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Dte of Projects
Air Headquarters
Rafi Marg
New Delhi-110106
Air HQ/S 96541/66/PROJIND(ASTE) BM-I dt 02 Sep 25

As per Distribution List

**FORWARDING OF INVITATION FOR EXPRESSION OF INTEREST (EoI) FOR DESIGN, DEVELOPMENT AND PROCUREMENT OF AIRBORNE RUGGEDIZED FLIGHT INSTRUMENTATION SYSTEM**

1. Annexed Please find 'Invitation for Expression of Interest (EOI) for Design, Development and Procurement of Airborne Ruggedized Flight Instrumentation System (ARFIS) under Make-II Procedure of DAP 2020

2. Forwarded for your information and further necessary action please.

Electronically Signed By WG CDR REEJU CHAKRABORTY
*(AIR HQ VB (Wg Cdr Projects ASTE))*
*On 02-Sep-2025 11:10:44 (Ph-21115406)*

**Annexure:-** As stated

**Distribution List:-**

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**Copy to**:-

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Gp Capt DAD (T) – For taking up for publishing on MoD/ DDP website.

ASTE (OC TES)

**INVITATION FOR EXPRESSION OF INTEREST (EOI) FOR DESIGN, DEVELOPMENT AND PROCUREMENT OF AIRBORNE RUGGEDIZED FLIGHT INSTRUMENTATION SYSTEM (ARFIS) UNDER MAKE II PROCEDURE OF DAP 2020**

| | | |
|---|---|---|
| **Reference:-** | **Defence Acquisition Procedure 2020 (DAP - 2020)** | |
| **Appendices:-** | **A** | Preliminary Service Qualitative Requirements (PSQR) for ARFIS |
| | **B** | Format for EoI Response |
| | **C** | Commercial and Technical Evaluation Criteria |
| | **D** | Confidentiality Agreement |
| | **E** | Correctness Certificate |

**Layout**

1. The EoI comprises the following parts:-

1.1. **Part-I** : General Information

1.2. **Part-II** : Scope of Project

1.3. **Part-III** : Evaluation Criteria

1.4. **Part-IV** : Procedure for submission of Response to the EOI

1.5. **Part-V** : Miscellaneous

2. The nodal officer for this project for all queries/ clarifications/ coordination will be Chairman, Project Facilitation Team, “Design, Development and Procurement of Airborne Ruggedized Flight Instrumentation”. Address and contact details of the nodal officer are given at Para 25 of the EoI.

**PART I: GENERAL INFORMATION**

3. Airborne Ruggedized Flight Instrumentation System (ARFIS) will act as a ruggedized data recorder which can be used for recording the vital aircraft and system parameters during flight testing. The recorded data can be used for data analysis by test crew both during trials as well as for training. The technology for development of ARFIS spans across multiple disciplines such as Printed Circuit Boards (PCB), Integrated Circuits and software development. The technology is niche and only few countries have indigenously developed flight instrumentation system. KAM-500 DAQ from M/s Acra Controls, Ireland is one such system which is widely used in India.

**Objective**

4. The objective of this EoI is to seek responses from eligible Indian Entity to indigenously Design & Develop the Airborne Ruggedized Flight Instrumentation

System under the '**Make II**' sub-category of **'Make**' and subsequently procure Qty 01 prototype followed by Qty-06 Airborne Ruggedized Flight Instrumentation System under the '**Buy (Indian-IDDM)**' category as per Chap III of DAP 2020.

## PART II: SCOPE OF THE PROJECT

5. **Phases.** The project involves following two phases:-

5.1. **Design and Development Phase.** This phase involves indigenous Design and Development of prototype ARFIS, Single Stage Composite Trial (SSCT), and conversion of PSQR to Air Staff Qualitative Requirements (ASQR). This phase will end upon approval of the trial report by the appropriate authority within the Air HQs as per **Para 54, 55 of Chapter-III of DAP 2020** under the 'Make-II (Industry Funded)' sub-category.

5.2. **Procurement Phase.** This phase will commence with 'Buy (Indian-IDDM)' with minimum 50% IC in accordance with Para 55A of Chapter-III of DAP 2020 from qualifying DAs.

6. **Categorisation**.

6.1. **Design and Development Phase.** 'Make-II (Industry Funded)' Sub Category of Make Category of DAP-2020.

6.2. **Procurement Phase.** 'Buy (Indian-IDDM)' in accordance with Para 6(d) of Chapter III of DAP-2020 from qualifying Development Agency (DA) with minimum 50% IC.

7. **Quantities**.

7.1. **Design and Development Phase.** Qty-01 set of Airborne Ruggedized Flight Instrumentation System (along with associated accessories & equipment).

7.2. **Procurement Phase.** Qty-06 sets of Airborne Ruggedized Flight Instrumentation Systems (along with associated accessories/ equipment and documentation).

8. **Make-II Procedure.** Detailed guidelines on Make II Procedure (Chapter III of DAP 2020) may be downloaded from MoD website for reference.

9. **Preliminary Service Qualitative Requirements (PSQR).** The PSQRs for Design and Development of Indigenous Airborne Ruggedized Flight Instrumentation Systems) is attached as **Appendix A**. The Essential Requirements at Part III of the PSQRs must be met, as verified during SSCT, prior to conversion of PSQR to ASQR.

10. **Warranty.** The system is to be supported with a warranty of two years from the date of delivery of the item.

11. **Qualification Tests (QTs).** QTs are to be carried out on the prototype as per Qualification Test Procedure (QTP), approved by DGAQA & RCMA prior to SSCT.

**Timelines & Milestones**

12. **Single Stage Composite Trials (SSCT).** SSCT will be conducted in accordance with Para 55 of Chapter III of DAP 2020. Trials will be undertaken within India at IAF units.

13. **Milestones.** The Airborne Ruggedized Flight Instrumentation System are planned to be inducted as per timeline brought out below. Feasibility Study Team (FST) has estimated a D&D period of 48 weeks (Appendix-L, Chap-IIIA, DAP 2020). The estimated timeline for induction/ delivery is as follows:-

| S No | Activity | Remarks | Timelines (Weeks) | Cumulative (Weeks) |
|---|---|---|---|---|
| 13.1. | Issue of EoI | By PFT | - | $T_0$ |
| 13.2. | EoI response submission | By EoI Respondents (Indian Vendors) | 08 | $T_0$ + 8 |
| 13.3. | EoI Response evaluation | By PFT | 06 | $T_0$ + 14 |
| 13.4. | Issue of Project Sanction Order (PSO) for Prototype Development | To Selected DAs | 02 | $T_0$ + 16 |
| 13.5. | Prototype development | By DAs Monitoring by PFT | 48 | $T_0$ + 64 |
| 13.6. | Single Stage Composite User trials & Acceptance of Trial Report. | - | 07 | $T_0$ + 71 |
| 13.7. | Conversion of PSQRs to ASQRs | - | 02 | $T_0$ + 73 |
| 13.8. | Issue of Commercial RFP | - | 02 | $T_0$ + 75 |

| S No | Activity | Remarks | Timelines (Weeks) | Cumulative (Weeks) |
|---|---|---|---|---|
| 13.9. | Solicitation of Commercial Offer | - | 04 | $T_0$ + 79 |
| 13.10. | Finalisation of Cost Negotiation Committee (CNC) | - | 04 | $T_0$ + 83 |
| 13.11. | Signing of contract | - | 02 | $T_0$ + 85 |

**Development of Prototype and Trials**

14. Airborne Ruggedized Flight Instrumentation Systems should be developed as per PSQRs at **Appendix A**. Any clarification related to functional or operational aspects of development as sought by the DAs will be provided by the Project Facilitation Team (PFT).

15. After the prototype Airborne Ruggedized Flight Instrumentation Systems has been developed as per PSQRs given at **Appendix A**, and confirmed by the PFT in a collegiate manner, the PFT with requisite empowered members, would carry out the Single Stage Composite Trials of the prototype. If the prototype is assessed as meeting the desired standards, the PSQRs would be converted to ASQRs. Once the ASQRs are finalized, the vendor shall submit the certificate as per Appendix A to Chap-I and Annexure I & II to Appendix B of Chapter I of DAP-2020.

16. DAs may be required to produce the following documents for vetting and approval by IAF, QA agencies and Design Certification Agency as per PSQRs attached as **Appendix A**.

16.1. Environmental Qualification Test Procedure (EQTP). The following Mil Specs are to be complied by the designer pertaining to development of ARFIS:-

16.1.1. **Power Supply**: Mil Std 704 or equivalent.

16.1.2. **Environmental Qualifications**: Mil Std 810H or equivalent.

16.1.3. **EMI/ EMC**: Mil Std 461G or equivalent.

16.2. Detailed Specification Sheet.

16.3. Detailed drawings.

16.4. Manufacturing Process Document.

16.5. Quality Assurance Plans (QAP).

16.6. Acceptance Test Procedure (ATP).

16.7. Bill of Material (BOM).

16.8. **User manual/ Brochure containing the following**:-

16.8.1. Detailed drawings, specifications, standards & capabilities of ARFIS & its accessories.

16.8.2. Detailed guidelines/ procedure for installation & removal, data acquisition and downloading, operating instructions and storage facility.

16.8.3. Training documents.

16.9. Design for manufacturability (DFM) analysis.

16.10. Airworthiness Certification Plan (ACP) in accordance with IMTAR-21.

16.11. Reliability analysis as per MIL STD 217 or equivalent standard.

16.12. Certification documents related to DO 178 B/C for software and DO-254 for complex Electronics Hardware.

16.13. Documentation for certification of Test rigs/tools as per IMTAR-21.

16.14. Repair Maintenance philosophy along with manufacturers recommended list of spares (MRLS), list of special maintenance tools (SMP)/ Special Test Equipment (STE), jigs, fixtures, technical literature and training aggregates (in case required).

16.15. Certificate of malicious code.

17. Design & Development (including developmental testing/ trials) of the Airborne Ruggedized Flight Instrumentation Systems is to be undertaken by the Developmental Agencies (DAs). In case any IAF facility is required during trials, the vendor may provide a list of such facilities in his response (Para 25 of Appendix B refers).

**Solicitation of Commercial Offers**

18. A commercial Request for Proposal (RFP) for ‘Buy (Indian-IDDM)’ phase would be issued to all DAs who have cleared the ‘single stage composite trials’ of prototype to solicit their commercial offers and additional technical information/ documentation, as may be necessary.

**Deliverables**

19. The project is envisaged to have the following deliverables after certification. The details of procurement phase will be further amplified in the Commercial Request for Proposal (RFP):-

19.1. **Prototype Development Phase**. Qty-01 set of Airborne Ruggedized Flight Instrumentation Systems (along with associated accessories & equipment). The prototype is to be upgraded to production standard prior to delivery.

19.2. **Procurement Phase**.

19.2.1. A total of Qty-06 of Airborne Ruggedized Flight Instrumentation Systems Assembly along with associated accessories/ equipment.

19.2.2. Tools, Testers and Ground Equipment (TTGE), requisite training, Technical literature including user handbook, operations & technical documents and manuals.

**Intellectual Property Rights (IPRs)**

20. Policy on IPRs is mentioned at Para 59 of the Chapter III of DAP-2020 for Make-II Procedure.

**PART III : EVALUATION CRITERIA**

**Commercial and Technical Evaluation Criteria**

21. **Eligibility**. Indian Entity satisfying criteria given at Para 6(b) of Chap-III of DAP-2020 is considered as an eligible “Indian Entity” for the project.

22. EoI respondents will be evaluated for compliance to technical criteria as per **Appendix C**.

**Indigenous Content (IC)**

23. Indigenous Content of minimum 50% is to be ensured at prior to conversion of PSQR to ASQR. the vendor shall submit the IC certificate as per Annexure II to Appendix B of Chapter I of DAP-2020.

24. **Foreign Collaboration**. If the EoI Respondent is collaborating/ plans to collaborate with a foreign technology provider, the nature of such collaboration and the technology areas being transferred must be stated in the response (please refer Para 13 Appendix B and Ser No (k) of Appendix C).

## PART IV: PROCEDURE FOR SUBMISSION OF RESPONSE TO THE EoI

25. **Guidelines for Submitting EoI Responses**.

25.1. The responses should be submitted as per format placed at **Appendix B**. Should a vendor need to mention any other information, a separate column/ row/ additional pages may be added.

25.2. All responses as per Appendices should be submitted in a single file/ folder. Supporting documents/ additional references should be submitted in a separate folder with proper reference mentioned against each parameter/ sub parameter in respective appendices.

25.3. Any supporting document/ evidence without any reference to specific parameter of criteria will not form part of assessment. Such document may be used only at discretion of review committee/ person.

26. **Rejection Criteria for Selection as EoI Respondent**. The following may lead to rejection of EoI response:-

26.1. Failure to meet the Technical Evaluation Criteria given at Appendix C.

26.2. Failure to offer compliance to any of the terms and conditions given in the EoI.

26.3. Failure to agree with the project timelines.

26.4. Failure to offer desired indigenous content.

26.5. Any other parameter of the response considered inadequate.

27. The envelopes shall be addressed as under:-

**Chairman, Project Facilitation Team**
Design, Development and Procurement of
Airborne Ruggedized Flight Instrumentation System
Gp Capt Projects & Induction (Room No. 409)
Air HQ (Vayu Bhawan)
Rafi Marg, New Delhi-110001
Telephone/ Fax: 011- 23060219/ 01123014170
E-Mail ID: falcon.gun@gov.in

28. The response to this EoI must be submitted by 3:00 PM on **28 Oct 2025 (Eight weeks from issue of EoI)** at the address mentioned above.

29. The Company will be required to sign and honour the ‘Confidentiality Agreement’ with MoD, Govt of India. The ‘Confidentiality Agreement’ will be furnished

by each EoI respondent at the time of submission of EoI responses as per format given at **Appendix D**.

## PART V: MISCELLANEOUS

30. **Pre-EoI Response Meeting**. Companies may submit written queries/ clarifications/ amplifications on specific issues within 10 days of the issue of EoI. A pre-response meeting will be held in about three (3) weeks after the issue of EoI to clarify issues/ queries raised by the participating firms to facilitate submission of response. Date of pre-response meeting will be promulgated by the PFT.

31. **Earmarking for MSMEs.** The project is earmarked for MSMEs as per Para 12 of Chap-III of DAP-2020. However, if at least two MSMEs do not express interest for the programme, it shall be opened up for all, under the condition that interested MSME(s), if any at that stage and meeting the eligibility criteria, will get preference over Non- MSMEs in selection of DAs. Documentation proving MSME status are to be provided by the respondents.

32. Guidelines for penalties in business dealings with entities as promulgated by Government from time to time will be applicable on procurement process & bidders.

33. Respondents would be subject to disqualification if they make false, incorrect, or misleading claims in their response to this EoI. A 'Correctness Certificate' as per the format at **Appendix E** will be furnished as part of the response.

34. Please acknowledge the receipt of this invitation for EoI.

File No: **AIR HQ/S 96541/66/PROJIND(ASTE) BM-I**

Electronically Signed By GP CAPT ELVIS CLINTON RODRIGUES
*(AIR HQ VB (Gp Capt Projects & Induction))*
*On 01-Sep-2025 17:20:14*

# INDIAN AIR FORCE

## PRELIMINARY STAFF QUALITATIVE REQUIREMENTS

## FOR

| | |
|---|---|
| Store/ Item/ Eqpt: | **AIRBORNE RUGGEDISED FLIGHT INSTRUMENTATION SYSTEM** |
| PSQR No: | **06/ 2024**<br>Amended on <date as per e-signature> |
| Date of Approval: | **As per e-signature** |
| Reference: | **AIR HQ/S 96541/66/PROJIND(ASTE) BM-I** |



## NODAL AGENCY FOR AMENDMENTS

Directorate of Acquisition

Air Headquarters (Vayu Bhawan)

New Delhi-110106

Telephone (Fax): 011-23013225

Email: makeind.af@gov.in

**PSQRS No. 06/ 2024**

# PRELIMINARY SERVICES QUALITATIVE REQUIREMENTS (PSQRS) FOR AIRBORNE RUGGEDISED FLIGHT INSTRUMENTATION SYSTEM

The Documents contains following parts:-

**Part I** - Introduction

**Part II** - Purpose (purpose of the document)

**Part III** - Essential Parameters (List of parameters which the design/ development/agency must comply on prototype)

**Part IV** - Desirable Parameters (List of parameters which are desirable in the prototype)

**Part V** - Technical specifications of the individual module (these are technical specifications of the item, provided for guidance of the Design/Development agency)

**Part VI** - Reference Documents

## PART-I. INTRODUCTION

1. Flight Test Instrumentation is an essential requirement for conduct of flight trials and test crew training. The instrumentation sensors along with Data Acquisition Systems are required to be installed on the test aircraft to record the vital parameters. The FTI data is used data analysis by the test crew. Airborne Ruggedized Flight Instrumentation System is a scalable, modular and configurable solution for Flight Test Instrumentation. The system can be deployed in aircraft, helicopters, unmanned flight vehicles catering the application domains of Flight Test Instrumentation, Health and Usage Monitoring; Operational loads Monitoring and Flight Data Acquisition.

2. The objective of this Preliminary Staff Qualitative Requirement (PSQR) is to define the design features, performance parameters, operational aspects and maintainability features of the Airborne Ruggedized Flight Instrumentation System, being developed through ‘Make in India’ initiative. These requirements stipulate the minimum performance parameters of the Airborne Ruggedized Flight Instrumentation System.

## PART II. PURPOSE (PURPOSE OF THE DOCUMENT)

3. The purpose of this document is to serve as a referral/guidance document for use by potential Developmental Agencies (DAs) involved with the Make II project for "Design, Development and Procurement of the Airborne Ruggedized Flight Instrumentation System".

(a) The DAs are encouraged to exceed the minimum performance as specified by this document, in consultation with the Project Facilitation Team (PFT) nominated for the ibid case.

4. The process for design and development will be undertaken as per Chap III of DAP 2020.

5. The certification will be as per provisions of current IMAP in vogue.

6. After the prototype has been developed Single Stage Composite Trials of the prototype would be carried out as per DAP-2020, Chap-III, Para 55.

## PART III. ESSENTIAL PARAMETERS.

7. Airborne Ruggedized Flight Instrumentation System should be scalable, completely modular, high performance, easily configurable, economic solution catering data acquisition needs of aerospace sector. The major design requirements are given below:-

(a) The Airborne Ruggedized Flight Instrumentation System must be qualified for installation on fighters, transports, helicopters and unmanned flight vehicles.

(b) The Airborne Ruggedized Flight Instrumentation System must be provided with rugged Mil Std qualified Laptop based programming and data download station.

(c) The system must be able to act as a Flight Test Instrumentation system capable of in-flight data recording of critical flight, engine and system parameters. Additionally, the system must also support Health and Usage Monitoring and Flight Data Acquisition.

(d) Airborne ruggedized flight instrumentation system must be designed around an open-source/proprietary bus architecture and various pluggable modules are available in compact form factor.

(e) A suite of Signal Conditioner modules, Data Acquisition modules, Output modules and Data Logging/storage modules to suite wide range of applications must be provided.

(f) The system must be User configurable depending on the need and application area. The OEM must provide necessary software for programming the FTI modules. All in-built software (Operating software, Application software, Test software and embedded software etc.) needs to be supported with Independent Verification and Validation (IV & V) certification.

(g) The PCM modules must be compliant with IRIG-106 standard. It should support distributed configurations.

(h) Airborne ruggedized flight instrumentation system must be available in various form factors; starting from three user slots to thirteen user slots.

(j) The power supply unit(s) and the backplane controller must be integral part of the chassis and need not be ordered separately.

(k) The Data Acquisition System must have the following capability:-

(i) Modular Design and easily swappable cards in the fields. No requirement to disassemble a chassis to remove the module.

(ii) Data between chassis to be synchronised over IEEE 1588 Precision Time Protocol (PTP).

(iii) Support Multi output Packets formats iNet, IENA, DARv3 and Chapter 10 of IRIG-106.

(iv) Support to TED (Transducer Electronics Datasheet) and ICP (Integrated Circuit Piezo-electronics) Sensors

(v) PCM encoding up to 40 Mbps in Chapter 4 and Chapter 7 of IRIG-106.

(vi) Support the updating of FPGA Code over Ethernet.

(vii) Remote Access to User Modules from the FTI chassis up to 30 feet.

(viii) Provision of thermal management/ heat dissipation when FTI is located in Hot zones. The equipment is to cater for operations in temperatures from -50ºC to +55ºC).

(ix) The FTI chassis must be qualified to sustain Random vibration higher than 16 grms. The equipment should conform to MIL-810G or

equivalent national or international standard for Environmental Specifications.

(x) Extender module in the FTI chassis for 2X serial receiver, 2 Serial transmitter and 2x power supply modules.

(xi) The extended module must support daisy chaining of FTI chassis.

(xii) To be designed to integrate the legacy ACRA KAM 500 Network Data Acquisition System and support multi-chassis scheduler.

(xiii) Capable of acquiring data from Mil 1553 Bus, ARINC 429, RS 232, RS 422, RS 485, CAN 2.0 and CAN-FD and other standard protocols.

(xiv) Must have 512 GB capacity memory with 160 Mbps recording rata and 400 Mbps Download speed. HTTP interface for data download. Logged data must be extracted using USB interface/Ethernet or any other common interface.

(xv) Capable of 8 Channel recording from RS 232, RS 422 and RS 485 protocols. The signal type (RS-232/422/485), baud rate, word size and parity must be programmable for each channel. Messages must be time tagged.

(xvi) Must be capable of acquiring data from 24 differential ended analogue channels with Differential ended A/D converter.

(xvii) Must be capable of monitoring the status of up to 24 optically isolated discrete channels.

(xviii) Must acquire data from Bridge sensor / strain gauges in 16 Channel. FTI must support auto balance of the bridges.

(xix) Must acquire data from different types of thermocouple (B, E, J, K, N, R, S and T) in same card.

(xx) Must cater for signal conditioning and data acquisition of accelerometers. User module to support built-in FFT. FFT is run once data is gathered in flight on Laptop. FFT graphs must be recordable in memory.

(xxi) Must acquire data from up to two multiplexed analogue signals such as analogue pressure scanner.

(xxii) Must be able to provide high Speed Ethernet that can operate on 10BaseT, 100 BaseTX and 1000BaseT links. The high data throughput

(greater than 31.2 M samples/sec or 500 Mbps per DAU and dedicated high speed link for each user module is required.

(xxiii) The Mil STD 1553 module must be dual redundant terminal with Bus Monitor functions.

(xxiv) Must convert one of the four composite analogue video inputs or one of the two Y/C (S-Video) analogue video input to digital video and compresses to MPEG4 or H.264.

(xxv) Support data high speed video camera and Infra-red camera through Ethernet. Support SDI (Serial Digital Interface) e.g. SD-SDI, HD SDI, and 3G SDI. Comply with H.264 Encoding standards.

(xxvi) The audio to digital converter must support two channels. The module must support CVSD (Continuously Variable Slope Delta) modulation.

(xxvii) Must acquire data from PT100 type RTD sensors. Provide independent excitation to each channel.

(l) Minimum accuracy for Analog module of FTI system should be 0.3% of FSR or better. Resolution required is to be 16 bit.

(m) Bandwidth of bridge sensor module should be programmable and support at least 3 KHZ for sampled data.

(n) Backplane of FTI system should support minimum throughput of 40 Mbps or better.

(o) Design should cater for Power supply and EMI/EMC requirements as per relevant MIL STDs or equivalents. MIL-461F/ G any equivalent standard may be followed for the EMI/ EMC compatibility of the system.

(p) The BIT (Built in Test) check of the backplane, chassis and the individual card modules is to be initiated during power-on of the Data Acquisition System.

(q) In case COTS electronic components are to used, then component/ equipment has to be screened as per JSG 667:2017.

## PART IV. DESIRABLE PARAMETERS.

8. The FTI system must have the following desirable parameters:-

(a) The memory unit may be provided with 128 GB capacity.

(b) The Software may be provided with 3D Replay Capability.

(c) The FTI may be provided with a CAN bus recording facility.

(d) It is preferable to have a removable flash card for data retrieval.

(e) The Combined GPS and IRIG input module should be provided with comprehensive timing module that meets the most of the timing requirements of the on-board data acquisition systems.

(f) Bus control unit with PCM encoder should functions as two modules in one an encoder with Pre-modulation filter and a backplane controller.

(g) To be designed to integrate the legacy ACRA KAM 500 Network Data Acquisition System and support Multi-Chassis Scheduler.

## PART V. TECHNICAL SPECIFICATION OF THE INDIVIDUAL MODULE

9. The system may have the following modules:-

(a) Bus Control Unit with PCM Encoder.

(b) 512 GB Memory Module with USB Support.

(c) Combined GPS and IRIG input module.

(d) 4 Dual redundant MIL STD 1553 parser and packetizer.

(e) 2 Dual redundant MIL STD 1553 parser and packetizer.

(f) 24 channel ARINC parser and packetizer.

(g) 16 Channel RS-232, RS 422 or RS 485 Universal Asynchronous Parser and packetizer.

(h) 12 DE (Differential Ended) Single Ended inputs, Full and half bridge, RTD, Voltage excitations with 25 Ksps- MAX. GUI as per user requirement to be developed and exact requirement will be finalised after mutual consultation during the development.

(j) 08 Channel DE (Differential Ended) Single Ended inputs, Full and half Bridge, RTD, Thermocouple ICP and AC inputs, Voltage and current excitations and Signal Conditioning with 50 Ksps- MAX.

(k) 24 DE (Differential Ended) Single Ended Voltage inputs, ± 100 mV Range 20 Ksps - MAX

(l) 24 DE (Differential Ended) Single Ended Voltage inputs, ± 1V Range 20 Ksps – MAX

(m) 24 DE (Differential Ended) Single Ended Voltage inputs, ± 10V Range 20 Ksps – MAX

(n) 24 DE (Differential Ended) Single Ended Voltage inputs, ± 40V Range 20 Ksps – MAX

(o) 16 Ch RTD, Current Excitation, 6.25 Ksps Max

(p) 06 Ch 3 Phase power monitor, 1 KHz Bandwidth, Steady stare and transients Power Measurement.

(q) 16 Ch Thermocouple 12 Ksps Max

(r) GPS/GNSS Time Sync, Analog and Digital IRIG in/out 2 x CVSD voice Channel.

(s) Backplane Controller, Dual 1000BT o/p ,380 Mbps Max Throughput

(t) 24 Ch discrete i/p /Counter module, High Bandwidth (1MHz),10 Counter Module.

(u) PCM IRIG-106 Chapter 4 Encoder, 40 Mbps Max rate, Dual PCM TTL and NRZL op.

(v) PCM IRIG-106 Chapter 7 Encoder, 40 Mbps Max rate, Dual PCM TTL and NRZL op.

(w) 24 Channel Opto-Isolated Discrete input module (5V).

(x) 16 Channel PT-100 Signal Conditioner and A/D Converter.

(y) Channel Thermistor Signal Conditioner with Excitation and A/D Converter.

(z) 12 Channel Single Ended ICP Accelerometer A/D Converter with Signal Conditioning.

(aa) MPEG-4 video encoder.

(ab) Dual 64 Channel Multiplexing A/D Converter with external temp compensation.

(ac) 10 /1000 MBPS Ethernet Module

## PART VI- REFERENCE DOCUMENTS

Nil

Electronically Signed By AVM TEJPAL SINGH
*(AIR HQ VB (ACAS (Plans)))*
*On 13-Jan-2025 12:56:36*
*using Login ID authentication through eOffice*

**Appendix B**
(Refers to Para 15 & 22 of EoI)

## FORMAT FOR EOI RESPONSE

## PART I – VENDOR DETAILS

1. Name of Case:

2. Name of EoI Respondent:

3. Mailing Address/Contact/Phone/Email/Website (If factory site is located differently, indicate address of the same):

4. Name/Particulars of CEO:

5. Date of incorporation:

6. Brief history of company:

7. Nature of Company:

*(Public/Private/Limited/Sole proprietorship etc)*

8. Category of Industry:

*(Large/Medium/Small/Micro/Start Up)*

9. Nature of business (*Manufacturer/ Trader/ Sole Selling or Authorised Agent/ Dealer/ Assembler/ Processor/ Re packer/ Service Provider*):

10. Average Turn Over of the last three financial years:

11. Net worth of the company, as on 31 Mar of last FY (should be positive).

12. Details of current products:-

*(Type/ Description, Licensed/ Installed Capacity, Annual Production for Preceding 3 Years*):

13. Details of foreign collaboration(s), if any, related to execution of the project.

*(Include details related to name(s) of the entity, work share planned – during design, development, as well as manufacture)*:

14. The following details may be provided:-

    14.1. Critical and niche technologies employed along with indigenization status & plan.

14.2. Foreign dependency details or critical technologies/components/JVs (if any)/etc.

14.3. In case foreign collaboration, along with scope, depth & range of ToT, details of formal acceptance by foreign partner's government (i.e. of the country of origin) that any license required to transfer technology will be granted, in case selected. If any inter- governmental agreement is required, same also needs to be stated.

14.4. Life Cycle support & obsolescence management aspects.

15. Have you supplied any product/services to MoD, Indian Army/Indian Air Force/ Indian Navy/ Indian Coast Guard/ DPSUs/ DRDO labs/Ordnance Factories, any other defence organisation etc.? (Provide indicative list, if applicable)

16. Details of permanent manpower:-

16.1. Technical:

16.2. Administrative:

17. Total Area of Factory:

17.1. Covered area (Sq M):

17.2. Uncovered area (Sq M):

17.3. Any other space available (Sq M):

18. Is the factory space adequate to undertake design, development and manufacture of the Airborne Ruggedized Flight Instrumentation System (ARFIS)?

19. Any other information, relevant to the case.

**PART II: PROJECT SPECIFIC INFORMATION**

20. Outline proposal of the company to undertake prototype development.

21. Stages/phases of development, with indicative time schedules.

22. Milestones that can be demonstrated to facilitate project monitoring

23. Role, responsibility and expertise details of the firm, if any, and if applicable.

24. Role of foreign technology provider, if any.

25. Requirement of specialised testing assistance, where such facilities are available only with Armed Forces/DRDO/DGAQA/DGQA/DGNAI or any other Govt facility. (Please provide a list of such facilities, with time period for which required).

26. Information to prove design/developmental capacity:-

*(Any past examples of indigenous design and development, R&D facilities available in house, if any; Technical/ R&D manpower/expertise available, institutional tie ups, MoU, laboratory and drawing office facility, CAD/CAM facility, percentage of total turnover spent on R&D during last three years etc.)*

27. Details of important facilities:

(*Production facilities, CAD/CAM/Robotics, other advanced technology tools, environmental testing facilities, tool room, metrology and test eqpt facilities, instrumentation etc).*

28. Please furnish an undertaking that design and development will be as per provisions and guidelines of Chap III of DAP 2020, especially as they relate to Indigenous Design, Indigenous Content and IPR.

29. Documents to be submitted along with this Appendix , by the EoI respondent is as per Para 10 of Appendix F of Chap-III of DAP-2020

30. **Foreclosure Criteria**. Foreclosure of the project would be guided by the modalities of Para 20(b) of Chap-III of DAP-2020.

31. **Note**:-

31.1. All submissions must be supported by referenced documents duly authenticated.

31.2. Any input with incorrect or missing reference will not be assessed.

31.3. No separate financial, commercial criteria will be applied for start-ups.

31.4. Attach additional pages, as necessary.

**Appendix C**

(Refers to Para 20 of EoI)

## COMMERCIAL AND TECHNICAL EVALUATION CRITERIA

### Technical Evaluation Criteria

| Sl No | Criteria and Sub Criteria | Pass Criteria |
|---|---|---|
| (a) | Engineering and technical ability | Self-certification by EoI respondent |
| (b) | Proposed indigenous content in percentage of total cost at prototype stage and final stage | As per Chapter III of DAP 2020 |
| (c) | Total Land area | Statement of firm for adequacy |
| (d) | PSQRs Compliance | Self-certificate of compliance by EoI respondent |
| (e) | Intellectual Property Rights (IPR) | Vendor to confirm IPR as per **Para 18 of EoI** |
| (f) | Integration Capability | No specific criteria |
| (g) | Special static facilities necessary for development, fabrication or assembly of the product | Self-certification by EOI respondent |
| (h) | Design and manufacturing capabilities for software, tempering and machining, specialized welding technology, high-end control systems, etc. as required for the sustained production and maintenance of the item. | Self-certification by EOI respondent |
| (i) | MSME. | No specific criteria for MSMEs |
| (j) | Detailed Project Report (DPR) is be submitted by all vendors in response to EOI along with EOI. Format for submission of DPRs is attached as Appendix G to Chap-III of DAP-2020. | Self-certification by EOI respondent |
| (k) | Role of foreign technology provider, if any. | Self-certification by EOI respondent |

**Appendix D**
(Refers Para 27 of EoI)

## CONFIDENTIALITY AGREEMENT

1. It is certified that Expression of Interest document for the project of Design, Development and Procurement of Airborne Ruggedized Flight Instrumentation System (ARFIS) will not be shared with any agency in part or in full. Only relevant details, as applicable, will be shared with technology partners including foreign technology partners. However, the EoI document itself will not be shared with any technology partners.

2. The company understands the security sensitivity of such operational system and any information pertaining to deployment and usage of the system including system scaling will not be discussed with third party without a written permission from the Project Facilitation Team. The company understands that failure to observe this agreement will lead to disqualification from the project without prejudice to any other legal action that may follow in accordance with the provisions of the extant law in force relating to any civil or criminal proceedings.



Signature with Company Seal

**Appendix E**
(Refers Para 31of EoI)

## CORRECTNESS CERTIFICATE

It is certified that information submitted in the documents as part of the response to Expression of Interest (EoI) for the project of Design, Development and Procurement of Airborne Ruggedized Flight Instrumentation System (ARFIS) is correct and complete in all respects. It is acknowledged that the company will be disqualified from further participation if any information provided is found to be incorrect.

Signature with Company Seal