

**GOVERNMENT OF INDIA**  
**NAVAL HEADQUARTERS, MINISTRY OF DEFENCE**

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Directorate of Air Projects & Plans  
Room No 511, 'D' Block,  
Defence Offices Complex,  
Africa Avenue  
New Delhi – 110023

AP/1611/MFD

Apr 25

**INVITATION OF BIDS FOR INDIGENOUS DEVELOPMENT OF MULTI FUNCTION  
DISPLAY, PART NO. MFI-10-7-01 ALONG WITH AUTOMATED TEST EQUIPMENT FOR  
MIG 29K AIRCRAFT**

**REQUEST FOR PROPOSAL (RFP) No. AP/1611/MFD dated Apr 25**

1. Sealed Quotation under two bid systems i.e. **Technical and Commercial Bid** in separate covers are invited for **Indigenous Development of Multi-Function Display, part no. MFI-10-7-01 along with Automated Test Equipment for MiG 29K aircraft.** Please superscribe the above mentioned title, RFP number and date of opening of the bids on the sealed cover to avoid the bid being declared invalid. The sample item is available for inspection on all working days at Naval Aircraft Yard at Dabolim, Goa.

2. The address and contact numbers for sending Bids or seeking clarifications regarding this RFP are given below:-

- (a) Bids/queries to be addressed to : Commodore (Air Projects and Plans)
- (b) Postal address for sending the Bids : Naval Headquarters  
Ministry of Defence  
Directorate of Air Projects & Plans  
Room No 511, 'D' Block,  
Defence Offices Complex  
Africa Avenue  
New Delhi – 110 023
- (c) Name/designation of the contact person : Commander (APP)
- (d) Tele numbers of the contact personnel : 011 - 26771521
- (e) e-mail ids of the contact personnel : [dapp@navy.gov.in](mailto:dapp@navy.gov.in)
- (f) Fax Number : 011 - 26771388

3. This RFP is divided into five parts as follows:

(a) **Part I** - Contains General Information and Instructions for the Bidders about the RFP such as the time, place of submission and opening of tender, Validity period of tender, etc.

(b) **Part II** - Contains essential details of the items /services required, such as the Scope of Work (SOW), Technical Specifications, delivery / upgrade time frame, Mode of Delivery and Consignee details.

(c) **Part III** - Contains Standard Conditions of RFP, which will form part of the Contract with the successful Bidder.

(d) **Part IV** - Contains Special Conditions applicable to this RFP and which will also form part of the contract with the successful Bidder.

(e) **Part V** - Contains Evaluation Criteria and Format for Price Bid.

4. This RFP is being issued with no financial commitment and the BUYER reserves the right to change or vary any part thereof at any stage. BUYER also reserves the right to withdraw the RFP, should it become necessary at any stage.

(Heramb Deo)  
Commander  
Cdr (APP)

## **Part I - General Information**

1. **Last date and time for depositing the Bids: 1600 Hrs on 16 Jun 2025.** The sealed Bid should be deposited/ reach by the due date and time. The responsibility to ensure this lies with the Bidder.
2. **Manner of depositing the Bids.** Sealed Bids should be either dropped in the Tender Box marked as "**DAPP**" **PLACED AT RECEPTION OF 'D' BLOCK** or sent by registered post only (and not by courier) at the address given above so as to reach by the due date and time. Late Tenders will not be considered. No responsibility will be taken for postal delay or non-delivery/ non-receipt of Bid documents. Bids sent by FAX or e-mail will not be considered (unless they have been specifically called for by these modes due to urgency).
3. **Time and date for Opening of Bid.** Technical bids will be opened at **1100 Hrs on 24 Jun 25.** (If due to any exigency, the due date for opening of the Bids is declared a closed holiday, the Bids will be opened on the next working day at the same time or on any other day/time, as intimated by this BUYER). The date of opening of Commercial Bids will be intimated after acceptance of Technical Bids.
4. **Location of the Tender Box.** Reception office of 'D' Block, Defence Offices Complex, Africa Avenue, New Delhi -110023.
5. **Place of opening of the Bid.** *Directorate of Air Projects and Plans, Room No 514, 'D' Block, Defence Offices Complex, Africa Avenue, New Delhi -110023.* The Bidders may depute their representatives, duly authorized in writing, to attend the opening of Bids on the due date and time. Rates and important Commercial/Technical clauses quoted by all Bidders will be read out in the presence of the representatives of all the Bidders. This event will not be postponed due to non-presence of your representative.
6. **Two Bid System.** The technical bid and the financial bid should be sealed by the bidder in separate covers duly superscribed 'Technical Bid' & 'Commercial Bid' and both these sealed covers are to be put in a bigger cover which should also be sealed and duly superscribed. Only the Technical Bid would be opened on the time and date mentioned above. Post evaluation of the same, commercial bids of only the technically acceptable offers would be opened for further evaluation. Date for the same would be intimated subsequently. The guidelines for preparation of technical bid is placed at Enclosure III. The commercial bids of other tenderers, who are not found to comply with the QRs as above, will be returned to the tenderers, in sealed and unopened condition as received.
7. **Forwarding of Bid.** Bid should be forwarded by Bidder under their original memo/letter pad interlaid furnishing details like TIN number, VAT/CST number, Bank address with EFT Account (mandate form) and complete postal & e mail address of their office. If these details are not found in your quote, your quote will be invalid.
8. **Clarification regarding contents of the RFP.** A prospective bidder who requires clarification regarding the contents of the bidding documents shall notify to the BUYER in writing about the clarifications sought not later than **21 (Twenty One) days** prior to the date of opening of the Bids. Copies of the query and clarification by the purchaser will be sent to all prospective bidders who have received the bidding documents.
9. **Modification and Withdrawal of Bid.** A bidder may modify or withdraw his bid after submission provided that the written notice of modification or withdrawal is received by the BUYER prior to deadline prescribed for submission of bids. A withdrawal notice may be sent by fax but it should be followed by a signed confirmation copy to be sent by post and such

signed confirmation should reach the purchaser not later than the deadline for submission of bids. No bid shall be modified after the deadline for submission of bids. No bid may be withdrawn in the interval between the deadline for submission of bids and expiration of the period of bid validity specified. Withdrawal of a bid during this period will result in Bidder's forfeiture of bid security.

10. **Clarification regarding contents of the Bid.** During evaluation and comparison of bids, the BUYER may, at its discretion, ask the bidder for clarification of his bid. The request for clarification will be given in writing and no change in prices or substance of the bid will be sought, offered or permitted. No post-bid clarification on the initiative of the bidder will be entertained.

11. **Rejection of Bid.** Canvassing by the Bidder in any form, unsolicited letter and post tender correction may invoke summary rejection with forfeiture of EMO. Conditional tenders will be rejected.

12. **Validity of Bids.** The Bids should remain valid till 180 days from the last date of submission of the Bids.

13. **Earnest Money Deposit.** Bidders are required to submit Earnest Money Deposit (EMD) for amount equivalent to 2% of the quote along with their bids. The EMD may be submitted in the form of an Account Payee Demand Draft, Fixed Deposit Receipt, Banker's Cheque or Bank Guarantee from any of the public sector banks or a private sector bank authorized to conduct government business as per Form DPM-16 (Available in MoD website and can be provided on request). EMD is to remain valid for a period of forty-five (45) days beyond the final bid validity period. EMD of the unsuccessful bidders will be returned to them at the earliest after expiry of the final bid validity and latest on or before the 30<sup>th</sup> day after the award of the contract. The Bid Security of the successful bidder would be returned, without any interest whatsoever, after the receipt of Performance Security from them as called for in the contract. EMD is not required to be submitted by those Bidders who are registered with the Central Purchase Organization (e.g. DGS&D), National Small Industries Corporation (NSIC) or any Department of MoD or MoD itself. The EMD will be forfeited if the bidder withdraws or amends impairs or derogates from the tender in any respect within the validity period of their tender.

## **Part II - Essential Details of Items/Services required**

### 1. **List of items required is as follows**

<b><u>SI</u></b>	<b><u>Part Number</u></b>	<b><u>Description</u></b>	<b><u>Qty required</u></b>
(a)	MFD-10-7	Multi-Functional Display	03 (02 prototype and 01 for operations)
(b)	Automated Test Equipment for testing of MFDs, indigenous as well as currently installed MFDs		01 set

**Note:** Only MFD is available for inspection as sample item.

**Further Bulk Order will be placed, post successful completion of indigenisation, as per requirement of Indian Navy.**

### 2. **Technical Details**

- |     |                                            |   |             |
|-----|--------------------------------------------|---|-------------|
| (a) | Specifications as applicable               | : | Enclosure 1 |
| (b) | Technical details with technical parameter | : | Enclosure 2 |
| (c) | Additional Technical requirements          | : | Enclosure 3 |
| (d) | Requirement of Technical documentation     | : | Yes         |

**Note:** ICD documents are not available with the Indian Navy and would have to be obtained by the Vendor.

3. **Two-Bid System.** In respect of two-bid system, Bidders are required to furnish clause by clause compliance of specifications bringing out clearly the deviations from specification, if any. The Bidders are advised to submit the compliance statement in the following format along with Technical Bid:-

<b>Para of RFP specifications item-wise</b>	<b>Specification of item offered</b>	<b>Compliance to RFP specification whether Yes /No</b>	<b>In case of noncompliance, deviation from RFP to be specified in unambiguous terms</b>

4. **Delivery Period.** You are requested to submit the prototype MFD samples within **18 months** on receipt of Development Order along with relevant documents proposed by RCMA/CEMILAC. There after within **03 months** the ATE is required to be setup post successful indigenisation development and acceptance of MFD. The detailed timeline for delivery is as follows :-

<b><u>Ser</u></b>	<b><u>Activity</u></b>	<b><u>Period</u></b>
(a)	Placement of Work Order (D)	D
(b)	Delivery of 02 prototype samples	D + 18 months
(c)	Initial Fitment checks aircraft	D + 19 months

(d)	Laboratory / environmental testing	D + 25 months
(e)	Functional trials on aircraft	D + 30 Months
(f)	Type Certification by RCMA	D + 33 months
(g)	Acceptance of item	D + 34 Months
(h)	Delivery of 01 ATE	D + 37 Months
(j)	Functional trials	D + 38 Months

5. **Requirements for Technical Bid Qualification.** The Technical Bids shall be 'Qualified' only if the Firm possesses the Qualifications/ capabilities mentioned below:-

- (a) Experience, capabilities and facilities for Hardware design & development of critical airborne electronic systems with indigenous design for defence application in the recent 5 years.
- (b) Experience, Capabilities and Facilities for design and development of LCD/ Multi-Functional Display Systems qualified for Air-borne application.
- (c) Experience, Capabilities and Facilities for RTOS/ Linux based System Software Development/ ICDs for Microprocessor/Power QUICC based systems.
- (d) Experience & track record in the following areas with respect to testing, integration, Installation and performance evaluation of airborne systems onboard military aircrafts.
- (e) Capability to associate with CEMILAC/ RCMA/ DGAQA/ DGQA towards certification of systems for military aircraft and airborne applications.
- (f) In-House QA/QC set up, capability to undertake test facilities for environmental testing & screening of systems , component/ PCB level screening (backlog, thermal cycling, controlled environment storage etc) and experience in documentation to defence requirements.

6. Accordingly the firm will be required to enclose documents supporting the above qualifications with the Technical Bid including the following:-

- (a) Copies of TIN/ CST/ PAN, Bank Mandate Firm, GST registration.
- (b) Copy of company profile and appreciation letters (if any).
- (c) Registration certificates with any Govt. Agencies/ Ministries for undertaking Indigenisation activities may be submitted along with technical bid.
- (d) Acceptance of the terms and conditions **IN**.

7. Further, the Commercial bid should include development cost of prototype, material testing cost, labour charges for development and cost of material.

8. During the warranty period your firm shall carry out all necessary servicing/repairs to the equipment/system under warranty at the current location of the equipment/system. Prior permission of the User unit would be required in case certain components/sub

systems are to be shifted out of location. On such occasions, before taking over the goods or components, your firm will give suitable bank guarantee to the User Unit to cover the estimated current value of item being taken.

9. On successful completion of development prototype samples, the firm must supply future MOQ as per the requirement of the Navy within specified delivery period. If the firm fails to supply future MOQ, necessary legal action against the firm will be initiated towards recovery of Development Cost. You are required to maintain same cost for a period of three years as per development order.

10. **INCOTERMS for Delivery and Transportation.** The definition of delivery terms for this Development order will be OAP, NAY(Goa) basis i.a.w "INCOTERMS - 2020"

11. **Consignee details**

The Commodore Superintendent  
Naval Aircraft Yard Dabolim, Goa - 403801  
Tel. 0832 - 2585701  
Email. [naygoa-navy@nic.in](mailto:naygoa-navy@nic.in)

### **Part III - Standard Conditions of RFP**

**The Bidder is required to give confirmation of their acceptance of the Standard Conditions of the Request for Proposal mentioned below which will automatically be considered as part of the Contract concluded with the successful Bidder (i.e. SELLER in the Contract) as selected by the BUYER. Failure to do so may result in rejection of the Bid submitted by the Bidder.**

1 **Law.** The Contract shall be considered and made in accordance with the laws of the Republic of India. The contract shall be governed by and interpreted in accordance with the laws of the Republic of India.

2 **Effective Date of the Contract.** The contract shall come into effect on the date of date of issue of Development Order (Effective Date) and shall remain valid until the completion of the obligations of the parties under the contract. The deliveries, supplies and performance shall commence from the effective date of the contract.

3. **Arbitration.** All disputes or differences arising out of or in connection with the Contract shall be settled by bilateral discussions. Any dispute, disagreement or question arising out of or relating to the Contract or relating to construction or performance, which cannot be settled amicably, may be resolved through arbitration. The standard clause of arbitration is as per Form DPM-9 (Available in MOD website and can be provided on request).

4. **Penalty for use of Undue influence.** The SELLER undertakes that he has not given, offered or promised to give, directly or indirectly, any gift, consideration, reward, commission, fees, brokerage or inducement to any person in service of the BUYER or otherwise in procuring the Contracts or forbearing to do or for having done or forborne to do any act in relation to the obtaining or execution of the present Contract or any other Contract with the Government of India for showing or forbearing to show favor or disfavor to any person in relation to the present Contract or any other Contract with the Government of India. Any breach of the aforesaid undertaking by the SELLER or any one employed by him or acting on his behalf (whether with or without the knowledge of the SELLER) or the commission of any offers by the SELLER or anyone employed by him or acting on his behalf, as defined in Chapter IX of the Indian Penal Code, 1860 or the Prevention of Corruption Act, 1986 or any other Act enacted for the prevention of corruption shall entitle the BUYER to cancel the contract and all or any other contracts with the SELLER and recover from the SELLER the amount of any loss arising from such cancellation. A decision of the BUYER or his nominee to the effect that a breach of the undertaking had been committed shall be final and binding on the SELLER. Giving or offering of any gift, bribe or inducement or any attempt at any such act on behalf of the SELLER towards any officer/employee of the BUYER or to any other person in a position to influence any officer/employee of the BUYER for showing any favor in relation to this or any other contract, shall render the SELLER to such liability/ penalty as the BUYER may deem proper, including but not limited to termination of the contract, imposition of penal damages, forfeiture of the Bank Guarantee and refund of the amounts paid by the BUYER.

5. **Agents / Agency Commission.** The SELLER confirms and declares to the BUYER that the SELLER is the original manufacturer of the stores/provider of the services referred to in this Contract and has not engaged any individual or firm, whether Indian or foreign whatsoever, to intercede, facilitate or in any way to recommend to the Government of India or any of its functionaries, whether officially or unofficially, to the award of the



contract to the SELLER; nor has any amount been paid, promised or intended to be paid to any such individual or firm in respect of any such intercession, facilitation or recommendation. The SELLER agrees that if it is established at any time to the satisfaction of the BUYER that the present declaration is in any way incorrect or if at a later stage it is discovered by the BUYER that the SELLER has engaged any such individual/firm, and paid or intended to pay any amount, gift, reward, fees, commission or consideration to such person, party, firm or institution, whether before or after the signing of this contract, the SELLER will be liable to refund that amount to the BUYER. The SELLER will also be debarred from entering into any supply Contract with the Government of India for a minimum period of five years. The BUYER will also have a right to consider cancellation of the Contract either wholly or in part, without any entitlement or compensation to the SELLER who shall in such an event be liable to refund all payments made by the BUYER in terms of the Contract along with interest at the rate of 2% per annum above LIBOR rate. The BUYER will also have the right to recover any such amount from any contracts concluded earlier with the Government of India.

6. **Access to Books of Accounts.** In case it is found to the satisfaction of the BUYER that the SELLER has engaged an Agent or paid commission or influenced any person to obtain the contract as described in clauses relating to Agents/Agency Commission and penalty for use of undue influence, the SELLER, on a specific request of the BUYER, shall provide necessary information/ inspection of the relevant financial documents/information.

7. **Non-disclosure of Contract documents.** Except with the written consent of the BUYER/ SELLER, either party shall not disclose the contract or any provision, specification, plan, design, pattern, sample or information thereof to any third party.

8. **Liquidated Damages.** In the event of the SELLER's failure to submit the Bonds, Guarantees and Documents, supply the stores/ goods and conduct trials, installation of equipment, training, etc as specified in the contract, the BUYER may, at his discretion, withhold any payment until the completion of the contract. The BUYER may also deduct from the SELLER as agreed, liquidated damages to the sum of 0.5% of the contract price of the delayed/undelivered stores/services mentioned above for every week of delay or part of a week, subject to the maximum value of the Liquidated Damages being not higher than **10% of the value of delayed / undelivered stores as per delivery schedule.**

9. **Termination of Contract:** The BUYER shall have the right to terminate this Contract in part or in full in any of the following cases: -

- (a) The delivery of the material is delayed for causes not attributable to Force Majeure or more than **03 months** after the scheduled date of delivery.
- (b) The SELLER is declared bankrupt or becomes insolvent.
- (c) The delivery of material is delayed due to causes of Force Majeure by more than 06 months
- (d) The BUYER has noticed that the SELLER has utilised the services of any Indian/Foreign agent in getting this contract and paid any commission to such individual/company etc.
- (e) As per decision of the Arbitration Tribunal.

10. **Notices.** Any notice required or permitted by the contract shall be written in the English language and may be delivered personally or may be sent by FAX or registered Pre-paid mail/airmail, addressed to the last known address of the party to whom it is sent.

11. **Transfer and Sub-letting.** The SELLER has no right to give, bargain, sell, assign or sublet or otherwise dispose of the Contract or any part thereof, as well as to give or to let a third party take benefit or advantage of the present Contract or any part thereof.

12. **Patents and other Industrial Property Rights.** The prices stated in the present Contract shall be deemed to include all amounts payable for the use of patents, copyrights, registered charges, trademarks and payments for any other Industrial property rights. The SELLER shall indemnify the BUYER against all claims from a third party at any time on account of the infringement of any or all the rights mentioned in the previous paragraphs, whether such claims arise in respect of manufacture or use. The SELLER shall be responsible for the completion of the supplies including spares, tools, technical literature and training aggregates irrespective of the fact of infringement of the supplies, irrespective of the fact of infringement of any or all the rights mentioned above.

13. **Amendments.** No provision of present Contract other than change in part numbers of the deliverables shall be changed or modified in any way (including this provision) either in whole or in part except by an instrument in writing made after the date of this Contract and signed on behalf of both the parties and which expressly states to amend the present Contract.

14. **Taxes and Duties.** All taxes and duties are to be paid by the SELLER as actuals on the rates notified by the Government as applicable. The SELLER will specifically state the following:-

- (a) Requirement of excise duty/ Sales Tax/ VAT.
- (b) Reimbursement of any Duty/Tax is intended as extra over the quoted prices.
- (c) Quoted price is inclusive of any duty/tax.
- (d) Exemption from payment of any duty/tax upto any value of supplies.
- (e) Applicable Octroi duty and local taxes, if any.

If not mentioned specifically, it will be assumed that amount quoted includes all such charges and no claim will be entertained later.

### **Part IV - Special Conditions of RFP**

The Bidder is required to give confirmation of their acceptance of Special Conditions of the RFP mentioned below which will automatically be considered as part of the Contract concluded with the successful Bidder (i.e. SELLER in the Contract) as selected by the BUYER. Failure to do so may result in rejection of Bid submitted by the Bidder.

1. **Performance Guarantee.** The Bidder will be required to furnish a Performance Guarantee by way of Bank Guarantee through a Public Sector Bank or a Private Sector Bank authorised to conduct government business (ICICI Bank Ltd., Axis Bank Ltd or HDFC Bank Ltd.) for **a sum equal to 5% of the contract value within 30 days of receipt of the confirmed order for prototype development.** Performance Bank Guarantee should be **valid up to 60 days beyond the date of warranty of the item.** The specimen of PBG is given in Form DPM-15 (Available in MOD website and can be provided on request). **Non submission of Performance Bank Guarantee within stipulated time would result in cancellation of the supply order.**
2. **Repeat Order Clause.** Not applicable
3. **Tolerance Clause.** Not applicable
4. **Payment Terms for Indigenous SELLERs.** It will be mandatory for the Bidders to indicate their bank account numbers and other relevant e payment details so that payments could be made through ECS/ EFT mechanism instead of payment through cheques. A copy of the model mandate form prescribed by RBI to be submitted by Bidders for receiving payments through ECS is at Form DPM-11 (Available in MoD website and can be given on request). **100% payment will be done on delivery and acceptance of items.**
5. **Advance Payments.** Nil.
6. **Paying Authority.** The payments will be made through

The Controller of Defence Accounts (Coast Guard/Navy),  
West Block-V, RK Puram  
New Delhi -110022.

The payment of bills will be made on submission of the following documents by the SELLER to this Headquarters along with the bill: -

- (a) 03 Ink-signed copy of Commercial invoice/ SELLER's bill.
- (b) Copy of Supply Order/Contract with U.O. number and date of IFAs concurrence, where required under delegation of powers.
- (c) JRI report/ CRV / work completion / user acceptance certificate (as deemed fit) issued by /IN agencies in triplicate.
- (d) Inspection note in triplicate.
- (e) Claim for statutory and other levies to be supported with requisite documents / proof of payment such as Excise duty challan, Customs duty

clearance certificate, Octroi receipt, proof of payment for EPF/ESIC contribution with nominal roll of beneficiaries, etc as applicable.

- (f) Exemption certificate for Customs duty, if applicable.
- (g) Bank guarantee for advance, if any.
- (h) Guarantee/ Warranty certificate.
- (j) Performance Bank Guarantee.
- (k) DP extension letter with CFAs sanction, U.O. number and date of IFAs concurrence, where required under delegation of powers, indicating whether extension is with or without LO.
- (l) Details for electronic payment viz Account holder's name, Bank name, Branch name and address, Account type, Account number, IFSC code, MICR code (if these details are not incorporated in supply order/contract).
- (m) Any other document certificate that may be provided for in the Supply Order/Contract.
- (n) User acceptance Certificate.
- (p) All relevant documents w.r.t payment of GST.

## 7. **Fall clause**

(a) The price charged for the stores supplied under the contract by the Contractor shall in no event exceed the lowest prices at which the contractor sells the stores or offer to sell stores of identical description to any persons/Organisation including the purchaser or any department of the Central government or any Department of state government or any statutory undertaking the central or state government as the case may be during the period till performance of all supply Orders placed during the currency of the rate contract is completed.

(b) If at any time, during the said period the contractor reduces the sale price, sells or offer to sell such stores to any person/organisation including the purchaser or any Dept. of central Government or any Department of the State Government or any Statutory undertaking of the Central or state Government as the case may be at a price lower than the price chargeable under the contract, the shall forthwith notify such reduction or sale or offer of sale to the Director general of Supplies & Disposals and the price payable under the contract for the stores of such reduction of sale or offer of the sale shall stand correspondingly reduced. The above stipulation will, however, not apply to:-

- (i) Exports by the SELLER.
- (ii) Sale of goods as original equipment at price lower than lower than the prices charged for normal replacement sale of goods such as drugs which have expiry dates R/C holders cannot reduce rates under pretext of fall clause in Drug and medicine contracts.

(iii) Sale of goods at lower price on or after the date of completion of sale/placement of the order of goods by the authority concerned under the existing or previous Rate Contracts as also under any previous contracts entered into with the Central or State Government Depts, including their undertakings excluding joint sector companies and/or private parties and bodies.

(c) The SELLER shall furnish the following certificate to the Paying Authority along with each bill for payment for supplies made against the Rate contract. "We certify that there has been no reduction in sale price of the stores of description identical to the stores supplied to the Government under the contract herein and such stores have not been offered/sold by me/us to any person/organisation including the purchaser or any department of Central Government or any Department of a State Government or any Statutory Undertaking of the Central or state Government as the case may be upto the date of bill/ the date of completion of supplies against all supply orders placed during the currency of the Rate Contract at price lower than the price charged to the government under the contract except for quantity of stores categories under sub-clauses (a),(b) and (c) of sub-para (ii) above details of which are given below....."

#### 8. **Risk & Expense clause**

(a) Should the stores or any installment thereof not be delivered within the time or times specified in the contract documents, or if defective delivery is made in respect of the stores or any installment thereof, the BUYER shall after granting the SELLER 45 days to cure the breach, be at liberty, without prejudice to the right to recover liquidated damages as a remedy for breach of contract, to declare the contract as cancelled either wholly or to the extent of such default.

(b) Should the stores or any installment thereof not perform in accordance with the specifications/parameters provided by the SELLER during the check proof tests to be done in the BUYERS country, the BUYER shall be at liberty, without prejudice to any other remedies for breach of contract, to cancel the contract wholly or to the extent of such default.

(c) In case of a material breach that was not remedied within 45 days, the BUYER shall, having given the right of first refusal to the SELLER be at liberty to purchase, manufacture, or procure from any other source as he thinks fit, other stores of the same or similar description to make good: -

(i) Such default.

(ii) In the event of the contract being wholly determined the balance of the stores remaining to be delivered there under.

(d) Any excess of the purchase price, cost of manufacturer, or value of any stores procured from any other supplier as the case may be, over the contract price appropriate to such default or balance shall be recoverable from the SELLER. Such recoveries shall not exceed 10% of the value of the contract."

#### 9. **Force Majeure clause.**

(a) Neither party shall bear responsibility for the complete or partial non-

performance of any of its obligations (except for failure to pay any sum which has become due on account of receipt of goods under the provisions of the present contract), if the non-performance results from such Force Majeure circumstances as Flood, Fire, Earth Quake and other acts of God as well as War, Military operation, blockade, Acts or Actions of State Authorities or any other circumstances beyond the parties control that have arisen after the conclusion of the present contract.

(b) In such circumstances the time stipulated for the performance of an obligation under the present contract is extended correspondingly for the period of time of action of these circumstances and their consequences.

(c) The party for which it becomes impossible to meet obligations under this contract due to Force Majeure conditions, is to notify in written form the other party of the beginning and cessation of the above circumstances immediately, but in any case not later than 30 (thirty) days from the moment of their beginning.

(d) Certificate of a Chamber of Commerce (Commerce and Industry) or other competent authority or organization of the respective country shall be a sufficient proof of commencement and cessation of the above circumstances.

(e) If the impossibility of complete or partial performance of an obligation lasts for more than 06 (six) months, either party hereto reserves the right to terminate the contract totally or partially upon giving prior written notice of 30 (thirty) days to the other party of the intention to terminate without any liability other than reimbursement on the terms provided in the agreement for the goods received.

10. **Specification Clause.** The SELLER guarantees to meet the specifications as per Part-II of RFP and to incorporate the modifications to the existing design configuration to meet the specific requirement of the BUYER.

11. **Earliest Acceptable Year of Manufacture.** As the Delivery Period of the product is 18 months, the Earliest Acceptable Year of Manufacture is 2025. Quality / Life certificate will need to be enclosed with the Bill, wherever applicable.

12. **Transportation.** All the cost towards movement/ transportation of SELLER personnel/ equipment between Goa and SELLER's site or any other location towards development of repair methodology/ trials will be borne by the SELLER. Cost towards delivery of the manufactured unit to NAY (Goa) inclusive all transportation and transit insurance will be borne by the SELLER.

13. **Packing and Marking.** The following Packing and Marking clause will form part of the contract placed on successful Bidder -

(a) The SELLER shall provide packing and preservation of the equipment and spares/goods contracted so as to ensure their safety against damage in the conditions of land, sea and air transportation, trans-shipment storage and weather hazards during transportation, subject to proper cargo handling. The SELLER shall ensure that the stores are packed in containers, which are made sufficiently strong, and with seasoned wood. The packing cases should have hooks for lifting by crane/ fork lift truck, in case applicable. Tags with proper marking shall be fastened to the special equipment, which cannot be packed.

(b) The packing of the equipment and spares/goods shall conform to the requirements of specifications and standards in force in the territory of the SELLER's country.

(c) Each spare, tool and accessory shall be packed in separate cartons. A label in English shall be pasted on the carton indicating the under mentioned details of the item contained in the carton. A tag in English with said information shall also be attached to six samples of the item. If quantity contracted is less than six then tag shall be affixed to complete quantity contracted of the item. The cartons shall then be packed in packing cases as required.

- (i) Part Number:
- (ii) Nomenclature:
- (iii) Contract annex number:
- (iv) Annex serial number:
- (v) Quantity contracted :

(d) One copy of the packing list in English shall be inserted in each cargo package, and the full set of the packing lists shall be placed in Case No.1 painted in a yellow colour.

(e) The SELLER shall mark each package with indelible paint in the English language as follows:-

- (i) EXPORT
- (ii) Contract No. -----
- (iii) Consignee -----
- (iv) Port I airport of destination -----
- (v) Ultimate consignee -----
- (vi) SELLER -----
- (vii) Package No. -----
- (viii) Gross/net weight : -----
- (ix) Overall dimensions/volume : -----
- (x) The SELLER's marking.

(f) If necessary, each package shall be marked with warning inscriptions: "Top", "Do not turn over", category of cargo etc.

(g) Should any special equipment be returned to the SELLER by the BUYER, the latter shall provide normal packing, which protects the equipment and spares/goods from the damage of deterioration during transportation by land, air or sea. In this case the BUYER shall finalise the marking with the SELLER.

14. **Quality.** The quality of the stores delivered according to the present Contract shall correspond to the technical conditions and standards valid for the deliveries of the same stores for in SELLER's country or specifications enumerated as per RFP and shall also include therein modification to the stores suggested by the BUYER. Such modifications will be mutually agreed to. All materials and components used for the manufacture of the item shall be of airborne grade and conform to latest relevant IS/ JSS/ BS/ DEF and shall be capable of withstanding environmental conditions of fighter aircraft. If IS/JSS/BS/DEF specifications do not exist then the MIL-HDBK-5400 and MIL-HDBK-454 may be used as

guidelines. Once the list of components and materials has been finalised, no change to this or deviations from it shall be made by the manufacturer without the prior permission of the certification and quality assurance agencies. The SELLER confirms that the stores to be supplied under this Contract shall be new i.e. not manufactured before 2024 and shall incorporate all the latest improvements and modifications thereto and spares of improved and modified equipment are backward integrated and interchangeable with same equipment supplied by the SELLER in the past if any. The SELLER shall supply an interchangeability certificate along with the changed part numbers wherein it should be mentioned that item would provide as much life as the original item.

15. **Quality Assurance.** SELLER would provide the Standard Acceptance Test Procedure (ATP) and/ or QTP within **09 months** of this date of contract, cleared by **relevant stakeholders i.e. CEMILAC/ RCMA and assistance of IN Agencies [RAQAS (Goa), NFTS]**. BUYER reserves the right to modify the ATP and/or QTP. SELLER would be required to provide all test facilities at his premises for acceptance and inspection by BUYER. The details in this regard will be coordinated during the negotiation of the contract. The items/ spares used should be of the latest manufacture, conforming to the current production standard and having 100% defined life at the time of delivery.

16. **Inspection Authority.** The inspection will be carried out by RAQAS (Goa) or any other Naval agency designated by user. The mode of inspection will be user inspection/ Joint inspection.

17. **Joint Receipt Inspection.** The following Joint Receipt Inspection clause will form part of the contract placed on successful bidder: -

(a) The Parties agree that the Joint Receipt Inspection (JRI) of delivered goods shall be conducted on arrival in India at a location nominated by the BUYER. JRI shall be completed within 90 days of arrival of good at the Port Consignee. JRI will consist of: -

- (i) Quantitative checking to verify that the quantities of the delivered goods correspond to the quantities defined in this contract and the invoices.
- (ii) Complete functional checking of the stores/equipment as per specifications in the contract and as per procedures and tests laid down by BUYER but functional checking of spares shall not be done.

(b) JRI will be carried out by the BUYER's representative(s). The BUYER will invite the SELLER with a prior notice of a minimum of fifteen (15) days to attend the JRI for the delivered goods. The bio data of the SELLER's representative will need to be communicated fifteen (15) days prior to the dispatch of goods to the BUYER for obtaining necessary security clearance in accordance with the rules applicable in the BUYER's country.

(c) Upon completion of each JRI, JRI proceedings and Acceptance Certificate will be signed by both the parties. In case the SELLER's representative is not present, the JRI proceedings and Acceptance Certificate shall be signed by the BUYER's representative only and the same shall be binding on the SELLER. Copy of JRI proceedings and Acceptance Certificate shall be dispatched to the SELLER within 30 days of completion of the JRI. In case of deficiencies in quantity and quality or defects, details of these shall be recorded in the JRI proceedings,



Acceptance Certificate shall not be issued and claims raised as per Article on Claims in the contract. In case of claims, Acceptance Certificate shall be issued by the BUYER's representative after all claims raised during JRI are settled. If the BUYER does not perform the JRI as mentioned above for reasons exclusively attributable to him, the JRI in India shall be deemed to have been performed and the stores/ equipment fully accepted.

18. **Franking clause.** The following Franking clause will form part of the contract placed on successful Bidder -

**Franking Clause in the case of Acceptance of Goods** "The fact that, the goods have been inspected after the delivery period and passed by the Inspecting Officer, will not have the effect of keeping the contract alive. The goods are being passed without prejudice to the rights of the BUYER under the terms and conditions of the contract".

**Franking Clause in the case of Rejection of Goods** "The fact that the goods have been inspected after the delivery period and rejected by the Inspecting Officer will not bind the BUYER in any manner. The goods are being rejected without prejudice to the rights of the BUYER under the terms and conditions of the contract."

19. **Claims.** The following Claims clause will form part of the contract placed on successful Bidder: -

- (a) The claims may be presented either: -
  - (i) On quantity of the stores, where the quantity does not correspond to the quantity shown in the Packing List/Insufficiency in packing, or
  - (ii) On quality of the stores, where quality does not correspond to the quality mentioned in the contract.
- (b) The quantity claims for deficiency of quantity shall be presented within 45 days of completion of JRI and acceptance of goods. The quantity claim shall be submitted, to the SELLER as per form DPM - 22 (Available in MoD website and can be given on request).
- (c) The quality claims for defects or deficiencies in quality noticed during the JRI shall be presented within 45 days of completion of JRI and acceptance of goods. Quality claims shall be presented for defects or deficiencies in quality noticed during warranty period earliest but not later than 45 days after expiry of the guarantee period. The quality claims shall be submitted to the SELLER as per Form DPM - 23 (Available in MoD website and can be given on request).
- (d) The description and quantity of the stores are to be furnished to the SELLER along with concrete reasons for making the claims. Copies of all the justifying documents shall be enclosed to the presented claims. The SELLER will settle the claims within 45 days from the date of the receipt of the claim at the SELLER's office, subject to acceptance of the claim by the SELLER. In case no response is received during this period the claim will be deemed to have been accepted.

(e) The SELLER shall collect the defective or rejected goods from the location nominated by the BUYER and deliver the repaired or replaced goods at the same location under SELLER's arrangement.

(f) Claims may also be settled by reduction of cost of goods under claim from bonds submitted by the SELLER or payment of claim amount by SELLER through demand draft drawn on an Indian Bank, in favour of Principal Controller/Controller of Defence Accounts concerned.

(g) The quality claims will be raised solely by the BUYER and without any certification/countersignature by the SELLER's representative stationed in India.

20. **Warranty.** The following warranty will form part of the contract placed on the successful Bidder:-

(a) Except as otherwise provided in the invitation tender, the SELLER hereby declares that the goods, stores articles sold/ supplied to the BUYER under this contract shall be of the best quality and workmanship and new in all respects and shall be strictly in accordance with the specification and particulars contained/ mentioned in contract. The SELLER hereby guarantees that the said goods/ stores/ articles would continue to conform to the description and quality as per the as per SOR. **Further the equipment should have a warranty for a period of 12 months from the date of acceptance by IN.** Notwithstanding the fact that the BUYER may have inspected and/ or approved the said goods/ stores/ articles, if during the aforesaid period the said goods/ stores/ articles be discovered not to conform to the description and quality aforesaid not giving satisfactory performance or have deteriorated, and the decision of the BUYER in that behalf shall be final and binding on the SELLER and the BUYER shall be entitled to call upon the SELLER to rectify the goods/ stores/ articles or such portion thereof as is found to be defective by the BUYER within a reasonable period or such specified period as may be allowed by the BUYER within a reasonable period, or such specified period as may be allowed by the BUYER in his discretion on application made thereof by the SELLER, and in such an event, the above period shall apply to the goods/ stores/ articles rectified from the date of rectification mentioned in warranty thereof, otherwise the SELLER shall pay to the BUYER such compensation as may arise by reason of the breach of the warranty therein contained.

(b) Guarantee that they will supply spare parts, if and when required on agreed basis for an agreed price. The agreed basis could be and including but without any limitation on agreed discount on the published catalogue or an agreed percentage of profit on the landed cost.

(c) Warranty to the effect that before going out of production for the spare parts they will give adequate advance notice to the BUYER of the equipment so that the latter may undertake the balance of the lifetime requirements.

(d) Warranty to the effect that they will make available the blue prints of drawings of the spares with the main equipment.

(e) Post expiry of warranty, SELLER should provide spares for one year

mandatorily required for routine maintenance. In addition there should be assurance for extended support for ten years on completion of warranty to address the issues of spares/obsolesce of product.

21. **Product Support.** The following Product Support clause will form part of the contract placed on successful Bidder-

(a) The SELLER agrees to provide Product Support for the stores, assemblies/subassemblies, fitment items and consumables, Special Maintenance Tools(SMT)/ Special Test Equipment's (STE) subcontracted from other agencies/ manufacturer by the SELLER for a **maximum period of 10 years including one year of warranty period after the delivery.**

(b) In the event of any obsolescence during the above mentioned period of product support in respect of any component or sub-system, mutual consultation between the SELLER and BUYER will be undertaken to arrive at an acceptable solution including additional cost, if any.

(c) Any improvement/modification/ up gradation being undertaken by the SELLER or their sub suppliers on the stores/equipment being purchased under the Contract will be communicated by the SELLER to the BUYER and, if required by the BUYER, these will be carried out by the SELLER at BUYER's cost.

## **Part V- Evaluation Criteria & Price Bid issues**

### **1. Evaluation Criteria**

- (a) Only those Bids will be evaluated which are found to be fulfilling all the eligibility and qualifying requirements of the RFP technically and commercially.
- (b) The Bids forwarded by the Bidders will be evaluated by the BUYER with reference to the technical characteristics of the equipment as mentioned in the RFP. The compliance of Bids would be determined on the basis of the parameters specified in the RFP.
- (c) The Lowest Bid will be decided upon the lowest price quoted by the particular Bidder as per the Price Format given at Para 2 below. **L-1 bidder will be determined by excluding levies, taxes and duties levied by central / state / Local governments on final product, as quoted by bidders.**
- (d) The bidder is required to spell out the rate and amount of GST as applicable.
- (e) The Lowest Acceptable Bid will be considered further for placement of Contract / Supply Order after complete clarification and price negotiations as decided by the BUYER. The BUYER will have the right to award contracts to different Bidders for being lowest in particular items and, if it is convinced that Lowest Bidder is not in a position to supply full quantity in stipulated time the BUYER can do Apportionment of Quantity
- (g) In case of MSEs responding to the RFP, the evaluation would be carried out considering the applicable preferences iaw extant Gol regulations.
- (a) Any other criteria as applicable to suit a particular case.
- (c) No Minimum Order Quantity (MoQ) to be quoted by the bidder. Such bids will be rejected

**2. Price Bid Format (to be used for L-1 determination).** The Price Bid Format in general is given below and Bidders are required to fill this up correctly with full details, as required under Part-II of RFP (The format indicated below is only as an illustration. This format should be filled up with items/ requirements as mentioned in Part-II of RFP):-

#### **(a) For MFD.**

<b><u>Sl.</u></b>	<b><u>Description</u></b>	<b><u>Cost(Rs)</u></b>
(a)	Basic development cost of MFD	
(b)	Basic cost of qty 02 prototype MFD	
(c)	Basic Cost of indigenised MFD	
(d)	Tax on development cost	
(e)	Tax on MFD cost	
(f)	Any other charges	
Grand Total(inclusive of all taxes)		

(b) **For ATE.**

<b><u>Sl.</u></b>	<b><u>Description</u></b>	<b><u>Cost(Rs)</u></b>
(a)	Basic development cost of qty 01 Automated Test Equipment	
(b)	Basic cost of qty 01 ATE	
(c)	Tax on development cost	
(d)	Tax on prototype cost	
(e)	Any other charges	
	Grand Total (inclusive of all taxes)	

**Note.** Determination of L-1 will be done based on total of basic prices (not including levies, taxes and duties levied by Central/ State/ Local Governments on final product) of all items/ requirements as mentioned above.

3. **Breakdown details of cost (to be mentioned separately for MFD and ATE)**

## (a) Development Charges (one time):

- (i) Generation of technical specification
- (ii) Generation of engineering drawings
- (iii) Development of tooling / dies/ fixtures
- (iv) Qualification testing charges
- (v) Overhead expenditure
- (vi) Profit margin
- (vii) Total cost
- (viii) Taxes
- (ix) Grand Total

## (b) Indigenisation development of prototype sample

- (i) Procurement cost of BOM
- (ii) Design of prototype sample
- (iii) Scrap coverage
- (iv) Labour charges
- (v) In-house testing charges
- (vi) Packing / transport / forwarding charges
- (vii) Overheads
- (viii) Total basic cost
- (ix) Taxes
- (x) Grand Total

## (c) Cost of item for subsequent bulk supply

(d) Additional information in price bid on breakdown of taxes and Duties (not is scope of L-1 determination): GST as applicable on the rates notified by the Government.

## (e) Grand total prototype sample (including of all)

**NOTE.** Bank Mandate form is to be submitted along with price bid.

**Enclosure I to NHQ/DAPP RFP**  
**AP/1611/MFD dated Apr 25**

**SCHEDULE OF REQUIREMENT WITH TECHNICAL DETAILS**

Part No	MFD-10-7	Associated test rig for testing of MFDs
Description	Multi-Functional Display	
Quantity	Qty three (two prototype samples and one indigenised sample)	One set
Technical Specifications	Material Specification	To be found out by reverse engineering
Category of item	<b>Flight Critical Item</b>	
Load/ 'G' Factor	The MFDs would be subject to severe load/stresses/'G' Factor (of Approximately to the order of 30/40G) since the MiG29K aircraft would land / take off from Aircraft carrier deck with arrested recovery. The exact Load factors would have to be formulated in association with /IN and CEMILAC.	
Testing	In the event of prototype samples are not clearing the test the vendor will immediately improve upon the design based on the observations and resubmit prototype samples for further testing / trials in a time-bound manner.	
Inspection	Authority	NAQAS, Kochi
	Agency	RAQAS (Goa)
	Place	NAY(Goa)/INAS 303
Type Certification Agency	RCMA (Hyderabad)	
Technical Documents to be submitted along with Prototype	(a) Details of process associated with the manufacture / development of the item (Manufacturing Process Chart) (b) Engineering Drawing / circuit diagrams / assembly drawings on Vellum Paper duly signed (c) Certificate of material Specifications / procurement certificate of mechanical bill of material from firm approved by DGAQA / CEMILAC / DGQA approved Lab / NABL accredited laboratory (d) Material data sheets electronic components and procurement certificate from firm approved by DGAQA / CEMILAC / DGQA approved Lab/ NABL accredited laboratory (e) In house Inspection certificate (f) Qualification test reports finalised in association with RCMA (Hyd) during course of indigenisation (g) Any other reports recommended by RCMA (Hyd) from time to time during development.	
Despatch Instructions	(a) The items are to be delivered at Naval Aircraft Yard (Goa) (b) Each item is to be marked or labeled with original part no and the Indigenised Part Number and SI.No. (c) The consignee shall not pay separately for the transit insurance and the contractor shall be responsible for the safe arrival of the items at the destination	



### **TECHNICAL SPECIFICATIONS OF MFD**

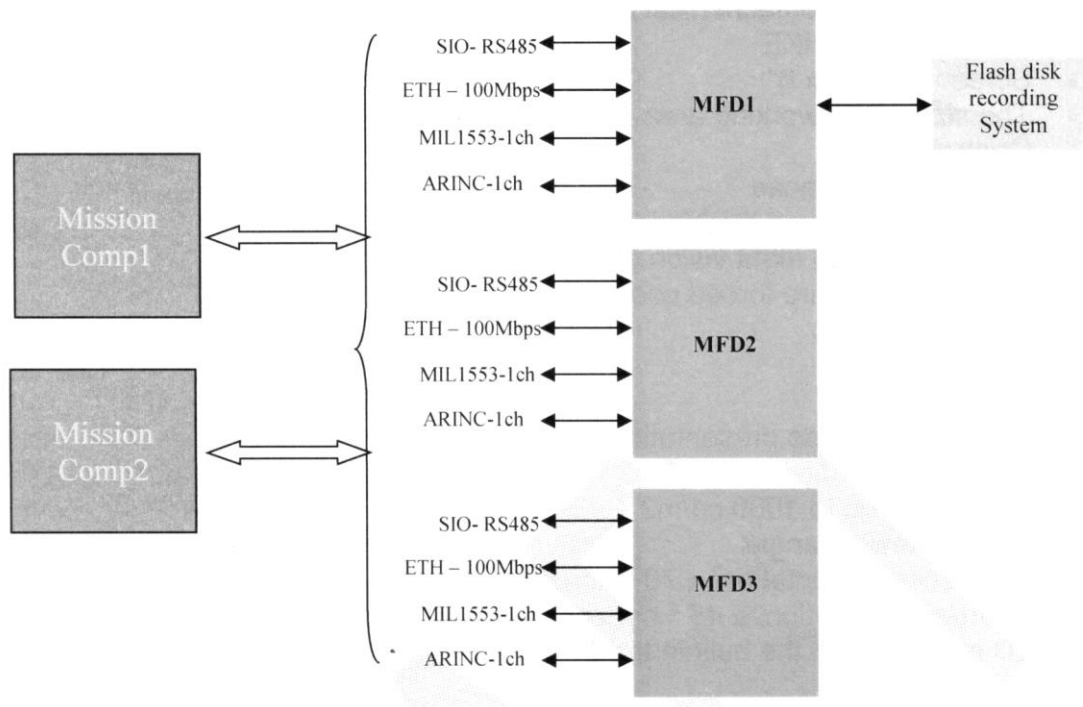
#### **MFD-10-7 (for Engine Parameters, Radar, Navigation Data)**

1. Display Identification details:
  - o MFI Name: MFI-10-7
  - o Display viewing size: 10.4" diagonal
  - o There will be 3 of these displays in each MIG fighter plane (all of them are identical, parallel and connected to two mission computers).
  - o There will be 7 of these displays in each MIG trainer plane (all of them are identical, parallel and connected to two mission computers).
2. Dimensional details and binding data:
  - o Not available, but sample is available for physical measurement
  - o Weight - 8kg
3. Material Information:
  - o Not Available
4. Installation type with details and photos:



- The Photo on the left shows the 3 displays in the pilot seat
- The photo on the right shows the 4 displays on the trainer seat
- All of them are identical and having 28 push buttons for operation. There 4 knobs on the corners for zooming operation in each display
- In MiG 29K there are no analog meters, all the information is available only on MFD.

5. Block diagram (Hardware interfaces and environment details):



- O Hardware Specifications for Single Micro Computer:
  - Includes Single board Microcomputer – info NA, since there are no manuals
  - Std Graphics controller
  - Resolution: 1024X768, 256 colors depth
  - Voltage: 27V DC (+/- 2.4 Volts range), 300 Watts power consumption
- O Environmental Specifications:
  - Operating temp: minus 40 to +60DegC

**Multifunction LCD DISPLAY MFI-10-7**



Multifunction Display MFD-10-7 is designed to equip fighter cockpit "Su" and "MiG", attack helicopters "Ka" and "E". Full Color LED Display Module with LCD active-matrix screen 6"x 8" provides the ability to read information in any ambient light. The indicator has a high resolution, allowing you to display any video overlaid with symbols on them. MFI with control panels with 28 multi-function buttons and 4 keypads with built-in multi-turn knob.



## TECHNICAL ADVANTAGES

- Replaces electromechanical aircraft indicators
- Full Color AMZHKE
- Screen Size 8 "x 6"
- The size of the working area - 211.2 x 158.4 mm
- Control panel
- The set of interfaces
- Automatic / manual brightness adjustment
- Compatible with night vision goggles (on request)
- Does not require forced cooling

## KEY POINTS

- High-quality video presentation
- Readability in direct sunlight
- Brightness up to 1000 cd/m<sup>2</sup>
- A wide viewing angle
  - Landscape orientation:  $\pm 70^\circ$  horizontally,  $\pm 45^\circ$  vertically
  - Portrait orientation:  $\pm 45^\circ$  horizontally,  $\pm 70^\circ$  vertical
- 20 map through the built-in tools

## KEY FEATURES

- High resolution
- 1024 x 768 color pixels
- High contrast ratio 200:1
- When the solar illumination 8:1
- Two video format: 1/1 or 3/4
- Dimensions: 255x205x135 mm
- Weight 6,2 kg
- The consumption of the circuit 278: electronics - 2A, heating - 4A at  $t = -40^\circ\text{C}$
- Built-in cooling fans
- MTBF: not less than 5000 hours

## Interfaces

- Digital Video Input: 1 channel LVDS color, 1 Channel Fiber Channel color/monochrome (optional)
- Video output of the recorder: 1 Channel Fiber Channel
- Inputs ARINC - 429, 12slushayuschih channels
- Outputs: ARINC - 429 - 3 Output
- MKIO - 1 main, 1 reserve GOST 26765.52-87
- Pilot interface: control panel with 28 programmable buttons dynamically and 4 multi turn manipulators with built-in button
  - Download the software via an external connector

## **SPECIFICATIONS OF ATE**

1. The ATE should perform running fault diagnostic tests on both indigenous as well as legacy MFDs (original MFDs supplied with aircraft by OEM MiG 29K) and fault diagnosis till PCB level on both indigenous as well as original MFDs.

2. A number of avionics systems used on current aircraft are of such complexity that manual test equipment are insufficient for their testing. ATE for the testing of production units must support features like self-testing that ensure that the ATE should operate within acceptable tolerance limits, prior to testing the avionics package. The Minimum tolerances as follows in order to avoid spurious test results:-

- (a) Temperature:  $\pm 2^{\circ}\text{C}$
- (b) Pressure:  $\pm 5\%$
- (c) Relative humidity:  $\pm 5\%$
- (d) Vibration amplitude sinusoidal:  $\pm 10\%$
- (e) Vibration frequency:  $\pm 2\%$
- (f) Acceleration:  $\pm 10\%$
- (g) Time:  $\pm 5\%$

3. ATE should be self-contained unit configured and integrated to provide rapid and accurate testing of digital and analog avionics equipment. The ATE generally consists of the following:

- (a) Programmable stimulus and measurement device
- (b) Computer hardware and software
- (c) Peripheral equipment and interface devices
- (d) Provision for printouts of the test results if required

4. The ATE offered is to be a compact PCI based platform to carry out functional verification of the MFD. The ATE should simulate the sensor inputs to the MFD to check its performance and functionalities.

5. The standard rack mount rig should be integrated with 17" LCD display. It should have sufficient number slots to mount the required I/O modules. The processor board used shall be latest Pentium based CPU which shall support standard interfaces like Serial Ports, USB, Parallel I/O, Ethernet, Keyboard, Mouse etc. The rack shall be integrated with hard disk.

6. The ATE should be of standalone type with sufficient I/O modules capable of testing MFDs with capability to test with simulated sensors or actual sensor inputs directly through break panels and switches. The ATE shall be completely integrated with power supply and necessary I/O modules along with digital voltmeter and ammeter for monitoring voltage and current respectively.

7. Standard product range shall be offered for all analog inputs and digital outputs to offer the built in test for the system. The analog parameters of the MFD are excited utilizing multiple DAC outputs. Digital portions the MFD are excited using similar discrete outputs from the test rig. ARINC-429, MIL 1553b and RS-422 interfaces are to be utilized for communication with the MFD. A fixed 28V power supply is provided along with test rig to power the unit under test.

8. The ATE should operate on standard 230VAC @ 50 Hz with sufficient protection mechanism. Provision shall be provided through a break out / patch panel arrangement to select simulated outputs from the ground rig or from the actual sensor which will be routed to the MFD.

### **SOFTWARE FOR TEST RIG**

User friendly GUI (Graphical User Interface) based software should be provided on Windows/ Linux OS to test MFD. Programmable mechanism to select the simulated signals from the rig or direct sensor selection to be provided through software. Individual analog and digital parameters to be selected independently or simultaneously depending upon the type of tests and the tests to be performed. Test reports as per desired format should be made available for references. If the functional signal flow stops or increases beyond a maximum acceptance level, a warning is displayed to indicate that a malfunction has to be occurred. Facilities to program and verify the on board firmware of the MFD to be provided.

**ADDITIONAL TECHNICAL REQUIREMENTS**

1. **Criticality/ Approval Requirements.** Item is meant for airborne (military) application, hence quality of materials, design and process are of utmost importance. The item will be required to be approved for airworthiness by RCMA/ CEMILAC and will be acceptable only after successful approval. Approvals for maintainability/ testability will be required to be obtained from Naval Aircraft Yard (Goa)/ RAQAS (Goa) and subsequently from RCMA for the following stages:-
  - (a) Finalisation of drawing/ design
  - (b) Selection of Materials/ components
  - (c) Fabrication of equipment
  - (d) Extent and sequence of testing
  - (e) Clearance for functional testing/ flight trials as per test schedule approved by RCMA
  - (f) Final clearance / certification
2. **Development.** The term "DEVELOPMENT" includes:-
  - (a) Generation of specifications and Design Development for the functional equivalent of the item
  - (b) Development of tooling/ dies/ fixtures/ test programs/ STTE and such other one time requirements
  - (c) Development of required number of prototypes for testing
  - (d) Testing of the prototypes as per approved qualification acceptance test / life cycle test schedule before functional testing / flight trials
  - (e) Submission of the prototypes and all test report to RCMA for airworthiness certification
3. **Indigenous Content**
  - (a) It should have a minimum indigenous content of 60% (Sixty percent) by cost, which includes hardware and software i.e. 60% (Sixty percent) of the contract cost (excluding installation, commissioning, training and technical literature).
  - (b) The indigenous content that will meet above requirements, is required to be indicated as breakdown of indigenous content of hardware component and software, if any, in % in Technical Bid and the cost towards same is to be clearly indicated only in the Commercial Bid. Bid not meeting the above requirements will be rendered invalid.
  - (c) The local supplier is required to provide self-certification that the item offered meets the minimum local content.
4. **Capability.** The ATE should be capable of the following:-
  - (a) Running fault diagnostic tests on indigenously developed MFDs.

(b) Isolation of fault till PCB level on indigenously developed MFDs.

5. **The following be noted**

(a) The original component specification details available with Indian Navy (**IN**) will be provided for development. However, vendor has to develop the items through Form Fit-Function (FFF) procedure with the latest components/ technology available in the market. The components used should be of military specification standard. The specification of the components has to be approved by inspection agency prior to development of prototype sample.

(b) The Circuit diagram, PCB layout drawings of the item and other records/ drawings will have to be developed/ generated by firm. The same will have to be approved by CEMILAC before proceeding with actual development. Necessary assistance may be provided by **IN**.

(c) On approval of specifications, the draft test schedule will be prepared and approved by inspection agency.

(d) The charges for getting the tests done from accredited laboratories will have to be borne by the vendor. Test would need to be repeated if system does not clear the test in first instance.

**GUIDELINES FOR PREPARATION OF TECHNICAL BID**

The Technical Bid should contain the following information and details so as to enable the BUYER to assess the understanding, technical capability and infrastructure/resources of the firm to undertake indigenisation: -

- (a) Indicate para wise acceptance of the entire procedure mentioned in RFP **(or)** Indicate acceptance of the entire procedure except \_\_\_\_\_.  
(Indicate specific jobs not being undertaken as a "Deviation List").
- (b) Indicate acceptance of the QAP/QIS indicated in SOR **(or)** Indicate acceptance of the QAP/QIS indicated in SOR. (Indicate specific provisions not being undertaken as a Deviation List) **(or)** Forward a QAP/QIS for consideration of Technical Evaluation Committee.
- (c) Indicate anticipatory list of spares, if applicable, required for undertaking the scope of work specified in SOR. Budgetary Estimate of all such spares is to be indicated in the Commercial Bid if such a list of Anticipatory Spares is forwarded along with the Technical Bid.
- (d) Indicate whether Earnest Money deposited as per Para 13 of Part I of the RFP has been attached.
- (e) Indicate acceptance of Payment terms as indicated in Para 4 & 6 of Part IV of the RFP.
- (f) Indicate acceptance of Standard Conditions of Contract (SCOC) and other terms and conditions given in the RFP.