reference to the Competent Authority. Exceptions to this shall be decided in consultation with DEA.
- E. This Order shall not apply to procurement by Indian missions and by offices of government agencies/ undertakings located outside India.

9/12

### **Annex III**

#### **Model Clause /Certificate to be inserted in tenders etc.**

*(While adhering to the substance of the Order, procuring entities and GeM are free to appropriately modify the wording of the clause/ certificate based on their past experience, local needs etc.)*

#### **Model Clauses for Tenders**

- I. Any bidder from a country which shares a land border with India will be eligible to bid in this tender only if the bidder is registered with the Competent Authority.
- II. "Bidder" (including the term 'tenderer', 'consultant' or 'service provider' in certain contexts) means any person or firm or company, including any member of a consortium or joint venture (that is an association of several persons, or firms or companies), every artificial juridical person not falling in any of the descriptions of bidders stated hereinbefore, including any agency branch or office controlled by such person, participating in a procurement process.
- III. "Bidder from a country which shares a land border with India" for the purpose of this Order means: -
  - a. An entity incorporated, established or registered in such a country; or
  - b. A subsidiary of an entity incorporated, established or registered in such a country; or
  - c. An entity substantially controlled through entities incorporated, established or registered in such a country; or
  - d. An entity whose *beneficial owner* is situated in such a country; or
  - e. An Indian (or other) agent of such an entity; or
  - f. A natural person who is a citizen of such a country; or
  - g. A consortium or joint venture where any member of the consortium or joint venture falls under any of the above
- IV. The *beneficial owner* for the purpose of (iii) above will be as under:
  1. In case of a company or Limited Liability Partnership, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person, has a controlling ownership interest or who exercises control through other means.

Explanation—

    - a. "Controlling ownership interest" means ownership of or entitlement to more than twenty-five per cent. of shares or capital or profits of the company;

10/12

- b. "Control" shall include the right to appoint majority of the directors or to control the management or policy decisions including by virtue of their shareholding or management rights or shareholders agreements or voting agreements;
2. In case of a partnership firm, the beneficial owner is the natural person(s) who, whether acting alone or together, or through one or more juridical person, has ownership of entitlement to more than fifteen percent of capital or profits of the partnership;
  3. In case of an unincorporated association or body of individuals, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person, has ownership of or entitlement to more than fifteen percent of the property or capital or profits of such association or body of individuals;
  4. Where no natural person is identified under (1) or (2) or (3) above, the beneficial owner is the relevant natural person who holds the position of senior managing official;
  5. In case of a trust, the identification of beneficial owner(s) shall include identification of the author of the trust, the trustee, the beneficiaries with fifteen percent or more interest in the trust and any other natural person exercising ultimate effective control over the trust through a chain of control or ownership.
- V. An Agent is a person employed to do any act for another, or to represent another in dealings with third person.
- VI. *[To be inserted in tenders for Works contracts, including Turnkey contracts]* The successful bidder shall not be allowed to sub-contract works to any contractor from a country which shares a land border with India unless such contractor is registered with the Competent Authority.

Model Certificate for Tenders (for transitional cases as stated in para 3 of this Order)

*"I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; I hereby certify that this bidder is not from such a country and is eligible to be considered."*

Model Certificate for Tenders

*"I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; I certify that this bidder is not from such a country or, if from such a country, has been registered with the*

11/12

*Competent Authority. I hereby certify that this bidder fulfills all requirements in this regard and is eligible to be considered. [Where applicable, evidence of valid registration by the Competent Authority shall be attached.]"*

**Model Certificate for Tenders for Works involving possibility of sub-contracting**

*"I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India and on sub-contracting to contractors from such countries; I certify that this bidder is not from such a country or, if from such a country, has been registered with the Competent Authority and will not sub-contract any work to a contractor from such countries unless such contractor is registered with the Competent Authority. I hereby certify that this bidder fulfills all requirements in this regard and is eligible to be considered. [Where applicable, evidence of valid registration by the Competent Authority shall be attached.]"*

**Model Certificate for GeM:**

*"I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; I certify that this vendor/ bidder is not from such a country or, if from such a country, has been registered with the Competent Authority. I hereby certify that this vendor/ bidder fulfills all requirements in this regard and is eligible to be considered for procurement on GeM. [Where applicable, evidence of valid registration by the Competent Authority shall be attached.]"*

12/12

\*\*\*\*\*

## **Annexure-X**

### **Restrictions under Rule 144(xi) of General Financial Rules, 2017 amendment dt: 23.07.2020**

- I. Any bidder from a country which shares a land border with India will be eligible to bid in this tender only if the bidder is registered with the Competent Authority.
- II. "Bidder" (including the term 'tenderer', 'consultant' or 'service provider' in certain contexts) means any person or firm or company, including any member of a consortium or joint venture (that is an association of several persons, or firms or companies), every artificial juridical person not falling in any of the descriptions of bidders stated hereinbefore, including any agency branch or office controlled by such person, participating in a procurement process.
- III. "Bidder from a country which shares a land border with India" for the purpose of this Order means :-
  - a. An entity incorporated, established or registered in such a country; or
  - b. A subsidiary of an entity incorporated, established or registered in such a country; or
  - c. An entity substantially controlled through entities incorporated, established or registered in such a country; or
  - d. An entity whose *beneficial owner* is situated in such a country; or
  - e. An Indian (or other) agent of such an entity; or
  - f. A natural person who is a citizen of such a country; or
  - g. A consortium or joint venture where any member of the consortium or joint venture falls under any of the above
- IV. The *beneficial owner* for the purpose of (iii) above will be as under:
  1. In case of a company or Limited Liability Partnership, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person, has a controlling ownership interest or who exercises control through other means.

Explanation--

    - a. "Controlling ownership interest" means ownership of or entitlement to more than twenty-five per cent of shares or capital or profits of the company;
    - b. "Control" shall include the right to appoint majority of the directors or to control the management or policy decisions including by virtue of their shareholding or management rights or shareholders agreements or voting agreements;
  2. In case of a partnership firm, the beneficial owner is the natural person(s) who, whether acting alone or together, or through one or more juridical person, has ownership of entitlement to more than fifteen percent of capital or profits of the partnership;

3. In case of an unincorporated association or body of individuals, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person, has ownership of or entitlement to more than fifteen percent of the property or capital or profits of such association or body of individuals;
4. Where no natural person is identified under (1) or (2) or (3) above, the beneficial owner is the relevant natural person who holds the position of senior managing official;
5. In case of a trust, the identification of beneficial owner(s) shall include identification of the author of the trust, the trustee, the beneficiaries with fifteen percent or more interest in the trust and any other natural person exercising ultimate effective control over the trust through a chain of control or ownership.

V. An Agent is a person employed to do any act for another, or to represent another in dealings with third person.

No. P-45021/2/2017-PP (BE-II)  
Government of India  
Ministry of Commerce and Industry  
Department for Promotion of Industry and Internal Trade  
(Public Procurement Section)

Udyog Bhawan, New Delhi  
Dated: 04<sup>th</sup> June, 2020

To

All Central Ministries/Departments/CPSUs/All concerned

**ORDER**

**Subject: Public Procurement (Preference to Make in India), Order 2017- Revision; regarding.**

Department for Promotion of Industry and Internal Trade, in partial modification [Paras 2, 3, 5, 9(a), 9(b) and 10(b) modified and Para 3A added] of Order No.P-45021/2/2017-B.E.-II dated 15.6.2017 as amended by Order No.P-45021/2/2017-B.E.-II dated 28.05.2018 and Order No.P-45021/2/2017-B.E.-II dated 29.05.2019, hereby issues the revised 'Public Procurement (Preference to Make in India), Order 2017' dated 04.06.2020 effective with immediate effect.

**Whereas** it is the policy of the Government of India to encourage 'Make in India' and promote manufacturing and production of goods and services in India with a view to enhancing income and employment, and

**Whereas** procurement by the Government is substantial in amount and can contribute towards this policy objective, and

**Whereas** local content can be increased through partnerships, cooperation with local companies, establishing production units in India or Joint Ventures (JV) with Indian suppliers, increasing the participation of local employees in services and training them,

**Now therefore the following Order is issued:**

1. This Order is issued pursuant to Rule 153 (iii) of the General Financial Rules 2017.
2. **Definitions:** For the purposes of this Order:

*'Local content'* means the amount of value added in India which shall, unless otherwise prescribed by the Nodal Ministry, be the total value of the item procured (excluding net domestic indirect taxes) minus the value of imported content in the item (including all customs duties) as a proportion of the total value, in percent.

*'Class-I local supplier'* means a supplier or service provider, whose goods, services or works offered for procurement, has local content equal to or more than 50%, as defined under this Order.

*'Class-II local supplier'* means a supplier or service provider, whose goods, services or works offered for procurement, has local content more than 20% but less than 50%, as defined under this Order.

.....Contd. p/2

'Non - Local supplier' means a supplier or service provider, whose goods, services or works offered for procurement, has local content less than or equal to 20%, as defined under this Order.

'L1' means the lowest tender or lowest bid or the lowest quotation received in a tender, bidding process or other procurement solicitation as adjudged in the evaluation process as per the tender or other procurement solicitation.

'Margin of purchase preference' means the maximum extent to which the price quoted by a "Class-I local supplier" may be above the L1 for the purpose of purchase preference.

'Nodal Ministry' means the Ministry or Department identified pursuant to this order in respect of a particular item of goods or services or works.

'Procuring entity' means a Ministry or department or attached or subordinate office of, or autonomous body controlled by, the Government of India and includes Government companies as defined in the Companies Act.

'Works' means all works as per Rule 130 of GFR- 2017, and will also include 'turnkey works'.

✓ 3. **Eligibility of 'Class-I local supplier'/ 'Class-II local supplier'/ 'Non-local suppliers' for different types of procurement**

(a) In procurement of all goods, services or works in respect of which the Nodal Ministry / Department has communicated that there is sufficient local capacity and local competition, only 'Class-I local supplier', as defined under the Order, shall be eligible to bid irrespective of purchase value.

(b) In procurement of all goods, services or works, not covered by sub-para 3(a) above, and with estimated value of purchases less than Rs. 200 Crore, in accordance with Rule 161(iv) of GFR, 2017, Global tender enquiry shall not be issued except with the approval of competent authority as designated by Department of Expenditure. Only 'Class-I local supplier' and 'Class-II local supplier', as defined under the Order, shall be eligible to bid in procurements undertaken by procuring entities, except when Global tender enquiry has been issued. In global tender enquiries, 'Non-local suppliers' shall also be eligible to bid along with 'Class-I local suppliers' and 'Class-II local suppliers'.

(c) For the purpose of this Order, works includes Engineering, Procurement and Construction (EPC) contracts and services include System Integrator (SI) contracts.

**3A. Purchase Preference**

(a) Subject to the provisions of this Order and to any specific instructions issued by the Nodal Ministry or in pursuance of this Order, purchase preference shall be given to 'Class-I local supplier' in procurements undertaken by procuring entities in the manner specified here under.

.....Contd. p/3

(b) In the procurements of goods or works, which are covered by para 3(b) above and which are divisible in nature, the 'Class-I local supplier' shall get purchase preference over 'Class-II local supplier' as well as 'Non-local supplier', as per following procedure:

- i. Among all qualified bids, the lowest bid will be termed as L1. If L1 is 'Class-I local supplier', the contract for full quantity will be awarded to L1.
- ii. If L1 bid is not a 'Class-I local supplier', 50% of the order quantity shall be awarded to L1. Thereafter, the lowest bidder among the 'Class-I local supplier' will be invited to match the L1 price for the remaining 50% quantity subject to the 'Class-I local supplier's' quoted price falling within the margin of purchase preference, and contract for that quantity shall be awarded to such 'Class-I local supplier' subject to matching the L1 price. In case such lowest eligible 'Class-I local supplier' fails to match the L1 price or accepts less than the offered quantity, the next higher 'Class-I local supplier' within the margin of purchase preference shall be invited to match the L1 price for remaining quantity and so on, and contract shall be awarded accordingly. In case some quantity is still left uncovered on Class-I local suppliers, then such balance quantity may also be ordered on the L1 bidder.

(c) In the procurements of goods or works, which are covered by para 3(b) above and which are not divisible in nature, and in procurement of services where the bid is evaluated on price alone, the 'Class-I local supplier' shall get purchase preference over 'Class-II local supplier' as well as 'Non-local supplier', as per following procedure:

- i. Among all qualified bids, the lowest bid will be termed as L1. If L1 is 'Class-I local supplier', the contract will be awarded to L1.
- ii. If L1 is not 'Class-I local supplier', the lowest bidder among the 'Class-I local supplier', will be invited to match the L1 price subject to Class-I local supplier's quoted price falling within the margin of purchase preference, and the contract shall be awarded to such 'Class-I local supplier' subject to matching the L1 price.
- iii. In case such lowest eligible 'Class-I local supplier' fails to match the L1 price, the 'Class-I local supplier' with the next higher bid within the margin of purchase preference shall be invited to match the L1 price and so on and contract shall be awarded accordingly. In case none of the 'Class-I local supplier' within the margin of purchase preference matches the L1 price, the contract may be awarded to the L1 bidder.

✓ (d) "Class-II local supplier" will not get purchase preference in any procurement, undertaken by procuring entities.

.....Contd. p/4

4. **Exemption of small purchases:** Notwithstanding anything contained in paragraph 3, procurements where the estimated value to be procured is less than Rs. 5 lakhs shall be exempt from this Order. However, it shall be ensured by procuring entities that procurement is not split for the purpose of avoiding the provisions of this Order.
- ✓ 5. **Minimum local content:** The local content requirement to categorize a supplier as 'Class-I local supplier'/ 'Class-II local supplier'/ 'Non-local supplier' shall be as defined in the Para "2" of the Order. No change is permissible on this account. However, if any nodal Ministry/ Department finds that for any particular item, pertaining to their nodal ministry/department, the definition of Local Content, as defined in the Order, is not workable/ has limitations, it may notify alternate suitable mechanism for calculation of local content for that particular item.
6. **Margin of Purchase Preference:** The margin of purchase preference shall be 20%.
7. **Requirement for specification in advance:** The minimum local content, the margin of purchase preference and the procedure for preference to Make in India shall be specified in the notice inviting tenders or other form of procurement solicitation and shall not be varied during a particular procurement transaction.
8. **Government E-marketplace:** In respect of procurement through the Government E-marketplace (GeM) shall, as far as possible, specifically mark the items which meet the minimum local content while registering the item for display, and shall, wherever feasible, make provision for automated comparison with purchase preference and without purchase preference and for obtaining consent of the local supplier in those cases where purchase preference is to be exercised.
9. **Verification of local content:**
  - a. The 'Class-I local supplier'/ 'Class-II local supplier' at the time of tender, bidding or solicitation shall be required to indicate percentage of local content and provide self-certification that the item offered meets the local content requirement for 'Class-I local supplier'/ 'Class-II local supplier', as the case may be. They shall also give details of the location(s) at which the local value addition is made.
  - b. In cases of procurement for a value in excess of Rs. 10 crores, the 'Class-I local supplier'/ 'Class-II local supplier' shall be required to provide a certificate from the statutory auditor or cost auditor of the company (in the case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving the percentage of local content.
  - c. Decisions on complaints relating to implementation of this Order shall be taken by the competent authority which is empowered to look into procurement-related complaints relating to the procuring entity.

.....Contd. p/5

- d. Nodal Ministries may constitute committees with internal and external experts for independent verification of self-declarations and auditor's/ accountant's certificates on random basis and in the case of complaints.
- e. Nodal Ministries and procuring entities may prescribe fees for such complaints.
- f. False declarations will be in breach of the Code of Integrity under Rule 175(1)(i)(h) of the General Financial Rules for which a bidder or its successors can be debarred for up to two years as per Rule 151 (iii) of the General Financial Rules along with such other actions as may be permissible under law.
- g. A supplier who has been debarred by any procuring entity for violation of this Order shall not be eligible for preference under this Order for procurement by any other procuring entity for the duration of the debarment. The debarment for such other procuring entities shall take effect prospectively from the date on which it comes to the notice of other procurement entities, in the manner prescribed under paragraph 9h below.
- h. The Department of Expenditure shall issue suitable instructions for the effective and smooth operation of this process, so that:
  - i. The fact and duration of debarment for violation of this Order by any procuring entity are promptly brought to the notice of the Member-Convenor of the Standing Committee and the Department of Expenditure through the concerned Ministry /Department or in some other manner;
  - ii. on a periodical basis such cases are consolidated and a centralized list or decentralized lists of such suppliers with the period of debarment is maintained and displayed on website(s);
  - iii. in respect of procuring entities other than the one which has carried out the debarment, the debarment takes effect prospectively from the date of uploading on the website(s) in the such a manner that ongoing procurements are not disrupted.

**10. Specifications in Tenders and other procurement solicitations:**

- a. Every procuring entity shall ensure that the eligibility conditions in respect of previous experience fixed in any tender or solicitation do not require proof of supply in other countries or proof of exports.
- b. Procuring entities shall endeavour to see that eligibility conditions, including on matters like turnover, production capability and financial strength do not result in unreasonable exclusion of 'Class-I local supplier'/ 'Class-II local supplier' who would otherwise be eligible, beyond what is essential for ensuring quality or creditworthiness of the supplier.
- c. Procuring entities shall, within 2 months of the issue of this Order review all existing eligibility norms and conditions with reference to sub-paragraphs 'a' and 'b' above.

- d. If a Nodal Ministry is satisfied that Indian suppliers of an item are not allowed to participate and/ or compete in procurement by any foreign government, it may, if it deems appropriate, restrict or exclude bidders from that country from eligibility for procurement of that item and/ or other items relating to that Nodal Ministry. A copy of every instruction or decision taken in this regard shall be sent to the Chairman of the Standing Committee.
- e. For the purpose of sub-paragraph 10 d above, a supplier or bidder shall be considered to be from a country if (i) the entity is incorporated in that country, or ii) a majority of its shareholding or effective control of the entity is exercised from that country; or (iii) more than 50% of the value of the item being supplied has been added in that country. Indian suppliers shall mean those entities which meet any of these tests with respect to India."

✓ **10A. Action for non-compliance of the Provisions of the Order:** In case restrictive or discriminatory conditions against domestic suppliers are included in bid documents, an inquiry shall be conducted by the Administrative Department undertaking the procurement (including procurement by any entity under its administrative control) to fix responsibility for the same. Thereafter, appropriate action, administrative or otherwise, shall be taken against erring officials of procurement entities under relevant provisions. Intimation on all such actions shall be sent to the Standing Committee.

**11. Assessment of supply base by Nodal Ministries:** The Nodal Ministry shall keep in view the domestic manufacturing / supply base and assess the available capacity and the extent of local competition while identifying items and prescribing minimum local content or the manner of its calculation, with a view to avoiding cost increase from the operation of this Order.

**12. Increase in minimum local content:** The Nodal Ministry may annually review the local content requirements with a view to increasing them, subject to availability of sufficient local competition with adequate quality.

**13. Manufacture under license/ technology collaboration agreements with phased indigenization:** While notifying the minimum local content, Nodal Ministries may make special provisions for exempting suppliers from meeting the stipulated local content if the product is being manufactured in India under a license from a foreign manufacturer who holds intellectual property rights and where there is a technology collaboration agreement / transfer of technology agreement for indigenous manufacture of a product developed abroad with clear phasing of increase in local content.

**14. Powers to grant exemption and to reduce minimum local content:** The administrative Department undertaking the procurement (including procurement by any entity under its administrative control), with the approval of their Minister-in-charge, may by written order, for reasons to be recorded in writing,

- a. reduce the minimum local content below the prescribed level; or
- b. reduce the margin of purchase preference below 20%; or

.....Contd. p/7

- c. exempt any particular item or supplying entities from the operation of this Order or any part of the Order.

A copy of every such order shall be provided to the Standing Committee and concerned Nodal Ministry / Department. The Nodal Ministry / Department concerned will continue to have the power to vary its notification on Minimum Local Content.

- 15. **Directions to Government companies:** In respect of Government companies and other procuring entities not governed by the General Financial Rules, the administrative Ministry or Department shall issue policy directions requiring compliance with this Order.

- 16. **Standing Committee:** A standing committee is hereby constituted with the following membership:

- Secretary, Department for Promotion of Industry and Internal Trade—Chairman
- Secretary, Commerce—Member
- Secretary, Ministry of Electronics and Information Technology—Member
- Joint Secretary (Public Procurement), Department of Expenditure—Member
- Joint Secretary (DPIIT)—Member-Convenor

The Secretary of the Department concerned with a particular item shall be a member in respect of issues relating to such item. The Chairman of the Committee may co-opt technical experts as relevant to any issue or class of issues under its consideration.

- 17. **Functions of the Standing Committee:** The Standing Committee shall meet as often as necessary, but not less than once in six months. The Committee
  - a. shall oversee the implementation of this order and issues arising therefrom, and make recommendations to Nodal Ministries and procuring entities.
  - b. shall annually assess and periodically monitor compliance with this Order
  - c. shall identify Nodal Ministries and the allocation of items among them for issue of notifications on minimum local content
  - d. may require furnishing of details or returns regarding compliance with this Order and related matters
  - e. may, during the annual review or otherwise, assess issues, if any, where it is felt that the manner of implementation of the order results in any restrictive practices, cartelization or increase in public expenditure and suggest remedial measures
  - f. may examine cases covered by paragraph 13 above relating to manufacture under license/ technology transfer agreements with a view to satisfying itself that adequate mechanisms exist for enforcement of such agreements and for attaining the underlying objective of progressive indigenization
  - g. may consider any other issue relating to this Order which may arise.

- 18. **Removal of difficulties:** Ministries /Departments and the Boards of Directors of Government companies may issue such clarifications and instructions as may be necessary for the removal of any difficulties arising in the implementation of this Order.

19. **Ministries having existing policies:** Where any Ministry or Department has its own policy for preference to local content approved by the Cabinet after 1<sup>st</sup> January 2015, such policies will prevail over the provisions of this Order. All other existing orders on preference to local content shall be reviewed by the Nodal Ministries and revised as needed to conform to this Order, within two months of the issue of this Order.
20. **Transitional provision:** This Order shall not apply to any tender or procurement for which notice inviting tender or other form of procurement solicitation has been issued before the issue of this Order.



(Rajesh Gupta)  
Director

Tel: 23063211

[rajesh.gupta66@gov.in](mailto:rajesh.gupta66@gov.in)