संगठन का नाम	भारतीय भूचुम्बकत्व संस्थान
निविदा क्र.	IIG/Tender/PCB/01/2024
संगठन का प्रकार	केंद्रीय स्वायत्त
उत्पाद श्रेणी	डिज़ाइन
टेंडर की किस्म	दो पैक बोली
ईएमडी	लागू नहीं
निष्पादन सुरक्षा	लागू नहीं
निविदा मूल्य	रू. **2,00,000.00**
स्थान	भारतीय भूचुम्बकत्व संस्थान प्लॉट क्र. 5, सेक्टर - 18, कलंबोली हाइवे, न्यू पनवेल, नवी मुंबई 410 218
प्रस्तुत करने की अंतिम तारीख	07.06.2024 तक 15:00 बजे
टेंडर खोलने की तारीख	07.06.2024 पर 15:30 बजे
संपर्क	प्रभारी क्रय एवं भण्डार
ई-मेल आईडी	iig.pso.stores@iigm.res.in
दूरध्वनि सं.	022-27484093
फैक्स सं.	022-27480762

Organization Name	Indian Institute of Geomagnetism
Tender No.	IIG/Tender/PCB/01/2023
Type of Organization	Central Autonomous
Product Category	Design
Tender Type	TWO PACK BID
EMD	Not Applicable
Performance Security	Not Applicable
Tender Value	**Rs. 2,00,000.00**
Location	Indian Institute of Geomagnetism Plot No. 5, Sector – 18, Kalamboli Highway, New Panvel, Navi Mumbai – 410 218
Last date for Submission	07.06.2024 upto 15:00 hrs
Opening Date	07.06.2024 by 15:30 hrs
Contact	In-charge Purchase and Stores
Email	iig.pso.stores@iigm.res.in
Telephone	022-2748-4093
Fax	022-27480762

INDIAN INSTITUTE OF GEOMAGNETISM
(AN AUTONOMOUS ORGANISATION OF THE DEPARTMENT OF SCIENCE & TECHNOLOGY, GOVT OF INDIA)

Telephone : 022 – 2748 4000
FAX : 022 – 2748 0762

Address : Plot No. 5, Sector-18,
Kalamboli Highway, New Panvel,
Navi Mumbai 410 218

Email : iig.pso.stores@iigm.res.in

Website : www.iigm.res.in

TENDER FOR

PCB design and development

Tender No. IIG/TENDER/PCB/ 01/2024

TENDER DOCUMENT

AT

INDIAN INSTITUTE OF GEOMAGNETISM (DEPARTMENT OF SCIENCE & TECHNOLOGY)
PLOT NO.5, SECTOR-18 KALAMBOLI HIGHWAY,
NEW PANVEL, NAVI MUMBAI 410 218

INVITATION FOR TENDER FOR PCB DESIGN AND DEVELOPMENT

Sealed tenders are invited in two separate sealed covers (Technical and Commercial offers) from experienced firms/vendors/companies for PCB design and development:

PCB design and development

The validity of the bid should be at least Twelve months or more from the date of the opening of the tenders. Please ensure that your quotation reaches not later than **07.06.2024 at 15:00hrs** at the following address:

In charge Purchase & Stores
Indian Institute of Geomagnetism,
Plot No. 5, Sector-18, Kalamboli Highway,
New Panvel, Navi Mumbai 410 218

Tender Reference	Tender No. IIG/TENDER/PCB/01/2024 **Dated: 24.05.2024 at 15:00 Hrs**
Last Date and Time for submission of tender document	**07.06.2024 15:00 Hrs (Indian time)**
Time and Date of Opening of Bids	**07.06.2024 15:30 Hrs (Indian time)**
Address of Communication/opening of bid	Indian Institute of Geomagnetism, Plot No. 5, Sector-18, Kalamboli Highway, New Panvel, Navi Mumbai 410 218
Contact for technical queries E-mail:	**+91- 22-2748 4093** **iig.pso.stores@iigm.res.in**

Scope of Work:

IIG intends to outsource certain PCB design and development processes in their current design cycle, which involves integrated work plans, including layout design, signal integrity validation, PCB fabrication, and assembly. Our organization places a strong emphasis on the quality and precision of PCBs, and we are looking for a partner with expertise in analogue, digital, and RF PCB layout designing, fabrication and as well as proficiency in embedded system design.

PCB & enclosure Specifications:

S No	Parameter	Value	Remark
1	Feature	One analog input, GPS input, two analog outputs, One RF output, Display Output, and 3 digital outputs. All these signals interfaced with the 32-bit arm MCU.	
2	Number of PCBs housed in one enclosure	3 (1 Main PCB (analog & digital) + 1 RF amplifier PCB + 1 Display & GPS PCB).	
3	PCB Size	15x15cm Main PCB, 5x5cm RF Amplifier PCB, 8x8cm Display PCB	
4	Component Count	200-300 SMD/PTH components in all three PCB	
5	No. of layers	2-4 layers with a finished thickness of 1.6 mm	
6	Cu thickness	70.00 micron/2 oz	
7	PCB material	FR-4 glass epoxy material with solder mask and legend print.	
8	Final finish	HAL (Sn-Pb) with immersion Gold/ENIG	
9	Min trace width/spacing	6 mils	
10	Enclosure Size	3 numbers of interconnected PCBs housed in a space application suitable aluminium enclosure	
11	Enclosure Material	Powder-coated/anodized Aluminium	

Component Specifications:

1. Types: SMD and PTH
2. Count: 200-300 max components per PCB
3. Only ICs and specific components will be provided by the user; turn-key components for resistors, capacitors, inductors, etc., should be provided by the fabricator.
4. Altium and EasyEDA software are used for developing schematics and provided to the fabricator.

Design Requirements:

1. Thorough knowledge of analog, digital, and RF PCB layout designing.
2. Proficiency in low-power embedded system design.
3. Utilization of schematic files provided by us to design PCBs, meeting user requirements.
4. It May take multiple design iterations until the targeted size and quality are achieved.
5. Each PCB must have test points at the locations mentioned by the user in the schematic.

Intellectual Property Protection:

1. All the information shared, including the schematic and PCB files, will be treated as confidential.
2. The service provider must ensure the protection of intellectual property associated with the design.
3. The Vendor must submit a signed copy of the Non-Disclosure Agreement (NDA).

Assembly Standards:

1. The assembly of components must adhere to **industrial and space standards.**
2. After assembly, each PCB must be duly tested, and the signal outputs at test points must be noted and submitted along with the PCBs during delivery.

<u>Contract terms:</u>

a) **<u>PCB layout design and fabrication</u>**

1. The contract and quoted price will be valid for one year from the effective date of the agreement.
2. The service provider must provide all related files like the designed schematic, layout, pick n place, and Gerber files, along with the delivery of the PCB.
3. For each design layout, a minimum of 5 PCBs will be fabricated and assembled in an order.
4. Component assembly should meet standards IPC-A-610E or better.
5. The circuit schematics files, Bill of Material (BOM), enclosure dimensions and required specifications shall be provided to the supplier after placing the Purchase Order.
6. The layout design shall be prepared by an experienced and skilled engineer. If the layout design work is to be outsourced by the supplier, the name of the company shall be mentioned in the quotation.
7. The layout designer shall interact with the user's engineer. After completion of the PCB layout and enclosure design, the PCB layout and mechanical design file shall be submitted to the user for approval before fabrication. The final confirmation for PCB fabrication will be provided only after the PCB design is finalized.
8. All respective datasheets and layout guidelines shall be referred to and shall be implemented in schematic and layout design.
9. Layout design and netlist files should be submitted to the user for review and approval before proceeding to the next stage.
10. The Layout designer must have expertise in designing low-noise amplifiers and ground plane techniques.

b) **<u>Enclosure Design and DXF file generation</u>**

1. The enclosure must be made of completely nonmagnetic aluminium materials.
2. The enclosure must be weatherproof and suitable for space/industrial applications.
3. The enclosure design, using any CAD software, shall be prepared by an experienced and skilled engineer.
4. The mechanical enclosure design shall be carried out as per specifications and PCB size.
5. Enclosure design files shall be submitted to the user for review and approval before proceeding to fabrication.
6. Design files in DXF/STL/STEP format shall be generated and submitted.
7. Powder coating, coloured stickers, and laser engraving may be required as and when requested on the enclosure.
8. Material procurement and machining will be within the vendor's scope.

c) <u>Pricing:</u>

1. Please provide a detailed pricing structure on a per PCB basis, taking into consideration the specified requirements. This should include separate costs for each layout design, PCB fabrication per square centimeter, and assembly.
2. Please provide separate costs for Enclosure design (CAD design) and fabrication costs on a per enclosure basis of a given size/weight of material.
3. The approximate annual PCB fabrication quantity will **be 50 numbers**.
4. The Financial bid is attached in annexures - II

Submission Guidelines:

Interested service providers are invited to submit a detailed proposal that includes the following:

1. Company profile highlighting relevant experience (at least 2 years).
2. Provide an overview of expertise in analog, digital, and RF PCB designing, as well as embedded system design.
3. Explanation of the proposed approach for schematic-to-PCB design, fabrication, and assembly.
4. Clear breakdown of pricing, including any additional services offered in separate financial format.
5. Bidder profile in the format given as annexure-1 with supporting documents.
6. Technical and financial bids should be submitted separately in an envelope and envelope should be super-scribed in big envelope with "Tender for PCB design and development"

Tender Details

Tenders are to be submitted in prescribed tender form in a sealed envelope mentioning “PCB DESIGN & DEVELOPMENT.”

To,

The Director,
Indian Institute of Geomagnetism,
Kalamboli Highway, New Panvel,
Navi Mumbai: 410 218.
on or before the 07.06.2024

1) Interested firms may contact,

   In-charge Purchase & Stores email : iig.pso.stores@iigm.res.in or Tel: 022 – 2748 4093 for any clarification

2) The tender document may be downloaded from website http://www.iigm.res.in. The tender document shall not be issued by post.
3) The validity of the tender will be 120 days from the date of opening of Price bid.
4) Last date / Time and place for submission of sealed tender.

   Last Date of submission : **07.06.2024 upto 15:00** hrs
   Opening of Tender : **07.06.2024 by 15:30** hrs

Tenders will be opened as indicated in the presence of the Tenderers or their authorized representatives, who wish to be present. If the date of opening of the tenders does not materialize due to the reasons beyond our control, the same will be opened on the next working day at the same time and place.

5) Any bid received by IIG NEW PANVEL after the deadline for submission of bids prescribed by IIG NEW PANVEL, will be summarily rejected and returned unopened to the Bidder. IIG NEW PANVEL shall not be responsible for any postal delay or non-receipt / non-delivery of the documents. No further correspondence on this subject will be entertained.

Annexure - I

Proforma for Tenderer's Profile

Information about Tenderer (To be submitted along with the Tender):

1. Name of the Firm:
2. Registered Address:
3. Contact Phone Number (s):
4. Telephone Number:
5. Whether the Firm a:
    i) Central /State Government Undertaking:
    ii) Sole Proprietary Company or Partnership Firm/(P) Ltd. Company:
6. Name of Sole Proprietor OR Names of Partners/Directors:
7. Name of person authorized to sign Tender Bid & negotiate and the capacity in which he is Authorized:
8. Permanent Income Tax A/C No:
9. Engaged in the Business of Manufacture/Supply of the items since when:
10. Company profile indicating level of Expertise available, with supporting reference (Extra Sheet/s may be attached):
11. Annual Turnover for last two years quantity of work-wise: + in number of executed Work Orders + the Bill Amounts.
12. A list (with full addresses) of prominent organizations where the bidding firm have undertaken similar supplies.
13. Vendor's last two years financial details (audited balance sheets/turn over etc.)
14. Tender documents signed and stamped on each page.