

Government of India  
Bhabha Atomic Research Centre  
Electromagnetic Applications & Instrumentation Division

Ref No: EmA&ID/2021/SSR/46/ 14335

Date: 16/11/2021

-----To whom so ever it may concern-----

**Sub:** Development, testing and supply of cryogenic signal conditioning plate assembly system

Dear Sir/Madam,

1. Quotations are invited for development, testing and supply of cryogenic signal conditioning plate assembly system conforming to technical specification no: EmA&ID/CRY/21/46 dated 10.11.2021.
2. Bidder shall quote for above job inclusive of raw material
3. Taxes and Excise Duties shall be quoted separately. Form AF / H whichever is applicable shall be provided, if required.

**The quotation must reach The Head, Electromagnetic Application & Instrumentation Division by 26.11.2021 and must be sent in a sealed envelope super scribed with the reference number & the due date given above only through India Ordinary Post/Speed Post.**

4. The address on the envelop should read: The Head,  
Electromagnetic Application & Instrumentation  
Division,  
RCnD Bldg., North Site  
BARC, Trombay,  
Mumbai - 400 085.  
(Kind Attn: S.Sundar Rajan, SO/G)
5. The bidder shall complete the job within 3 months from the date of firm work order issued to the bidder.
6. Head, Electromagnetic Application & Instrumentation Division reserves the rights to accept / reject any or all quotations without assigning any reason.
7. Quotation must also indicate the validity of offer. Quotation must also indicate the GST No and PAN number of the supplier.
8. The quotation has to be signed by authorized person with company seal.
9. Payment will be made by EFT only after satisfactory completion of work on production of bill, delivery challan and advance stamped receipt. Income tax as applicable will be collected at the time of payment.
10. In case of any technical clarifications, the supplier may kindly contact the indenting officer through Email only. (Email ID: sundara@barc.gov.in)

Encl.: Technical Specification Sheet no: EmA&ID/CRY/21/46 dated 10.11.2021

*S.Sundar Rajan .*  
S.Sundar Rajan  
SO/G,EmA&ID

Technical specification

Document no.	Revision no.	Date of Issue	No of pages
EmA&ID/CRY/21/46	0	10.11.2021	4

Development, testing and supply of cryogenic signal conditioning plate assembly system

1.0 SCOPE

This document specifies the requirement for Development, testing and supply of cryogenic signal conditioning plate assembly system. The complete job shall be carried out strictly as per requirements, specifications and its compliance standards as detailed in this document. In this specification the supplier shall be referred to as the “supplier” and Bhabha Atomic research Centre shall be referred to as the “buyer”.

The supplier shall arrange for required raw materials and tools required to complete the above job. The brief description of contents of the tender specification document is as described below.

Para 2.0 gives the details of deliverables.

Para 3.0 gives the job description details.

Para 4.0 gives the requirement of raw material procurement.

Para 5.0 gives the requirement of manufacturing and workmanship.

Para 6.0 gives the requirement of inspection and testing.

Para 7.0 gives the requirement of documentation.

Para 8.0 gives the requirement of supplier’s qualification.

Para 9.0 gives the requirements of packaging and delivery.

Para 10.0 gives the confidential clause

2.0 DETAILS OF DELIVERABLES

The scope of supply is tabulated in table below

S.No	Description	Nos
1	Development, testing and supply of cryogenic signal conditioning plate assembly system (Plate-1 and Plate-2) along with cryogenic connectors	3 Nos each

3.0 JOB DESCRIPTION

3.1 Bulk head flange connector-1 requirements

Frequency range	Max 18GHz
Operating temperature	4.2K
Adapter series	SMA
Power	1W
VSWR	1.25:1

3.2 Bulk head flange connector-2 requirements

Frequency range	Max 18GHz
Adapter series	SMA

Operating temperature	4.2K
Power	1W
VSWR	1.25:1

3.3 Both these attenuators shall be mounted on OFHC plate-1 and plate-2 as shown in Annexure-A. The plates shall be annealed for better thermal conductivity and shall be gold plated for a thickness of 100u on both the sides.

#### 4.0 RAW MATERIAL PROCUREMENT

4.1 All the analog IC's and digital IC's, high precision reference resistors etc shall be strictly of industrial grade and shall be purchased only from very know distributors like Farnell , RS components , Mouser or Digikey. Proof of same shall be provided.

#### 5.0 REQUIREMENTS OF MANUFACTURING AND WORKMANSHIP

5.1 The component assembly shall strictly be carried out using temperature controlled soldering station and the temperature of the soldering process shall be controlled to avoid damaging of the ICs and other components.

5.2 The supplier shall workout a detailed design to meet fabrication requirements and work description, quantity and main fabrication material. He shall submit along with the offer dimensional drawing giving all the salient features, material details of individual items and assembly view of the fixtures.

5.3 The supplier shall indicate in detail the standards adopted for the materials and processes and the quality control procedures followed by them.

5.4 Supplier can suggest the color, aesthetics, and other details as suitable. Supplier must offer best quality/IS certified material only.

5.5 Supplier should have similar work experience and along with the offer, shall submit the details of past experience with documentary proof.

5.6 Materials, tools, manpower etc required for the above work will not be supplied by the user. Supplier has to arrange the above on his own (No free issue material).

5.7 The supplier must incorporate minor changes in the design as required at the time of execution of work at no extra cost.

#### 6.0 INSPECTION AND TESTING

6.1 Before dispatch of the system to purchaser premises, the supplier shall carry out CMM inspection of the enclosure along with material test certificate. The annealing cycle of the thermal shield shall be provided. In case of any modifications required to match the performance requirements shall be carried out.

6.2 After dispatch of the system to BARC, the system shall be integrated with the system and tested for its performance.

6.3 QA/QC documents: The supplier shall develop detailed QA/QC document of various fabrication process, inspection and testing requirements. The minimum required documentation is listed below. The QA/QC document shall be mutually agreed upon and signed by authorized persons of the supplier and purchaser.

6.4 Material certification: The supplier shall provide material certification/documents of the OFHC Copper plates.

## 7.0 DOCUMENTATION REQUIREMENTS

7.1 Upon the receipt of work order, the supplier shall submit revised schematics of the purchaser approval including bill of materials and the supplier's part nos.

7.2 The proof of purchase of industrial grade IC's from very know distributors like Farnell , RS components , Mouser or Digikey. Proof of same shall be provided.

## 8.0 REQUIREMENTS OF SUPPLIER QUALIFICATIONS

8.1 The supplier shall be evaluated on the basis of the following criteria

8.1.1 The supplier shall have previous experience in carrying out similar such jobs for BARC, IGCAR any recognized government research Labs and copy /proof of the same shall be attached.

8.1.2 The supplier shall submit the details of the CAD software, the design engineers, assistants etc along with PCB layout facility available with the supplier to carry out the job successfully.

8.1.3 The supplier shall provide the list of their employees along with their valid PVC certificate, who are intended to work in this job.

8.1.4 Sub contract: Supplier should list the jobs, which they want to sub-contract. They should also produce the list of sub-contractors and their infrastructures and facilities.

## 9.0 REQUIREMENTS OF PRICE AND DELIVERY SCHEDULE

9.1 The supplier shall provide lump sum prize to complete the

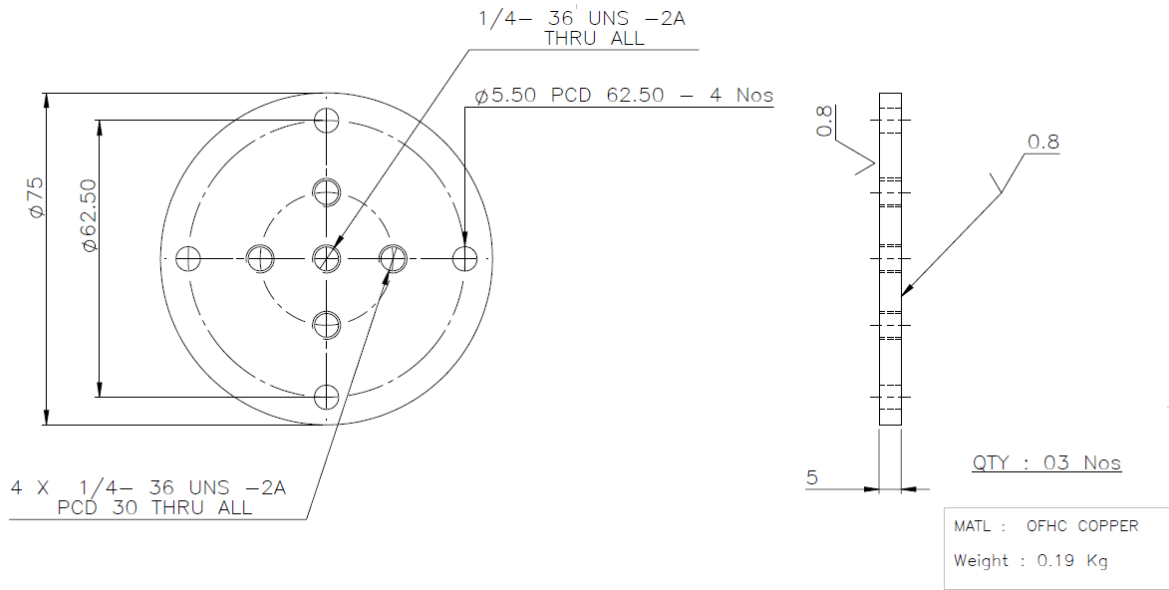
9.2 The complete job is expected to the completed in a duration **of 03 Months maximum.**

## 10.0 CONFIDENTIALITY CLAUSE

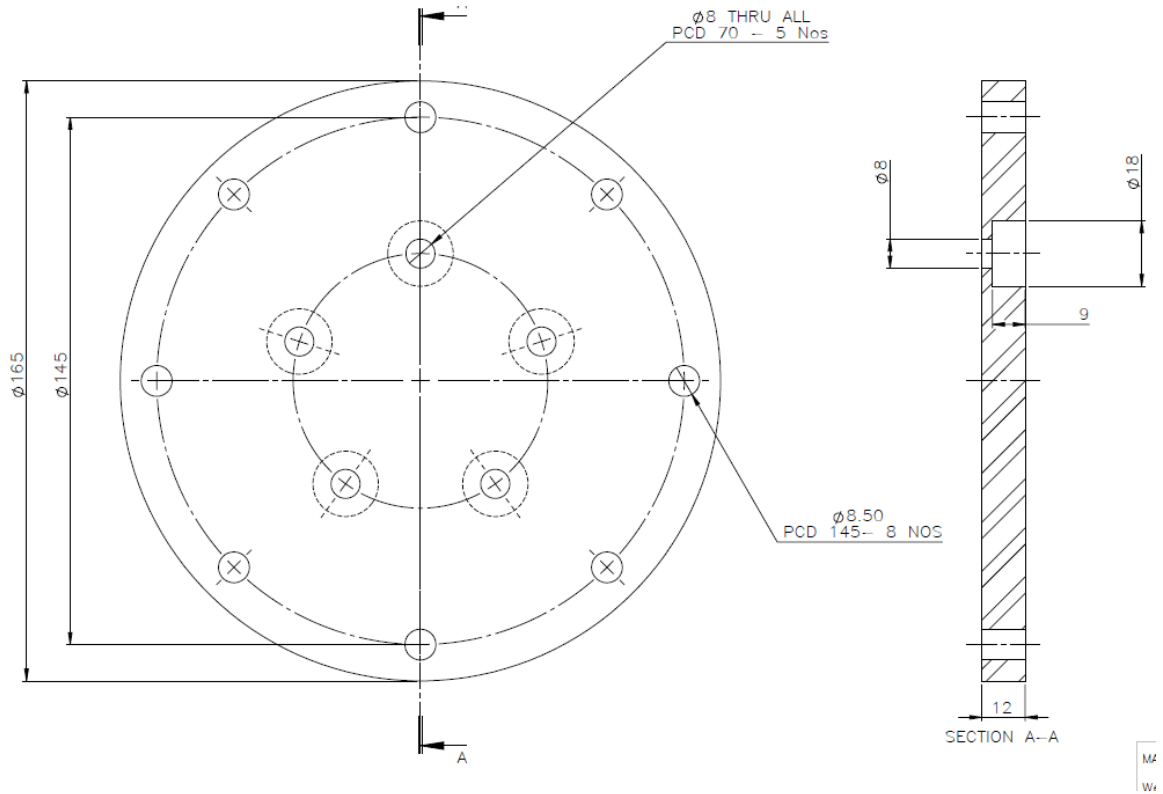
10.1 No party shall disclose any information to any third party concerning the matters under this Contract generally. In particular, any information identified as "Proprietary" in nature by disclosing party shall be kept strictly confidential by the receiving party and shall not be disclosed to any third party without the prior written consent of the original disclosing party. This clause shall apply to sub-contractors, consultants, advisors or the employees engaged by a party with equal force.

10.2 "Restricted information" categories under section 18 of the Atomic Energy Act, 1962 and "Official secrets" under section 5 of the Official Secrets Act, 1923: Any contravention of the above mentioned provisions by any contractor / sub-contractor, consultant, advisor or the employees of the contractor will invite penal consequences under the aforesaid legislation.

10.3 Prohibition against the use of BARC's name without permission for publicity purpose. The contractor or sub-contractors, consultants, advisors or the employees engaged by a party shall not use BARC's name for publicity purpose through any public media like: press, radio, TV or Internet without any prior approval of BARC (wide circular ref.: 2/Misc-9/Lgl/2001/92 date 30/04/2001)



Drawing of plate-2 (MOC: OFHC Gold Plate-100u on all sides)



Drawing of plate-2 (MOC: OFHC Gold Plate-100u on all sides)