Embedded passive resistive Frequency Selective Surface (FSS) based flexible Printed Circuit Board (PCB)

Embedded passive resistive Frequency Selective Surface (FSS) based flexible printed circuit board is a thin, repetitive/periodic surface (such as the screen on a microwave oven) designed to reflect, transmit, or absorb electromagnetic fields based on the frequency of the impinging electromagnetic field used for various aeronautics application. In general, PCB sheet consists of (a) thin sheet of copper cladded with resistive material (with specific patterns) and (b) single/ multi layers of glass/ FR4/ quartz fabric, embedded either one/ both sides of the copper cladded resistive sheet. The PCB sheet to be fabricated by bonding of resistive material with FR4 followed by drilling, imaging process (also known as Photolithography), and etching process. Chemical etching is used for selective removal of copper and resistive materials to achieve specific patterns. As photolithography is a very complex process, various drilling defects, imaging defects, and etching defects will be encountered during fabrication of PCB. The innovation provides fabrication process of flexible FSS PCB sheets. This thin embedded passive resistive FSS sheet will be used as radar absorbing structure (RAS) for airborne applications.

Interested industries are requested to forward their Expression of Interest (EoI) (with attachments of supporting documents) to **Director, Aeronautical Development Establishment (ADE)** with a copy to Director DIITM, DRDO HQ (no attachments are required to be forwarded to DIITM) on following address:-

Director
Aeronautical Development Establishment(ADE)
Defence Research & Development Organization
Suranjan Das Rpad PO, New Tippasandra, Bengaluru - 560075
Phone: 080-2528 3404
Fax : 080-2528 3188
E-mail : director.ade@gov.in

Copy to

Director
Directorate of Industry Interface & Technology Management (DIITM)
Room No 447, DRDO Bhawan, DRDO HQrs, Rajaji Marg, New Delhi – 110011
Phone: 011-23013209/ 23015291
Fax: 011-23793008
Email: diitm.hqr@gov.in

Embedded passive resistive Frequency Selective Surface (FSS) based flexible Printed Circuit Board (PCB)

All industries interested in seeking ToT are requested to apply in the format given below. Kindly fill in the fields. The list of documents to be attached is provided in Annexure – I. Kindly provide the reference of page no. of supporting document in the relevant field of form.

PART-1

General Information

(Please enclose documents in support of information provided)

1.	**Name of the Technology requested for Technology Transfer (Technology name and concerned Lab, Category)**	
2.	**Name of the industry/ organization**	
3.	**Complete Address and other details**	
	Registered Office State Phone No Fax Email Website	
	Factory State Phone No Fax Email Website	
4.	**Point of Contact** Name Designation Address Mobile No Ph No Email ID	
5.	**NAME OF CMD/ MD /PARTNERS/ PROPRIETOR/ etc** Name Designation Address Mobile No Ph No Email ID	
6.	**Date of Incorporation of company**	
7.	**Foreign Direct Investment in company (if any in %)**	
8.	**Shareholding pattern**	
9.	**Turn over as per Audited Balance Sheet for the preceding three years.**	

	Year ____ Year ____ Year ____	
10.	**Annual budget for R&D during last three years (if any)** Year ____ Year ____ Year ____	
11.	**Income Tax returns for the preceding three years period** **Year** ____ **Year** ____ **Year** ____	
12.	**Nature of company** DPSU, Private Limited, Public Limited, Partnership, Proprietary, Ex- Serviceman Unit	
13.	**Category of industry** Large Scale, Medium Scale, Small Scale, Micro, Startup	
14.	**MSME Registration No**	
15.	**Certificates of registration as a manufacturing unit, if any.**	
16.	**If Startup, DPIIT Registration No**	
17.	**UDYOG AADHAR No**	
18.	**PAN Number**	
19.	**Details of Industrial license for defence manufacturing issued by DPIIT (if any)**	
20.	**Details of PESO license (if any)**	
21.	**GST Number**	
22.	**Nature of business** Manufacturing/ Sole Selling or Authorized Agent/ Assembler/ Traders/ Dealer/ Processor/ Repacker/ Others	
23.	**Details of current products and services** Products and services Supplied (please specify Govt/ Domestic market/ Export)	
24.	**Record of past performance** (e.g., Supply orders executed against of Ministry of Defence orders, Public Sectors and Paramilitary Forces, if any).	
25.	**Details of registration** with NSIC / SSI, DGS&D, other Defence Department, other Govt. Dept, membership of FICCI/ASSOCHAM/CII or other Industrial Association **(Attach relevant copies of registration letters)**	
26.	**Have you already taken any technology from DRDO** (If yes, give details attaching separate sheet)	

	Name of the Technology, Lab, Year, License number & Status	
27.	**ISO/ ISI certification or any other certification** (If yes, give details)	
28.	**Relevant clearances form the authorities/ ministries** (if any)	
29.	**Capacity and capability to undertake developmental work and to accept attendant financial and commercial risks.**	
30.	**Capacity/capability to market the product through the marketing network, sales and service network, reliability to maintain confidentiality.**	

PART-2

Infrastructure and other Information

1.	**Total area of factory** Covered (m^2), Uncovered (m^2), Bonded space available (m^2)	
2.	**Ownership of factory** Self-owned, partnership, rental	
3.	**Electric power** Sanctioned Installed Standby (if any)	
4.	**Availability of adequate infrastructure** (List of machines and their production capacities) and technical expertise	
5.	**Name of bank & A/c No Name of bank** A/c type A/c no Address of the bank Phone: Email:	

6. Details of current products:

S.No	Type	Description	Licensed/installed capacity	Annual production for preceding 3 years

7. Details of foreign collaboration, if any

S.No	Product	Name and address of collaborator	Year	Remarks

8. Details of products developed for services

S.No	Nomenclature of stores	Order No. and date	Remarks

9. Please give details of important facilities & infrastructure as per following format for:

(a) Production

(b) Unconventional, special m/c

(c) Testing & quality control facilities

S.No	Description of m/c	Make & model	Qty	Date of purchase	Remarks

10. Furnish the following details with relevant certificates and documents

(a) R&D facilities available :
(b) Inspection quality control of raw material components :
(c) Assistance from central agency for testing / calibration etc. :
(d) laboratory and drawing office facility :

11. Principal customers:

S. No	Name & address	S.O No and date	Date of last supply	Products supplied	Value

12. Future plans (if any) in respect of expansion programme/ installation of additional machines/ test facilities etc.

13. Name of the technology requested for transfer

- (give self-assessment of your capability to absorb the technology)

14. Details of employee as on date on firm's pay roll

PERMANENT				
Category	Post Held	Number	Qualification	Total Service
Technical	Prod. Manager Q.C. Manager Supervisor Testing Staff (QC) Skilled workers Unskilled workers, etc			

Administrative	Purchase Manager Accounts Officer Office Superintendent Clerical Others, etc			

TEMPORARY				
Category	Post Held	Number	Qualification	Total Service
Technical	Prod. Manager Q.C. Manager Supervisor Testing Staff (QC) Skilled workers Unskilled workers, etc			
Administrative	Purchase Manager Accounts Officer Office Superintendent Clerical Others, etc			

DECLARATION :

I / we confirm that the information furnished in Part 1 & 2 above is correct. In the event of any information given by me / us is found incorrect / false at any time, I / we understand our EoI for ToT will be cancelled/ rejected without notice, beside any other appropriate action against me / us.

Industry seal

Authorized signatory
Name(s) in capital
Designation and seal of authorized signatory

Date:

Place: