REQUEST FOR PROPOSAL
(Ministry of Defence, India)

INVITATION OF BIDS FOR SUPPLY OF 7,23,770 QUANTITY OF ROUND 40MM HEAP, QTY 1,94,610 OF ROUND 40MM HEDP & QTY 1,94,610 OF ROUND 40MM SMOKE RP MGL AMMUNITION

Request for Proposal (RFP) No A/18120/10(I)/2017/40MM MGL AMN/OS-AmnProc dt 28 Mar 2018

1. The online Bids under **Global Tender Enquiry (TWO BID SYSTEM)** are invited for supply of items listed in Part II of this RFP. The tender reference can be viewed and downloaded at https://eprocure.gov.in/eprocure/app

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	**DDG PPO, Room No. 214, D-1 Wing, Sena Bhawan, Integrated HQ of MoD(Army), New Delhi-110 011**
(b)	Postal address for sending original documents (EMD, Tender fee specified in paragraph 3(a) of part – 1 of RFP)	**DDG PPO, Room No. 214, D-1 Wing, Sena Bhawan, Integrated HQ of MoD(Army), New Delhi-110 011**
(c)	Name/designation of the contact personnel	**AMGO (SSA), MGO/PPO-5**
(d)	Telephone numbers of the contact personnel	+ **91 11 23018626**
(e)	E-mail ids of contact personnel	**classic@nic.in**
(f)	Fax number	**+91 11 23793337**

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 tenders, Validity period of tenders, etc.

(b) Part II – Contains essential details of the items/services required, such as the Schedule of Requirements (SOR), Technical Specifications, Delivery Period, 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 Bids.

4. **Important Instructions.** Please note the following:-

(a) Your quotation must indicate unconditional acceptance of all terms and conditions of this RFP, failing which it is liable to be rejected. You may, however, indicate desired terms and conditions which may be accepted / rejected at the sole discretion of the buyer. Certificate with respect to unconditional acceptance must be put in Technical Bid as per format attached as **Appendix A.**

(b) As per RBI PAD, New Delhi ruling, Government Departments maintaining accounts with PAD, New Delhi are to switch over to electronic mode for making payment to vendors and others. Hence details will be submitted as per Para 3(b)(vii) of RFP Part I.

5. 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.

PART- I GENERAL INFORMATION

1. **Critical Dates**. The critical dates with respect to the Tender are as follows:-

S.No	Item	Date	Time
(a)	Published date	28 Mar 2018	1700hrs
(b)	Bid Document Download	28 Mar 2018	1700hrs
(c)	Clarification Start date	28 Mar 2018	1700hrs
(d)	Pre Bid meeting	-	If required.
(e)	Bid submission start	29 Mar 2018	1100hrs
(f)	Clarification End Date	14 May 2018	1700hrs
(g)	Bid Submission End	28 May 2018	1100hrs
(h)	Opening of Tender Box for Physical Verification of Documents	28 May 2018	1100hrs
(j)	Technical Bid Opening start (Online)	28 May 2018	1500hrs
(k)	Uploading of TEC Report	Will be intimated after Technical evaluation	
(l)	Commercial Bid Opening		

(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 the Buyer).

2. **Mode of Tender.** Global Open Tender (Two bid System).

3. **Manner of Depositing the Bids**. The bids will be submitted in the following manner:-

(a) **Physical Deposition.** The original of Earnest Money Deposit (**EMD) instruments** as per Para 16 of Part-I of RFP shall be submitted physically in the sealed condition in the Tender Box marked as **TENDER BOX, MGO/PPOat the location mentioned at Paragraph 5 below** prior to bid submission closing date in an envelope duly marked with Tender ID along with a covering letter under company letter head. Following are to be noted:-

(i) In case EMD is exempted, necessary proof of exemption be submitted online**.**

(ii) The above documents can also be sent by registered post at the address given above so as to reach by the due date and time.

(iii) The documents deposited in any other tender box shall not be considered and will be rejected.

(iv) If the documents are being sent through international/local courier service providers, the courier service provider may be advised to telephonically inform AMGO (SSA), MGO PPO-5 before depositing the bids in tender box to avoid rejection due to deposition of bid in wrong tender box.

(v) In case of non receipt of Physical Documents, the online bids will be considered non compliant to RFP hence it will be rejected. No responsibility will be taken for postal delay or non delivery/ non-receipt.

(vi) The envelope must have the tender reference written on it.

(vii) Besides the documents specified below for 'On Line' submission, in case the bidder submits any other document (like technical information) 'on line', hard copy of the same is also required in Physical Deposition.

(b) **E-Bid Cover-I (ON LINE)**. Cover I will contain the Technical Bids consisting of following scanned Documents converted in a single PDF file in following sequence :-

(i) Proof of valid Registration/renewal of registration. The status of Bidder will be considered as existing on the date of Technical bid opening.
(ii) PAN No, GSTIN Registration.
(iii) **Tender Conditions Acceptance Certificate.** Unconditional acceptance of all the tender conditions of online RFP as per '**Appendix A'** on Firm's letter head. If the Certificate is signed by legally authorised signatory, a copy of the authorisation letter be uploaded.
(iv) EMD documents or the exemption certificate as applicable.
(v) Undertaking by the Firm to be able to provide ammunition as per RFP.

(c) **E-Bid Cover-II (ON LINE).** Commercial bid packet consisting of **"BOQ"** (Bill of Quantities) in the Excel Sheet downloaded from the https://eprocure.gov.in/eprocure/app will be submitted online as Cover II.
(d) Instructions for bidders to understand before filing the online bids are at **Appendix B.**

(e) Bids sent by FAX or e-mail will not be considered.

(f) Besides the documents specified above for 'On Line' submission, in case the bidder submits any other document (like technical information) 'on line', hard copy of the same is also required as per instructions at Paragraph 3 (a) above.

4. **Time & date of Opening of Bids**. The online opening of online bids will be carried out on _____ Mar 2018 at 1500 hrs.

5. **Location of the Tender Box: Near Gate No.1, Sena Bhavan, Integrated HQ of MOD(Army), New Delhi-110 011.** Only those Physical documents that are found in the tender box will be opened. Documents dropped in the wrong Tender Box will be rendered invalid. Bids sent by FAX or e-mail will not be considered.

6. **Place of opening of the Bids: DDG/PPO, Room No. 214, D-1 Wing, Sena Bhavan, Integrated HQ of MOD(Army), New Delhi-110 011**.

7. **Two –Bid system**

(a) The Technical Bids shall be opened as per critical date sheet mentioned in this tender document. Evaluation of technical Bid along with requisite documents received in physical form as well as documents uploaded online by the bidders will be carried out off line by Technical Evaluation Committee. The TEC will confirm that the items being offered meet the requirement asked for in the RFP and the offers comply to the RFP Terms and Conditions.

(b) Thereafter, the short listed qualified vendors for the supply of ammunition would be asked to provide the following **Round 40mm HEAP,HEDP & SMOKE RP** for trials **in India** :-

S.no	Ammunition	Qty-DGQA trials	Qty-User Trials	Total
(i)	**Round 40mm HEAP**	472	452	924
(ii)	**Round 40mm HEDP**	266	366	632
(iii)	**Round 40mm SMK RP**	256	252	508

These qty will be provided at **'No Cost No Commitment**' basis. The responsibility of the import of ammunition for trials, which shall involve custom clearance and transportation within India from the port of entry to the place of trials both for User and DGQA, will be the responsibility of the vendor. However, this is not applicable for already trial evaluated vendors who have successfully supplied the same ammunition in past. The vender will

supplythe ammunition for trials evaluation within a maximum period of 24 weeks from the date of intimation to do so, failing which vendor will be non compliant to RFP.

(c) **Trial Evaluation Process**. The trial evaluation will comprise of the two stage trial evaluation process which will be as under:-

(i) **Technical and Environmental Evaluation by DGQA**. Broad Technical and Environmental evaluation criteria by DGQA is attached as **Appendix 'D-I', D-II' 'D-III' and 'D-IV'** as under:-

(aa)**40 mm HEAP Ammunition**.	As per **Appendix 'D-I'.**
(ab)**40 mm HEDP Ammunition**.	As per **Appendix 'D-II'.**
(ac)**40 mm RP Ammunition**.	As per **Appendix 'D-III'.**
(ad) **40mm HEAP for 40mm UBGL INSAS**	As per **Appendix 'D-IV'**

(ii) **User Trials in India**. The user trials will be carried out both in plains and High Altitude Area. The broad trial methodology by the User is attached as **Appendix 'E- I,II and III'**.

(d) The results of the final technical evaluation will be uploaded on the Central Public Procurement Portal (https://eprocure.gov.in/eprocure/app).

(e) Commercial offers will be opened only of those vendors offering ammunition which is RFP compliant and which has been supplied to the buyer in the past after successful trial evaluation by the buyer OR whose ammunition is found acceptable after technical trials and evaluation as mentioned in paragraph 6 (a) to (c) above. The date of opening will be intimated to the Bidders through Central public Procurement Portal (https://eprocure.gov.in/eprocure/app).

8. **Forwarding of Bids –** Bids should be forwarded by Bidders under their original memo/letter pad inter alia furnishing details like complete postal, e-mail address, Fax No & Telephone no of their office.

(a) The documents specified in Para 3 (a) to be deposited physically as per instructions at Para 5 above. The physical receipt of these documents is mandatory.

(b) The technical bids shall not be accepted if these documents are not received prior to bid opening. The **TECHNICAL** and **COMMERCIAL** bid will be submitted "**Online Only"**.

(c) The **TECHNICAL BID and the COMMERCIAL BID should be submitted by the bidder duly digitally signed by the legal owner of the firm or the person authorized by him to do so. Instructions for Online Bid Submission** to the Bidders to submit the bids online through the Central Public Procurement Portal for eProcurement at https://eprocure.gov.in/eprocure/app are attached as **Appendix 'B'**.

9. **Clarification regarding contents of the Bids**.A prospective bidder who requires clarification regarding the content of the bidding documents, shall notify to the Buyer in writing about the clarification sought not later than **28 days** prior to the date of opening of the Bids.

10. **Modification and Withdrawal of Bids.**

(a) The Bidder may modify (resubmit) his bid after submission, as per the provisions available on the portal. No bid shall be modified after the deadline for submission of bids.

(b) If bidder desires to withdraw before bid submission closing date/time, he may do so online in the portal and offline EMD would be refunded. Once with-drawn online, he cannot participate again in this tender.

(c) No bid may be withdrawn in the interval between the deadline for submission of bids and expiry of the period of the specified bid validity. Withdrawal of a bid during this period will result in forfeiture of Bidder's Bid Security/ EMD.

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

12. **Clarification regarding contents of the Bids**. 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.

13. **Unwillingness to quote.** Bidders unwilling to quote should ensure that intimation to this effect reaches before the due date and time of opening of the Bid, failing which the defaulting Bidder may delisted for the given range of items as mentioned in this RFP.

14. **Validity of Bids:** The Bids should remain valid till **12 months** from the last date of submission of the Bids.

15. **Earnest Money Deposit :** Bidders are required to submit Earnest Money Deposit (EMD) for amount of **Rs 8,00,00,000/-(Rupees Eight crores only)** in the name of 'The President of India' payable at New Delhi 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-13 (Available in MoD website and can be provided on request). EMD is to remain valid for a period of forty-five 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 30th 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)/NMSE 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. **Schedule of Requirements**. List of items /services required is as follows:-

S.NO	Ammunition	Qty
(a)	Round 40mm HEAP for 40mm UBGL INSAS and MGL 40mm	7,23,770
(b)	Round 40 mm HEDP	1,94,610
(c)	Round 40 mm SMK RP	1,94,610

2. **Technical Details**. Refer **Appendix 'C-I, C-II, C-III'** attached for Technical details.

3. **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-

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

4. **Delivery Period**

(a) Delivery in two consignments i.e. 50% within first six months of signing of contract and balance 50 % within twelve months of the cumulative quantity of **11,12,990** rounds of ammunition **Round 40MM MGL(HEAP,HEDP & SMK RP) and 40mm UBGL INSAS.**

(b) Please note that Contract can be cancelled unilaterally by the Buyer in case items are not received within the contracted delivery period. Extension of contracted delivery period will be at the sole discretion of the Buyer, with applicability of LD clause.

5. **Apportionment of Quantity**. In case the L1 vendor does not have the capacity to supply the entire requisite quantity within the specified period as given in the RFP, the order for balance quantity may be placed on the L2, L3 and so on for supply of balance quantity at L1 rates, provided this is acceptable to them.

6. **INCOTERMS for Delivery and Transportation**– **C.I.F.Port of Kochi, Republic of India.**

7. **Consignee details**.

Port of destination - Port of Kochi, Republic of India.

Port Consignee - NAD, Alwaye

Ultimate Consignee - Central Ammunition Depot (CAD), Pulgaon, Maharashtra, Republic of India

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 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 signatures of both the parties on the contract (Effective Date) and shall remain valid until the completion of the obligations of the parties under the contract. The deliveries and supplies and performance of the services 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 discussion. 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 Forms DPM-7, DPM-8 and 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 contract 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 favour 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 anyone 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 on 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 favour 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 Seller is the original manufacturer of the ammunition referred to in this contract 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, other party shall not disclose the contract or any provision, specification, plan, design, pattern, sample or information thereof to any third party.

8. **Apportionment of Quantity**. In case the L1 vendor does not have the capacity to supply the entire requisite quantity within the specified period as given in the RFP, the order for balance quantity may be placed on the L2, L3 and so on for supply of balance quantity at L1 rates, provided this is acceptable to them.

9. **Liquidated Damages**. In the event of the seller's failure to submit the bonds, Guarantees and documents, Supply of the Ammunition and conduct trials, installation of equipment, training, etc as specified in this 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 ammunition 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 ammunition.

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

(a) The delivery of the Ammunition is delayed for causes not attributable to Force Majeure for more than (**Six 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 (**Nine months**) provided Force Majeure clause included in contract.

(d) The Buyer has noticed that the Seller has utilized 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.

(f) When the supplier fails to honour any part of the contract including failure to deliver the contracted stores/render service in time.

11. **Notices.** Any noticed 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.

12. **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.

13. **Patents and other Intellectual 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 intellectual 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.

14. **Amendments**. No provision of present Contract 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.

15. **Taxes and Duties:-**

(a) **In case of Foreign Seller**. All taxes, duties, levies and charges which are to be paid for the delivery of goods after the contract, shall be paid by the parties under the present contract in their respective countries.

(b) **In case of Indigenous Seller**.

(i) **General**.

(aa). If Bidder desires to ask for Goods and Services Tax extra, the same must be specifically stated. In the absence of any such stipulation, it will be presumed that the prices include all such charges and no claim for the same will be entertained.

(ab). If reimbursement of any Duty/Tax is intended as extra over the quoted prices, the Bidder must specifically say so. In the absence of any such stipulation it will be presumed that the prices quoted are firm and final and no claim on account of such duty/tax will be entrained after the opening of tenders.

(ac). If a Bidder chooses to quote a price inclusive of any duty/tax and does not confirm inclusive of such duty/tax so included is firm and final, he should clearly indicate the rate of such duty/tax and quantum of such duty/tax included in the price. Failure to do so may result in ignoring of such offers summarily.

(ad). If a Bidder is exempted from payment of any duty/tax upto any value of supplies from them, he should clearly state that no such duty/tax will be charged by him up to the limit of exemption which he may have. If any concession is available in regard to rate/quantum of any Duty/tax, it should be brought out clearly. Stipulations like, the said duty/tax was presently not applicable but the same will be charged if it becomes leviable later on, will not be accepted unless in such cases it is clearly stated by a Bidder that such duty/tax will not be charged by him even if the same becomes applicable later on. In respect of the Bidders, who fail to comply with this requirement, their quoted prices shall be loaded with the quantum of such duty/tax which is normally applicable on the item in question for the purpose of comparing their prices with other Bidders.

(ae). Any change in any duty/tax upward/downward as a result of any statutory variation in excise taking place within contract terms shall be allowed to the extent of actual quantum of such duty/tax paid by the supplier. Similarly, in case of downward revision in any duty/tax, the actual quantum of reduction of such duty/tax shall be reimbursed to the Buyer by the Seller. All such adjustments shall include all reliefs, exemptions, rebates, concession etc. if any obtained by the Seller.

(ii) **Customs Duty**.

(aa). For imported stores offered against forward delivery, the Bidder shall quote prices thereof exclusive of customs duty. The Bidder shall specify separately the C.I.F. prices and total amount of customs duty payable. They will also indicate correctly the rate of customs duty applicable along with Indian Customs Tariff Number. Customs duty as actually paid will be reimbursed on production of necessary documents i.e. (i) Triplicate copy of the bill of entry; (ii) copy of bill of lading; (iii) a copy of foreign principal's invoice. However, if the Bidder imports the stores in question against his own commercial quota Import Licences, he will also be required to submit in addition the triplicate copy of bills of entry etc. a certificate from his Internal Auditor on the bill itself, to the effect that the following items/quantity in the bill of entry related to the stores imported against Defence Buyer contract number…….. dated……..

(ab). Subsequent to the reimbursement of customs duty, the Bidder will submit to the concerned Payment Authority a certificate to the effect that he has not obtained any refund of customs duty subsequent to the payment of duty to the Customs authority by him. In addition, he shall also submit to the Paying Authority concerned a certificate immediately after a period of three months from the date of payment of the duty to customs authorities to the effect that he has not applied for refund of the customs duty subsequent to the payment of duty to the customs authorities by him.

(ac). In case the Bidder obtains any refund of customs duty, subsequently to the payment of the same by him to the customs authorities and reimbursement of the customs duty to him by the Payment Authority, he should forthwith furnish the details of the refund obtained and afford full credit of the same to the Buyer.

(iii) **Goods and Services Tax (GST)**.

(aa) Where the GST is payable on advalorem basis, the Bidder should submit along with the tender, the relevant form and the Manufacturer's price list showing the actual assessable value of the stores as approved by the Excise authorities.

(ab). Bidders should note that in case any refund of GST is granted to them by Excise authorities in respect of Stores supplied under the contract, they will pass on the credit to the Buyer immediately along with a certificate that the credit so passed on relates to the GST, originally paid for the stores supplied under the contract. In case of their failure to do so, within 10 days of the issue of the GST refund orders to them by the Excise Authorities the Buyer would be empowered to deduct a sum equivalent to the amount refunded by the Excise Authorities without any further reference to them from any of their

outstanding bills against the contract or any other pending Government Contract and that no disputes on this account would be raised by them.

(ac). The Seller is also required to furnish to the Paying Authority the following certificates:-

(aaa). Certificate with each bill to the effect that no refund has been obtained in respect of the reimbursement of GST made to the Seller during three months immediately preceding the date of the claim covered by the relevant bill.

(aab). Certificate as to whether refunds have been obtained or applied for by them or not in the preceding financial year after the annual Audit of their accounts also indicating details of such refunds/applications, if any.

(aac). A certificate along with the final payment bills of the Seller to the effect whether or not they have any pending appeal/protest for refund or partial refund of GST already reimbursed to the Seller by the Government pending with the Excise authorities and if so, the nature, the amount involved, and the position of such appeals.

(aad). An undertaking to the effect that in case it is detected by the Government that any refund from Excise Authority was obtained by the Seller after obtaining reimbursement from the Paying Authority, and if the same is not immediately refunded by the Seller to the Paying Authority giving details and particulars of the transactions, Paying Authority will have full authority to recover such amounts from the Seller's outstanding bills against that particular contract or any other pending Government contracts and that no dispute on this account would be raised by the Seller.

(ad) Unless otherwise specifically agreed to in terms of the contract, the Buyer shall not be liable for any claim on account of fresh imposition and/or increase of GST on raw materials and/or components used directly in the manufacture of the contracted stores taking place during the pendency of the contract.

(ae) If it is desired by the Bidder to ask for GST to be paid as extra, the same must be specifically stated. In the absence of any such stipulation in the bid, it will be presumed that the prices quoted by the Bidder are inclusive of GST and no liability of GST will be developed upon the Buyer.

(af) On the Bids quoting GST extra, the rate and the nature of GST alongwith HSN Code applicable at the time of supply should be shown separately. GST will be paid to the Seller at the rate at which it is liable to be assessed or has actually been assessed provided the transaction of sale is legally liable to GST and the same is payable as per the terms of the contract.

(iv) **Octroi Duty & Local Taxes**.

(aa). Normally, materials to be supplied to Government Departments against Government Contracts are exempted from levy of town duty, Octroi Duty, Terminal Tax and other levies of local bodies. The local Town/Municipal Body regulations at times, however, provide for such Exemption only on

production of such exemption certificate from any authorised officer. Seller should ensure that stores ordered against contracts placed by this office are exempted from levy of Town Duty/Octroi Duty, Terminal Tax or other local taxes and duties. Wherever required, they should obtain the exemption certificate from the Buyer, to avoid payment of such local taxes or duties.

(ab). In case where the Municipality or other local body insists upon payment of these duties or taxes the same should be paid by the Seller to avoid delay in supplies and possible demurrage charges. The receipt obtained for such payment should be forwarded to the Buyer without delay together with a copy of the relevant act or by- laws/notifications of the Municipality of the local body concerned to enable him to take up the question of refund with the concerned bodies if admissible under the said acts or rules.

16. **Pre-Integrity Pact Clause**. (Indenter to include as and when required on case to case basis) An "Integrity Pact" would be signed between the Ministry of Defence/Buyer and the Bidder for purchases exceeding Rs 100 Crores. This is a binding agreement between the Buyer and Bidders for specific contracts in which the Buyer promises that it will not accept bribes during the procurement process and Bidders promise that they will not offer bribes. Under this Pact, the Bidders for specific services or contracts agree with the Buyer to carry out the procurement in a specified manner. The Format of Pre-Integrity Clause will be as per Form DPM-10 (Available in MoD website, and can be provided on request). The essential elements of the Pact are as follows:

(a) A pact (contract) between the Government of India (Ministry of Defence) ('*the authority or the 'principal*') and those companies submitting a tender for this specific activity (the "Bidder"):

(b) An undertaking by the Principal that its officials will not demand or accept any bribes, gifts etc, with appropriate disciplinary or criminal sanctions in case of violation;

(c) A statement by each Bidder that it has not paid, and will not pay, any bribes;

(d) A undertaking by each Bidder to disclose all payments made in connection with the Contract in question to anybody (including agents and other middlemen as well as family members, etc; of officials), the disclosure would be made either at the time of submission of Bids or upon demand of the Principal, especially when a suspicion of a violation by that Bidder emerges;

(e) The explicit acceptance by each Bidder that the no-bribery commitment and the disclosure obligation as well as the attendant sanctions remain in force for the winning Bidder until the contract has been fully executed.

(f) Undertaking on behalf of a Bidding company will be made "in the name and on behalf of the company's Chief Executive Officer".

(g) The following set of sanctions shall be enforced for any violation by a Bidder of its commitments or undertakings :

(i) Denial or loss of contracts;

(ii) Forfeiture of the Bid security and performance bond;

(iii) Liability for damage to the principal the competing Bidders; and

(iv) Debarment of the violator by the Principal for an appropriate period of time.

(h) Bidders are also advised to have a company code of conduct (clearly rejecting the use of bribes) and other unethical behavior compliance program for the implementation of the code of conduct throughout the company.

PART IV – SPECIAL CONDITIONS OF RFP

(The Bidders 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 Supplier (i.e. Seller in the Contract) as selected by the Buyer, Failure to do so may result in rejection of Bid submitted by the Bidders.)

1. **Performance Guarantee.**

(a) **Indigenous cases.** 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 authorized to conduct government business (ICICI Bank Ltd., Axis Bank Ltd or HDFC Bank Ltd.) for a sum equal to **10%** of the contract value within 30 days of receipt of the confirmed order. Performance Bank Guarantee should be valid up to 60 days beyond the date of warranty. The specimen of PBG is given in Form DPM-15(Available in MoD website and can be provided on request).

(b) **Foreign cases.** (Performance-cum-Warranty Bank Guarantee).

(i) The Seller will be required to furnish a Performance-cum-Warranty Bank Guarantee by way of a Bank Guarantee from the Seller's Bank through a bank of international repute equal to **ten percent (10%)** of the total value of the contract in contracting currency e.g. for US $ …….. (US Dollars ……..) only) within 30 days of signing of contract.

(ii) The Bank Guarantee will be in favour of the Govt of India, Ministry of Defence and shall be considered open upon receipt by the Buyer's Bank. The specimen of PBG-cum-WBG is given in Form DPM-15 (Available in MoD website).

(iii) The acceptability of Bank Guarantee will be based on advice received from SBI, Foreign Division Branch. In case the advice of SBI is that the Bank Guarantee not being from a bank of international repute with satisfactory country rating and/or a confirmation of a reputed Indian bank if required to be obtained, then the guarantee will got confirmed (by the seller at his cost) by an Indian Public sector bank or a private sector bank duly authorised by RBI to conduct government business (ICICI Bank Ltd/Axis Bank Ltd/HDFC Bank Ltd).

(iv) The PBG-Cum-WBG shall remain valid upto 60 days beyond the warranty period of last consignment.

(v) In case of any claims or any other contractual obligation being outstanding, the Seller will extend the PBG-Cum-WBG as asked for by the Buyer till such time as the Seller settles all claims and completes all contractual delegations. The PBG-Cum-WBG will be subject to encashment by the Buyer, in case the conditions regarding adherence to delivery schedule, settlement of claims and other provisions of the contract are not be filled of the seller.

(vi) When the PBG will be considered open.

(vii) Extension of PBG on any claims of buyer and condition for its encashment.

(viii) Vetting of PBG by SBI.

2. **Payment Terms for Indigenous Sellers** - It will be mandatory for the Bidders to indicate their bank account numbers and other relevant payment details so that payments could be made through ECS/EFT mechanism instead of payment through cheques, wherever feasible. 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). **90% of the Payment** will be made against Inspection note, Proof of despatch, duly supported by Xerox copy of the Bank Guarantee and against Consignee's provisional receipt. **Balance of 10%** will be paid on receipt of items in good condition by consignee.

3. **Payment terms for Foreign Sellers. Ninety (90%)** of the payment will be arranged through **an irrevocable Letter of Credit** from State Bank of India/Bank of Baroda/Canara Bank/Syndicate Bank New Delhi as decided by the Buyer, to the Bank of the Foreign Seller. The Seller will give a notification within 45 days from date of signing of contract about the readiness of goods. Letter of Credit is to be opened by the Buyer within 45 days of receipt of readiness and PBG-cum-WBG from the firm. The Letter of Credit will be valid for Nine months from the date of contract, on extendable basis by mutual consent of both the Seller and Buyer. **Balance ten percent (10%) will be made by Direct Bank Transfer** on successful completion of Joint Receipt Inspection (JRI) of the last consignment on submission of **Three Ink-signed invoices for the balance amount and one ink-signed copy of JRI report by the Seller**.

4. **Advance Payments**: No advance payment(s) will be made.

5. **Paying Authority.**

(a) **Indigenous Sellers:** (PCDA HQ, 'G' Block, New Delhi-110 011). The payment of bills will be made on submission of the following documents by the Seller to the Paying Authority along with the bill :-

(i) Ink-signed copy of contingent bill / Seller's bill.
(ii) Ink-signed copy of Commercial invoice / Seller's bill.
(iii) Copy of Supply Order/Contract with U.O. number and date of IFA's concurrence, where required under delegation of powers.
(iv) CRVs in duplicate.
(v) Inspection note.
(vi) 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, GST, proof of payment for EPF/ESIC contribution with nominal roll of beneficiaries, etc as applicable.
(vii) Exemption certificate for Excise duty / Customs duty, if applicable.
(viii) Bank guarantee for advance, if any.
(ix) Guarantee / Warranty certificate.
(x) Performance Bank guarantee / Indemnity bond where applicable.
(xi) DP extension letter with CFA's sanction, U.O. number and date of IFA's concurrence, where required under delegation of powers, indicating whether extension is with or without LD.
(xii) 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).
(xiii) Any other document / certificate that may be provided for in the Supply Order / Contract.
(xiv) User Acceptance.
(xv) Xerox copy of PBG.

(Note – From the above list, the documents that may be required depending upon the peculiarities of the procurement being undertaken, may be included in RFP)

(b) **Foreign Sellers.**Paying Authority (PCDA HQ, 'G' Block, New Delhi-110 011). Shipping documents are to be provided to the Bank by the Seller as proof of dispatch of goods as per contractual terms so that the Seller gets payment from LC. The Bank will forward these documents to the Buyer for getting the goods/stores released from the Port/Airport. Documents will include:-

(i) Full set of originals Clean on Board Airway Bill/Bill of Lading
(ii) Invoice-I Original + 5 copies
(iii) Packing List- 6 copies
(iv) Certificate of Origin duly stamped by Seller's Chamber of Commerce, if any.
(v) Certificate of Quality and current manufacture from OEM.
(vi) Dangerous Cargo certificate, if any.
(vii) Insurance policy of 110% if CIF / CIP contract
(viii) Certificate of Conformity & Acceptance Test at PDI, if any.
(ix) Phyto-sanitary / Fumigation Certificate, if any.
(x) Performance Bond / Warranty Certificate.

6. **Fall clause.**The following fall clauses will form part of the contract placed on successful Supplier-

(a) The price charged for the stores supplied under the contract by the Seller shall in no event exceed the lowest prices at which the Seller sells the stores or offer to sell stores of identical description to any persons/Organization 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 Seller reduces the sale price, sells or offer to sell such stores to any person/organization including the Buyer or any Dept, of central Govt., 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 shall forthwith notify such reduction or sale or offer of sale to the Director General of Ordnance Services 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 the prices charged for normal replacement.

(iii) Sale of goods such as drugs which have expiry dates.

(iv) 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 Govt. 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/
organization 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 - .....".

7. <u>Risk & Expense Clause (Applicable to Indigenous Firms Only)</u>

(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 instalment 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 instalment thereof not perform in accordance with the specifications / parameters provided by the SELLER during the check proof tests to be done in the BUYER's 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.

8. **<u>Force Majeure clause</u>**.

(a) Neither partly shall bear responsibility for the complete or partial non-performance of any of its obligation (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 result 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 obligation 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 10 (Ten) 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 **180 days**, 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.

9. **Specification.** The following Specification clause will form part of the contract placed on successful Bidder - The Seller guarantees to meet the specifications as per Part-II of RFP.

10. **OEM** . Only OEM can bid in the subject RFP.

11. **Export License**: The Bidders are to confirm that they have requisite export license from their Government and Authorization from the manufacturing plant, in case they are not the OEM, to export the military / non-military goods to India.

12. **Earliest Acceptable Year of Manufacture**: All ammunition should be brand new and manufactured after the signing of contract. Quality & Shelf Life certificate to be enclosed with the Bill.

13. **Transportation**: Transportation clause which will form part of the contract placed on successful Bidder will be that 'the ammunition shall be delivered **C.I.F.Port of Kochi, Republic of India.** Seller will bear the costs and freight necessary to bring the goods to the port of destination i.e. **Port of Kochi**. The Seller also has to procure marine insurance against the Buyer's risk of loss of or damage to goods during the carriage. The Seller will contract for insurance and pay the insurance premium. Seller is also required to clear the goods for export. The ammunition should be shipped preferably by Indian Flag vessels or by vessels belonging to the Conference lines in which India is a member country. However, if an Indian flag vessel or vessel of Conference Lines is scheduled to arrive at the specified port of loading later than 15 days of readiness or on routes where Indian vessels / Conference Lines vessels do not ply etc. the seller may arrange for shipment of the cargo by alternative carrier with the prior written permission of the buyer. The date of issue of the Bill of Lading shall be considered as the date of delivery. No part shipment of goods would be permitted. Trans-shipment of goods would not be permitted. In case it becomes inevitable to do so, the Seller shall not arrange part-shipments and/or transshipment without the express/prior written consent of the Buyer. However, the Seller can still utilize the services of the MoD, Govt. of India Freight Forwarding Agent details for which will be provided by the Buyer. Seller will be required to communicate the following information invariably by telex/signed in case of import of Defence Stores being brought in commercial ships to Embarkation Head Quarters, Chennai well in advance before the Ship sails the port of loading:

(i) Name of the Ship
(ii) Port of Loading and name of Country.
(iii) ETA at port of Discharge i.e. **Kochi**.
(iv) Number of Packages and weight.
(v) Nomenclature and details of major equipment.
(vi) Special instructions, if any stores of sensitive nature requiring special attention.'

14. **Air lift.** The following Airlift clause will form part if the contract placed on successful Bidder. Should the Buyer intend to airlift all or some of the stores the Seller shall pack the stores accordingly on receipt of an intimation to that effect from the Buyer. Such deliveries will be agreed upon well in advance and paid for as may be mutually agreed.

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

(a) **Marking and Stencilling**. Marking shall give the details of ammunition type, lot NO, year of manufacture, quantity, Hazard indication. **Wooden/metal case** shall be labelled with UN Hazard Division labels. **Boxes are painted** with Olive Green and bear stencilling in Golden yellow colour to show marking as follow :-

(i) **Manner of Marking on ammunition.** Each cartridge shall be permanently marked by a **head stamp impressed**, **stamped or embossed** that identifies the **manufacturer**, the **country** and **year of manufacture**, and a **unique batch or lot number.**

(ii) **Headstamp markings on ammunition / cartridges .**

(aa) Shall consist of simple **geometric symbols** indicating "Standard**" e.g. NATO or otherwise.**

(ab) Symbol indicating the **country** and **year of manufacture** in symbol /numeric form or alphanumeric code.

(ac) Symbol indicating the presence of a tracer combination with a numeric and/or alphanumeric code.

(ac) Headstamp markings to be of a size that is readily legible to the naked eye.

(ad) Headstamp markings to be of a quality and/or depth such that the markings cannot be readily tampered with or removed.

(c) **On Wooden/metal Boxes.**Wooden/metal Boxes will be painted with Olive Green and bear stencilling in Golden yellow colour to show marking as follow :-

(i) Calibre
(ii) Type of Rounds
(iii) Qty packed
(iv) Lot No
(v) Manufacture's initials/Month and year of manufacture of rounds.
(vi) Case (Package) No. No./No
(vii) Gross/Net weight of the case with rounds.
(viii) UN Hazard Division labels.

(d) The ammunition should be packed in hermetically sealed containers. These containers could be further packed in outer boxes/containers for ease of transportation. The package should be legible, give the details of ammunition, lot No., year of manufacture, quantity etc and UN Hazard Division labels as normally done for ammunition. It is mandatory that all packing materials of any kind made of plant origin used for packing shall require treatment including Heat-Kiln treatment at 56^{o} C(degree Centigrade) for a minimum 30 hours or Methyl Bromide Fumigation at 48g/cum for 32 hours of chemical impregnation of wood with wood preservatives such as copper chrome arsenic or any other approved treatment as per International Standards. Shipment coming into India shall be packed in packaging material confirming to this standard and shall carry a Phytosanitary Certificate issued by an authorized officer at the country of origin of the consignment in the format prescribed under International Plant Protection Convention of the Food & Agricultural Organization. It may also be noted that consignments dispatched without the aforesaid certificate can be detained by the concerned officers of the customs unless clearance is obtained from the Plant Quarantine Authorities at the expense of the imposter. 'Packing Material' here means any kind of material of plant origin used for packing which shall include hay, straw, wood savings, wood chips, saw dust, wood waste, wooden pallets, dunnage/ mats, wooden packages, coir pith, peat or sphagnum moss etc.

(i) Part Number
(ii) Nomenclature

(iii) Contract annex number
(iv) Annex serial number
(v) Quantity contracted
(vi) The packing list should mention lot No, month & year of manufactures
Symbol/numeric form or alphanumeric code of each components of the ammunition viz Cartg Case, Projectile and Fuzes.

(e) 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.

(f) The Seller shall mark each package with indelible paint in the English language as follows:-
(i) EXPORT
(ii) Contract No. ----------
(iii) Consignee ----------
(iv) Port / airport of destination ----------
(v) Ultimate consignee ----------
(vi) SELLER ----------
(vii) Package No. ----------
(viii) Gross/net weight : ----------
(ix) Overall dimensions/volume : ----------
(x) The Seller's marking.

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

(h) 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 finalize the marking with the Seller.

16. **Quality**

(a) The term "quality", shall denote the quality of ammunition & packages/containers, workmanship, production practices and procedures, and shall apply to all deliverables including component parts, packages/containers sourced from third parties /sub contractors, to be supplied in accordance with the contract.

(b) The quality of the ammunition to be delivered under the present contract shall conform to the standards and / or specifications of the manufacturers in force in sellers country at the time of manufacture as well as enumerated in the RFP and shall be certified, depending on the type of the special equipment, by one of the following documents:

(i) Specification.
(ii) Service Log.
(iii) Certificate of Quality.

(c) All the ammunition to be delivered under the present Contract shall be brand new i.e. manufactured after signing of contract, unused, and in working order.

(d) Supplier with the consent of the Buyer may introduce modifications in the design or alter composition of the ammunition to be delivered aimed at improving its technical characteristics. Should these modifications entail any change in prices for the ammunition; the Parties will settle these prices mutually. In case Supplier intends to supply modified ammunition aimed at improving the technical characteristics, the Supplier shall forward an interchangeability certificate for the fitment and functional aspects of the modified stores.

Supplier shall also furnish drawings and other technical details for such modified ammunition to facilitate future procurement and inclusion in the relevant documents.

17. **Quality Assurance.** "Supplier would provide the Standard Acceptance Test Procedure (ATP) in both hard & soft copy within one week of being intimated as L1 vendor **before signing** of contract. Buyer reserves the right to modify the ATP. Supplier would be required to provide all test facilities at his premises for acceptance and inspection by Buyer. The details in this regard will be co-ordinated during the negotiation of the contract. **The final ATP mutually agreed between suppliers and Buyer will form part of Contract.** The item should be of the latest manufacture, conforming to the current production standard and having **100%** defined life at the time of delivery".

18. **Inspection Authority.** The Inspection will be carried out by Buyer's QA Agency, Republic of India.

19. **Pre-Dispatch Inspection.** The following Pre-dispatch Inspection clause will form part of the contract placed on successful Bidder:–

(a) The Buyer's representatives will carry out Pre-Dispatch Inspection (PDI) of each consignment of the ammunition in order to check their compliance with specifications in accordance with its usual standard procedures. Upon successful completion of such PDI, the Seller and Buyer will issue and sign a Certificate of Conformity as per the specimen at **Form DPM 21**.

(b) The Supplier shall intimate the Buyer **at least60 days** before the scheduled date of PDI. The time required for completing visa formalities by the supplier should not be included in this notice.

(c) The list of Buyer's representatives together with their particulars including name, title, date and place of birth, passport numbers including date of issue and date of expiry, address, etc. must be communicated by the Buyer **at least 15 days** in advance to apply for the necessary authorizations and clearances to be granted.

(d) The Buyer reserves the right not to attend the PDI or to request for postponement of the beginning of the PDI by a maximum of **fifteen (15) days** from the date fixed for such PDI in order to allow his representative(s) to attend such tests, in which cases he shall inform in writing to the Supplier **within 15 days** before the date of the beginning of the PDI. Should the Buyer request for such postponement, liquidated damages, if any, shall not apply. In case the Buyer informs Supplier within the period mentioned hereinabove that he cannot attend the PDI or in case the Buyer does not come at the postponed date requested by him for performance of the PDI as mentioned above, Supplier shall be entitled to carry out said tests alone as scheduled. The Certificate of Conformity and the Acceptance Test Report will be signed by the Supplier's QA representative alone and such documents bearing the sole signature of the Supplier's QA representative shall have the same value and effect as if they have been signed by both the parties.In case Buyer does not elect to attend the PDI, the Buyer shall intimate Supplier in writing that it does not wish to attend the PDI.

(e) Supplier shall provide all reasonable facilities, access and assistance to the Buyer's representative for safety and convenience in the performance of their duties in supplier's country.

(f) All costs associated with the stay of the Buyer's Representative(s) in the country where the PDI is to be carried out, including travel expenses, boarding and lodging, accommodation, daily expenses, shall be borne by the Buyer.

(g) In case the stores are rejected / not acceptable due to any reason and the PDI is to be rescheduled for any cause, the re-PDI will be carried out at the cost of the supplier/seller, which will include stay, travel expenses, boarding & lodging, accommodation, daily expenses etc.

20. **Joint Receipt Inspection.** The following Joint Receipt Inspection (JRI) clause will form part of the contract placed on Supplier: –

(a) Upon arrival of the ammunition at the port of the Republic of India, the Joint inspection of the delivered ammunition will be carried out. The joint inspection will be carried out at the Buyer depots as per programme approved upon by the sides .JRI will consist of:-

(i) Quantitative checking to verify that the quantities of the delivered ammunition corresponding to the quantities defined in this contract and the invoices.

(ii) Complete tests and functional checking of the ammunition as per specifications in the contract, ATP and as per procedures and tests laid down by Buyer.

(iii) Check proof and firing as per ATP.

(b) JRI will be carried out by the Buyer's representative(s). JRI of the ammunition will be conducted within **120 days** from the date of the ammunition arrival at the buyer port. 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 Seller shall have the right not to attend the JRI. The bio data of the Seller's representative will need to be communicated **fifteen (15) days** prior to the despatch of goods to the Buyer for obtaining necessary security clearance in accordance with the rules applicable in the Buyer's country.

(c) For timely arrival of the representatives of Supplier for the joint inspection of the ammunition, the buyer, not later than **60 days** prior to the scheduled date of carrying out the inspections, shall notify Supplier about the place and time of the inspection. Supplier within **15 days** from the day of the notification about the place and the schedule date of the inspection shall intimate to the buyer the detailed passport data of his representatives to be deputed to India for taking part in the JRI.

(d) In case the Buyer informs Supplier within the period mentioned hereinabove that he cannot attend the JRI or in case the Buyer does not come at the postponed date requested by him for performance of the JRI as mentioned above, Supplier shall be entitled to carry out said tests alone as scheduled. The **bilateral certificate of Joint Inspection of ammunition** will be signed by the Supplier's QA representative alone and such documents bearing the sole signature of the Supplier's QA representative shall have the same value and effect as if they have been signed by both the parties.

(e) On completion of the Joint Receipt Inspection, four copies of bilateral certificate of Joint inspection of the ammunition shall be signed, one set for each party, all the copies being equally valid. If in the course of carrying out the JRI of the ammunition, any claims on the quantity and/or quality of the ammunition arise, the parties shall sign a report of joint inspection of the ammunition, containing the results of the tests and description of the revealed deficiencies/ defects, based on which claim reports will be drawn up.

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

(a) 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"

(b) Franking 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"

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

(a) The claims may be presented either on quantity of the stores, where the quantity does not correspond to the quantity shown in the Packing List/Insufficiency in packing, or 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 (including check proof) and acceptance of goods. Quality claims shall be presented for defects or deficiencies in quality noticed during warranty period at the 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 claim. 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. Repaired or replaced goods will be subjected to all the tests and check proof firing as per ATP

(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.

23. **WARRANTY**

(a) The seller warrants that the goods supplied under this contract conform to technical specifications prescribed and shall perform according to the said Technical Specifications.

(b) The seller warrants for a period of **24 months** from the date of acceptance of stores by Joint Receipt Inspection Team after all static tests and check proof firing or date of installation and commissioning whichever is later, that the goods / stores supplied under this contract and each component used in the manufacture there of shall be free from all types of defects / failures.

(c) If within the period of warranty, the goods are reported by the Buyer to have failed to perform as per the specifications, the Seller shall either replace or rectify the same free of charge, maximum within 45 days of notification of such defect received by the Seller,

provided that the goods are used and maintained by the Buyer as per instructions contained in the Operating Manual. Warranty of the equipment would be extended by such duration. Record of the down time would be maintained by user in log book. Spares required for warranty repairs shall be provided free of cost by Seller. The Seller also undertakes to diagnose, test, adjust, calibrate and repair / replace the goods/ equipment arising due to accidents by neglect or misuse by the operator or damage due to transportation of the goods during the warranty period, at the cost mutually agreed to between the Buyer and the Seller.

(d) Seller hereby warrants that necessary service and repair back up during the warranty period of the equipment shall be provided by the seller and he will ensure that the downtime is within **5%** of the warranty period.

(e) In case the complete delivery of Engineering Support Package is delayed beyond the period stipulated in this contract, then the Seller undertakes that the warranty period for the goods / stores shall be extended to that extent.

24. **Undertaking. (Applicable to Foreign Firms Only)** The SELLER gives an undertaking that all terms and conditions of the present contract regarding terms of shipment, elimination of claims during warranty period shall be fulfilled in due time and as per terms, stipulated in the present contract. In the event the SELLER does not fulfill his performance obligations within the warranty period, the BUYER shall have the right to recover the payment of equal sum under any operative contracts of the SELLER with Ministry of Defense, Government of India until accomplishment of obligations by the SELLER.

PART V – EVALUATION CRITERIA & PRICE BID ISSUES

1. **Evaluation Criteria.** The broad guidelines for evaluation of Bids will be as follows:

(a) **Technical evaluation.**

(i) Only those Bids will be evaluated which are found to be fulfilling all the eligibility and qualifying requirements of the RFP.

(ii) Technical Bids forwarded by the Bidders will be evaluated by the Buyer with reference to the technical characteristics of the item as mentioned in the RFP. The compliance of Technical Bids(which would include the trials) would be determined on the basis of the parameters specified in the RFP. The Commercial Bids of only those Bidders will be opened whose Technical Bids would clear the technical evaluation.

(b) **Commercial Evaluation.**The Price Bids of only those Bidders will be opened whose Qualifying Bids would clear the technical evaluation. The Lowest Bid will be decided upon the lowest price quoted by the particular Bidder as per the **BOQ.** The consideration of taxes and duties in evaluation process will be as follows :-

(i) L-1 bidder will be determined by excluding levies, taxes and duties levied by Central/State/Local governments such as GST etc on final product, as quoted by bidders.

(c) All the foreign quotes will be brought to a common denomination in Indian Rupees by adopting the exchange rate as BC Selling rate of the State Bank of India on the date of the opening of Price Bids.

(d) If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price will prevail and the total price will be corrected. If there is a discrepancy between words and figures, the amount in words will prevail for calculation of price.

(e) The Lowest Acceptable Bid will be considered further for placement of contract 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. The Buyer also reserves the right to do Apportionment of Quantity, if it is convinced that Lowest Bidder is not in a position to supply full quantity in stipulated time.

2. **Price Bid Format (to be used for L-1 determination).** The Commercial bid format is provided as **BoQ.xls** along with this tender document at https://eprocure.gov.in/eprocure/app. Bidders are advised to download this **BoQ.xls** as it is and quote their offer in the permitted column. A copy of the format is attached as **Appendix 'D-I'**.

Note. Determination of L-1 will be done bases on total of basic prices including {(b) to (d) of para 3 below (not including levies, taxes and duties levied by Central/State/Local Governments such as GST, etc on final product except BCD) of all items/requirements as mentioned above.

3. **Additional information in Price Bid on Taxes and Duties (not in scope of L-1 determination) –**

(a) Is GST extra?

(b) If yes. Mention the following:-

(i) Total value of items on which GST is leviable.

(ii) Rate of GST (item-wise if different GST is applicable).
(iii) HSN Code.
(iv) Surcharge on GST, if applicable?
(v) Total value of GST payable.

(c) Is GST Exemption (GSTE) required?

(d) If yes, then mention and enclose the following:-

(i) Excise notification number under which GSTE can be given.

(g) Any other Taxes/Duties.

AMGO (SSA)

Appendix 'A'
(Ref Paragraph 4 (a) Important Instructions of this RFP)

TENDER CONDITIONS ACCEPTANCE LETTER
(To be given on Company Letter Head)

Date :
To
_____
_____

SUB : ACCEPTANCE OF TERMS & CONDITIONS OF TENDER

Tender Reference No : _____
Name of Tender/work :
_____
_____

Dear Sir,

1. I/We have downloaded/obtained the tender document(s) for the above mentioned 'Tender/Work' from the web site(s) namely :
_____
As per your advertisement, given in the above mentioned website(s).

2. I/We hereby certify that I/we have read entire terms and conditions of the tender documents from Page No ____ to _____ (including all documents like annexure(s), schedule(s), etc.,) which form part of the contract agreement and I/we shall abide hereby the terms/conditions/clauses contained therein.

3. The corrigendum(s) issued from time to time by your department/organisations too have also been taken into consideration, while submitting this acceptance letter.

4. I/We hereby uncomnditonally accept the tender conditons of above mentioned tender document(s)/ corrigendum(s) in its totality/entirely.

5. In case any provisioons of this tender are found violated, your deparment/organisation shall be at liberty to reject this tender/bid including the forfeiture of the full said Earnest Money Deposit absolutely and we shall not have any claim/right against deptt in satisfaction of this condition.

Yours faithfully,
(Signature of the Bidder, with Official Seal)

Appendix 'B'
(Ref Para 3(d) , Part I of this RFP)

INSTRUCTIONS TO THE BIDDERS

Instructions for Online Bid Submission Instructions to the Bidders to submit the bids online through the Central Public Procurement Portal for e-Procurement at https://eprocure.gov.in/eprocure/app are as follows:-

1. Possession of valid Digital Signature Certificate (DSC) and enrolment/registration of the contractors/bidders on the eProcurement portal is a prerequisite for e-tendering.

2. Bidder should do the enrolment in the eProcurement site using the "Click here to Enrol" option available on the home page. Portal enrolment is generally free of charge. During enrolment/registration, the bidders should provide the correct/true information including valid email_id. All the correspondence shall be made directly with the contractors/bidders through email_id provided.

3. Bidder need to login to the site through their user ID/password chosen during enrolment/registration.

4. Then the Digital Signature Certificate (Class II or Class III Certificates with signing key usage) issued by SIFY/TCS/nCode/EMudra or any Certifying Authority recognized by CCA India on eToken/Smart Card, should be registered.

5. The DSC that is registered only should be used by the bidder and should ensure safety of the same.

6. Bidder logs in to the site through the secured log in by giving the user id/password chosen during enrolment/registration and then by giving the password of the eToken/SmartCard to access DSC.

7. In case of limited tender the regd dealers/the bidders invited to participate in the tender will receive a notification through e-mail wrt to tender and after log in the bidder selects the tender and moves it to "my tenders". In case of open tenders the bidder selects the tender which he/she is interested in by using the search option & then moves it to the "my tenders" folder.

8. From my tender folder, the bidder selects the tender to view all the details indicated.

9. If there are any clarifications, this may be obtained online through the tender site, or through the contact details or during the pre-bid meeting if any or during the pre-bid meeting if any.

10. Bidder should take into account the corrigendum published before submitting the bids online.

11. It is constructed that the bidder has read all the terms and conditions before submitting their offer. Bidder should go through the tender schedules carefully and upload the documents as asked; otherwise, the bid will be rejected.

12. The Bidders can update well in advance, the documents such as certificates, annual report details etc. under My Space option and these can be selected as per tender requirements and then sent along with bid documents during bid submission. This will facilitate the bid submission process faster by reducing upload time of bids.

13. Bidder, in advance, should get the bid documents ready to be submitted as indicated in the tender document/schedule and generally, they can be in PDG/xls/rar/zip/dwf formats. If there is more than one documents, they can be clubbed together and can be provided in the requested format. Each document to be uploaded online for the tenders should be less than 2 MB.

If any document is more than 2MB, it can be reduced through zip/rar and the same can be uploaded, if permitted. Bidders Bid documents may be scanned with 100 dpi with black and white option. However of the file size is less than 1 MB the transaction uploading time will be very fast.

14. Bidder should submit the Tender Free/EMD as specified in the tender. The original should be posted/couriered/given in person to the Tender Inviting Authority, within the bid submission due date & time for the tender. Scanned copy of the instrument should be uploaded as part of the offer.

15. While submitting the bids online, the bidder must read the terms & conditions and accept the same to proceed further to submit the bid packets.

16. The bidder has to select the payment option as **offline** to pay the Tender FEE/EMD as applicable and enter details of the instruments.

17. The details of the DD/any other accepted instrument, physically sent, should tally with the details available in the scanned copy and the data entered during bid submission time. The submitted bid will not be acceptable if otherwise.

18. The bidder has to digitally sign and upload the required bid documents one by one as indicated. Bidders must note that the very act of using DSC for downloading the bids and uploading their offers shall be deemed to be a confirmation that they have read all sections and pages of the bid documents including General conditions of contract without any exception and have understood the entire document and are clear about the requirements of the tender requirements.

19. The bidder has to upload the relevant files required as indicated in the cover content. In case of any irrelevant files, the bid will be rejected. **The tech bid acceptance will be subject to physical receipt of specified docu at the time of tech bid opening. Further, the TIA will not be held responsible for any sort of delay or the difficulties faced during the submission of bids physically by the bidders under any circumstances whatsoever.**

20. If the price bid format is provided in a spread sheet file like BoQ_xxxx.xls, the rates offered should be entered in the allotted space only and uploaded after filling the relevant columns. The Price Bid/BoQ template must not be modified/replaced by the bidder, else the bid submitted is liable to be rejected for this tender.

21. The bidders are requested to submit the bids through online e-tendering system to the Tender Inviting Authority (TIA) well before the bid submission end date & time (as per Server System Clock). The TIA will not be held responsible for any sort of delay or the difficulties faced during the submission of bids online by the bidders at the eleventh hour.

22. After the bid submission (ie after Clicking “Freeze Bid Submission” in the portal), the acknowledgement number, given by the system should be printed by the bidder and kept as a record of evidence for online submission of bid for the particular tender and will also act as an entry pass to participate in the bid opening date.

23. The time settings fixed in the server side & displayed at the top of the tender site, will be valid for all actions of requesting, bid submission, bid opening etc. in the e-tender system. The bidders should follow this time during bid submission.

24. All the data being entered by the bidders would be encrypted using PKI encryption techniques to ensure the secrecy of the data. The data entered will not viewable by unauthorized persons during bid submission & not be viewable by any one until the time of bid opening.

25. Any bid document that is uploaded to the server is subjected to symmetric encryption using a system generated symmetric key. Further this key is subjected to asymmetric encryption using buyers or the procurement officer openers public keys. Overall, the uploaded tender documents become readable only after the tender opening by the authorized bid openers.

26. The confidentiality of the bids is maintained since the secured Socket Layer 128 bit encryption technology is used. Data storage encryption of sensitive fields is done.

27. The bidder should logout of the tendering system using the normal logout option available at the top right hand corner and not by selecting the (X) exit option in the browser.

28. For any queries regarding e-tendering process, the bidders are requested to contact TIA as provided in the tender documents. The bidders for any further queries can also to contact over phone: 1-800-233-7315 or send a mail over to cpp-nic@nic.in.

29. All the pages of Technical-Bid and commercial-bid should have been duly signed by the bidder/auth rep and hard copy will be submitted in the office of TIA.

30. The undertaking to the effect that the terms and conditions stipulated in the tender docu are acceptable by the auth signatory of the bidders Regd firm will have to be submitted. The subject undertaking on a forwarding letter shall be uploaded on CPP portal during bidding by the bidders.

Note : Rate to be quoted online by bidder in BOQ Excel Sheet only.

Appendix 'C-I'
(Refers to Part II, para 2 of RFP for para 1(a) (for HEAP amn)

TECHNICAL SPECIFICATION: ROUND 40MM MGL HE ANTI PERSONNEL (HEAP)

OPERATION CHARACTERSTICS AND FEATURES
TECHNICAL PARAMETERS AND OPERATIONAL PARAMETERS

1. **Technical Specifications**

Characteristics	Round 40mm HEAP
Length, max	104mm
Maximum Range Functioning Temperature	Effective range 375m-400m $-20^0C \pm 5^0C$ to $+45^0C \pm 5^0C$ as mentioned at para 6 (a & b)
Casualty Radius, min	5 mtrs
Arming Distance Muzzle velocity	8 to 28 mtrs 76 ±3 m/s
Fuze Type	PIBD

OEM should provide following details in Technical Literature (as mentioned in para 3 of this Appendix) : -

(a) **Filling details.**

(b) **Mass of Filling**

(c) **Scatter radius**

(d) **Casualty radius**

(e) **Safeties incorporated in this ammunition.**

(f) **Mass of Complete Round**

(g) **Projectile Length**

(h) **Mass of Projectile**

2. **Caliber**. The ammunition should be capable of being fired from 40mm Multi Grenade Launcher (MGL) in Service weapon and 40 mm UBGL for 5.56 mm INSAS Rifle in service weapon. Compatibility of ammunition with other 40mm Grenade Launchers, if any should also be confirmed by OEM.

Physical Characteristics

3. **Technical Literature**. User Hand Book / Operator Manual, Design specifications, General description and Functioning of ammunition, Preservation Instruction, Technical Manuals etc. and to include Technical description, Inspection / Maintenance tasks, procedures for assembly / disassembly and safety precautions. All literatures should be in ENGLISH. A soft copy i.e. on a CD, containing all above mentioned information should be provided by the OEM.

(a) Computer based full animation graphics to explain functioning of the ammunition.

(b) The following documents / particulars / models shall be provided with two sets of each as extra other than the normally provided: -

(i) Tech Manuals giving full description of the ammunition, dimensions, drawings, general construction of ammunition with sectional view and coloured photographs.

(ii) Do's and Don't for usage of ammunition.

(iii) Cut Models

(iv) Range Table for firing the ammunition up to the altitude of 4500m above the sea level at their full rated performance.

4. **Packing and Marking**. (To be read in congestion with para 18 of Part-IV of RFP)

(a) Suitable packing arrangements should be provided for transportation and storage without causing any damage to ammunition. The ammunition should be packed in hermetically sealed containers. These containers could be further packed in outer boxes/containers for ease of transportation. The package marking should be legible, giving all relevant details of ammunition as given under :-

(i) **Markings on the Outer Container/Case Wood Packing (CWP)**

(aa) Nomenclature/details of ammunition.

(ab) Lot No including filled Lot No and year of manufacture.

(ac) Quantity packed.

(ad) Gross weight and Net Explosive Content (NEC) in Kg.

(ae) UN Hazard division and Compatibility Group.

(af) Manufacturers Monogram and contract number.

(ii) **Markings on the inner hermitically sealed container.**Following markings should be present : -

(aa) Nomenclature

(ab) Lot No including filled Lot No and year of manufacture.

(ac) Quantity packed.

(ad) UN Hazard division and Compatibility Group.

(ae) Manufacturers Monogram and contract number.

(iii) **Markings on the Ammunition/Round.**

(aa) The cartridge case and the skirt of the round will be painted **deep bronze green** and fitted with a **gold anodized fuze ogive** with the following

golden yellow markings. The markings on round should be with luminous paint for ease of recognition by night.

RD 40MM HEAP
LLL M YY*

(* 'LLL' (numeric) will denote filled Lot No, 'M' (alphabetic/symbol) will denote manufacturers monogram and 'YY' (numeric) will denote year of manufacture)

5. **Shelf life**. The supplier shall stipulate that the Shelf Life of the ammunition is not less than 10 years from the date of manufacture under the storage condition as mentioned at Para 6 (c) & (d) of this Appendix. The supplier should provide details of Shelf Life assessment done at their end/basis for Shelf Life assessment including details of chemical composition. The OEM should give the methodology along with the procedure for extension of Shelf Life, once the Shelf Life has expired.

6. **ENVIROMENTAL CONDITIONS**

(a)	Minimum temperature for use	-	$-20^0C \pm 5^0C$
(b)	Maximum temperature for use	-	$+45^0C \pm 5^0C$
(c)	Minimum temperature for storage	-	-50^0C
(d)	Maximum temperature for storage	-	$+70^0C$
(e)	Maximum relative humidity	-	95%
(f)	Average relative humidity	-	65%
(g)	Mean value of year's Temperature	-	Not $> 32^0C$

Note

- The ammunition will be from current manufacture or latest vintage at the time of supply after the date of signing of contract.

- Parameters for inspection/Check Proof are given in **Annexure-I to this Appendix**.

7. The OEM should also provide the details of the following ***(Not part of acceptance criteria)*** : -

(a) Technical Manual giving complete details of ammunition to include functioning, proof testing and technical characteristics of round 40mm MGL HEAP Ammunition, will be supplied.

(b) Whether the ammunition to be supplied, can also be fired from 40mm launchers supplied by other countries. If yes, provide details of compatible launchers.

(c) Procedure for safe removal of stuck up / lodged projectile during firing.

(d) Whether package / ammunition is air droppable or not. If yes, OEM to certify same with restrictions on air dropability if any.

(e) Safe disposal procedure for blinds / misfire / misfire drill to be supplied by the OEM.

8. The following Technical literature will also be provided by OEM : -

(a) General construction of the 40mm MGL HEAP ammunition and sectional view alongwith coloured photographs of complete ammunition with complete details.

(b) Computer based, full graphics animation to explain functioning of 40mm MGL HEAP ammunition.

(c) Cut sectional model of 40mm MGL HEAP ammunition.

9. In order to facilitate Check Proof, the OEM should also provide the following equipment's: -

(a) SMT's Test Ring and Chamber Gauges for QA & Proof.

(b) Proof Weapon (for single shot firing) along with cradle for functioning/firing of round.

Annexure-I to Appendix 'C-I'

(Refers to Para (b) of Note under Para 7 of Appendix 'C-I')

PARAMETERS FOR TESTING INSPECTION/CHECK PROOF

1. **AT OEM PREMISES**:-

(a) Inspection of Registers/Records/Certificate for correctness of material, explosive and manufacturing date/year.

(b) Visual inspection of grenades for its completeness and quality.

(c) Visual inspection of Packages for its completeness and quality.

(d) Visual inspection for correctness of marking and UN-Hazard Division.

(e) Dynamic Proof firing will be carried out as per ATP provided by the supplier as per Annexure-I to Appendix 'C'.

(f) The following tests are to be carried out during PDI as per ATP:-

(i) Lethality

(ii) Muzzle Velocity

(iii) Non-Arming & Arming Test

(iv) Dispersion & Accuracy on vertical and & ground targets.

(v) Function and reliability at Max Range after conditioning at $-20^{o}C \pm 5^{o}C$, ambient & $+45^{o}C \pm 5^{o}C$ temperature.

(vi) Water Immersion Test followed by dynamic firing.

(vii) Jolt and vibration test for transportation and handling safety criteria followed by dynamic firing.

2. **IN INDIA:-**

(a) JRI includes visual inspection for Quality & Quantity received.

(b) DCL & AQL to be provided by OEM for visual inspection and dynamic firing.

(c) **CHECK PROOF**

(i) The test mentioned above at para (f) (i) to (vii) are also to be carried out during Check Proof as per ATP. Firing of Round, Range and General Performance of Cartridge.

(ii) Chemical analysis of explosive filling of ammunition to evaluate serviceability and ascertain Shelf Life.

(iii) OEM rep should attend JRI & Check Proof. In case OEM rep does not attend, the result of JRI / Check Proof shall be accepted by OEM.

(iv) Supplier shall also provide two numbers of Chamber Gauges for Check Proof.

(d) **SAFE OPERATION OF AMMUNITION**

(i) Ammunition should be safe for operation at all environmental conditions mentioned at Para 6 of Appendix 'A'.

(ii) Ammunition should be safe during handling, transport and storage for the entire period of its specified Shelf Life.

3. Acceptance Test Certificates along with test results of all components / materials should be provided by the OEM

4. All test method and acceptance criteria including DCL / AQL should be incorporated in the ATP specially fuze functioning at SD mode.

Appendix 'C-II'
(Refers to Part II, para 2 of RFP)

TECHNICAL SPECIFICATION: ROUND 40MM MGL HIGH EXPLOSIVE DUAL PURPOSE (HEDP)

OPERATION CHARACTERSTICS AND FEATURES TECHNICAL PARAMETERS AND OPERATIONAL PARAMETERS

1. **Technical Specifications**

Characteristics	Round 40mm HEDP
Length, max	104mm
Maximum Range Functioning Temperature	Effective range 375m-400m $-20^0C \pm 5^0C$ to $+45^0C \pm 5^0C$ as mentioned at para 6 (a & b)
Casualty Radius, min	5 mtrs
Arming Distance Penetration	8 to 28 mtrs 50mm Armour Plate or 65mm Mild Steel plate or 400mm concrete wall
Muzzle velocity Fuze Type	76 ±3 m/s PIBD

OEM should provide following details in Technical Literature (as mentioned in para 3 of this Appendix) :-

(a) **Filling details.**
(b) **Mass of Filling**
(c) **Scatter radius**
(d) **Safeties incorporated in this ammunition.**
(e) Mass of Complete Round.
(f) **Projectile Length.**
(j) **Mass of Projectile.**

2. **Caliber**. The ammunition should be capable of being fired from 40mm Multi Grenade Launcher (MGL) in Service weapon.Compatibility of ammunition with other 40mm Grenade Launchers, if any should also be confirmed by OEM.

Physical Characteristics

3. **Technical Literature**. User Hand Book / Operator Manual, Design specifications, General description and Functioning of ammunition, Preservation Instruction, Technical Manuals etc. and to include Technical description, Inspection / Maintenance tasks, procedures for assembly / disassembly and safety precautions. All literatures should be in ENGLISH. A soft copy i.e. on a CD, containing all above mentioned information should be provided by the OEM.

(a) Computer based full animation graphics to explain functioning of the ammunition.

(b) The following documents / particulars / models shall be provided with two sets of each as extra other than the normally provided: -

(i) Tech Manuals giving full description of the ammunition, dimensions, drawings, general construction of ammunition with sectional view and coloured photographs.

(ii) Do's and Don't for usage of ammunition.

(iii) Cut Models

(iv) Range Table for firing the ammunition up to the altitude of 4500m above the sea level at their full rated performance.

4. **Packing and Marking**. (To be read in conjunction with para 18 of Part-IV of RFP)

(a) Suitable packing arrangements should be provided for transportation and storage without causing any damage to ammunition. The ammunition should be packed in hermetically sealed containers. These containers could be further packed in outer boxes/containers for ease of transportation. The package marking should be legible, giving all relevant details of ammunition as given under :-

(i) **Markings on the Outer Container/Case Wood Packing (CWP)**

(aa) Nomenclature/details of ammunition.

(ab) Lot No including filled Lot No and year of manufacture.

(ac) Quantity packed.

(ad) Gross weight and Net Explosive Content (NEC) in Kg.

(ae) UN Hazard division and Compatibility Group.

(af) Manufacturers Monogram and contract number.

(ii) **Markings on the inner hermitically sealed container.** Following markings should be present : -

(aa) Nomenclature

(ab) Lot No including filled Lot No and year of manufacture.

(ac) Quantity packed.

(ad) UN Hazard division and Compatibility Group.

(ae) Manufacturers Monogram and contract number.

(iii) **Markings on the Ammunition/Round.**

(aa) The cartridge case of the round is painted **deep bronze green** and the skirt of the round will be painted **black** and fitted with a **gold anodized fuze ogive** with the following **golden yellow** markings. The markings on this box should be with luminous paint for ease of recognition by night.

RD 40MM HEDP
LLL M YY*

(* 'LLL' (numeric) will denote filled Lot No, 'M' (alphabetic/symbol) will denote manufacturers monogram and 'YY' (numeric) will denote year of manufacture)

5. **Shelf life**. The supplier shall stipulate that the Shelf Life of the ammunition is not less than 10 years from the date of manufacture under the storage condition as mentioned at Para 6 (c) & (d) of this Appendix. The supplier should provide details of Shelf Life assessment done at their end/basis for Shelf Life assessment including details of chemical composition. The OEM should give the methodology along with the procedure for extension of Shelf Life, once the Shelf Life has expired.

6. **ENVIROMENTAL CONDITIONS**

(a)	Minimum temperature for use	-	$-20^0C \pm 5^0C$
(b)	Maximum temperature for use	-	$+45^0C \pm 5^0C$
(c)	Minimum temperature for storage	-	-50^0C
(d)	Maximum temperature for storage	-	$+70^0C$
(e)	Maximum relative humidity	-	95%
(f)	Average relative humidity	-	65%
(g)	Mean value of year's Temperature	-	Not $> 32^0C$

Note

- The ammunition will be from current manufacture or latest vintage at the time of supply after the date of signing of contract.

- Parameters for inspection/Check Proof are given in **Annexure-I to this Appendix**.

7. The OEM should also provide the details of the following ***(Not part of acceptance criteria)*** : -

(a) Technical Manual giving complete details of ammunition to include functioning, proof testing and technical characteristics of round 40mm MGL HEDP Ammunition, will be supplied.

(b) Whether the ammunition to be supplied, can also be fired from 40mm launchers supplied by other countries. If yes, provide details of compatible launchers.

(c) Procedure for safe removal of stuck up / lodged projectile during firing.

(d) Whether package / ammunition is air droppable or not. If yes, OEM to certify same with restrictions on air dropability if any.

(e) Safe disposal procedure for blinds / misfire / misfire drill to be supplied by the OEM.

8. The following Technical literature will also be provided by OEM : -

(a) General construction of the 40mm MGL HEDP ammunition and sectional view alongwith coloured photographs of complete ammunition with complete details.

(b) Computer based, full graphics animation to explain functioning of 40mm MGL HEDP ammunition.

(c) Cut sectional model of 40mm MGL HEDP ammunition.

9. In order to facilitate Check Proof, the OEM should also provide the following equipments: -

(a) SMT's Test Ring and Chamber Gauges for QA & Proof.

(b) Proof Weapon (for single shot firing) along with cradle for functioning/firing of round.

Annexure-I to Appendix 'C-II'
(Refers to Para (b) of note under Para 6 of Appendix 'C-II')

PARAMETERS FOR TESTING INSPECTION/CHECK PROOF

1. **AT OEM PREMISES**:-

(a) Inspection of Registers/Records/Certificate for correctness of material, explosive and manufacturing date/year.
(b) Visual inspection of grenades for its completeness and quality.
(c) Visual inspection of Packages for its completeness and quality.
(d) Visual inspection for correctness of marking and UN-Hazard Division.
(e) Dynamic Proof firing will be carried out as per ATP provided by the supplier as per Annexure-I to Appendix 'C'.

(i) The following tests are to be carried out during PDI as per ATP:-

(aa) Lethality
(ab) Muzzle Velocity
(ac) Non-Arming & Arming Test
(ad) Dispersion & Accuracy on vertical and ground targets.
(ae) Functioning and reliability at Maximum Range after conditioning at $-20^{o}C \pm 5^{o} C$, ambient & $+45^{o}C \pm 5^{o} C$ temperature.
(af) Penetration Test.
(ag) Water Immersion Test followed by dynamic firing.
(ah) Jolt and Vibration Test for transportation and handling safety criteria followed by dynamic firing.

2. **IN INDIA:-**

(a) JRI includes visual inspection for Quality & Quantity received.

(b) DCL & AQL to be provided by OEM for visual inspection and dynamic firing.

(c) **CHECK PROOF**

- The test mentioned above at para (e) (i) (aa) to (e) (i) (ah) are also to be carried out during Check Proof as per ATP. Firing of Round, Range and General Performance of Cartridges.
- Chemical analysis of explosive filling of ammunition to evaluate Serviceability and ascertain shelf life.

- OEM rep should attend JRI & Check Proof. In case OEM rep does not attend, the result of JRI / Check Proof shall be accepted by OEM.
- Supplier shall also provide two numbers of chamber gauges for check proof.

(d) **SAFE OPERATION OF ARMAMENTS**

- Ammunition should be safe for operation at all environmental Conditions mentioned at Para 6 of Appendix 'A'.

- Ammunition should be safe during handling, transport and storage for the entire period of its specified shelf life.

3. Acceptance Test Certificates along with test results of all components / materials to be provided by the OEM.
4. All test method and acceptance criteria including DCL / AQL should be incorporated in the ATP specially fuze functioning in impact only.

Appendix 'C-III'

(Refers to Part II, para 2 of RFP)

TECHNICAL SPECIFICATION: ROUND 40MM SMOKE BURSTING RED PHOSPHOROUS (RP)

OPERATION CHARACTERSTICS AND FEATURES TECHNICAL PARAMETERS AND OPERATIONAL PARAMETERS

1. **Technical Specifications**

Characteristics	**Round 40mm SMOKE BURSTING (RP)**
Length, max	104mm
Maximum Range	Effective range 375m-400m
Functioning Temperature	$-20^0C \pm 5^0C$ to $+45^0C \pm 5^0C$ as mentioned at para 6 (a & b)
Scatter Radius, min	1.5 mtrs
Arming Distance	8 to 28 mtrs
Muzzle velocity	76 ±3 m/s
Fuze Type	PIBD

OEM should provide following details in Technical Literature (as mentioned in para 3 of this Appendix) :-

(a) **Filling details.**

(b) **Mass of Filling**

(c) **Scatter radius**

(d) **Safeties incorporated in this ammunition.**

(e) **Mass of Complete Round.**

(f) **Projectile Length.**

(j) **Mass of Projectile.**

2. **Caliber**. The ammunition should be capable of being fired from 40mm Multi Grenade Launcher (MGL) in Service weapon Compatibility of ammunition with other 40mm Grenade Launchers, if any should also be confirmed by OEM.

Physical Characteristics

3. **Technical Literature**. User Hand Book / Operator Manual, Design specifications, General description and Functioning of ammunition, Preservation Instruction, Technical Manuals etc. and to include Technical description, Inspection / Maintenance tasks, procedures for assembly / disassembly and safety precautions. All literatures should be in ENGLISH. A soft copy i.e. on a CD, containing all above mentioned information should be provided by the OEM.

(a) Computer based full animation graphics to explain functioning of the ammunition.

(b) The following documents / particulars / models shall be provided with two sets of each as extra other than the normally provided: -

(i) Tech Manuals giving full description of the ammunition, dimensions, drawings, general construction of ammunition with sectional view and coloured photographs.

(ii) Do's and Don't for usage of ammunition.

(iii) Cut Models

(iv) Range Table for firing the ammunition up to the altitude of 4500m above the sea level at their full rated performance.

4. **Packing and Marking**. (To be read in congestion with para 18 of Part-IV of RFP)

(a) Suitable packing arrangements should be provided for transportation and storage without causing any damage to ammunition. The ammunition should be packed in hermetically sealed containers. These containers could be further packed in outer boxes/containers for ease of transportation. The package marking should be legible, giving all relevant details of ammunition as given under :-

(i) **Markings on the Outer Container/Case Wood Packing (CWP)**

(aa) Nomenclature/details of ammunition.

(ab) Lot No including filled Lot No and year of manufacture.

(ac) Quantity packed.

(ad) Gross weight and Net Explosive Content (NEC) in Kg.

(ae) UN Hazard division and Compatibility Group.

(af) Manufacturers Monogram and contract number.

(ii) **Markings on the inner hermitically sealed container.**Following markings should be present : -

(aa) Nomenclature

(ab) Lot No including filled Lot No and year of manufacture.

(ac) Quantity packed.

(ad) UN Hazard division and Compatibility Group.

(ae) Manufacturers Monogram and contract number.

(iii) **Markings on the Ammunition/Round.**

(aa) The cartridge case of the round is painted **deep bronze green** and the skirt of the round will be painted **pale green** and fitted with a **gold anodized fuzeogive** with the following **red** markings. The markings on this box should be with luminous paint for ease of recognition by night.

RD 40MM SMK BST RED PHOS
LLL M YY*

(* 'LLL' (numeric) will denote filled Lot No, 'M' (alphabetic/symbol) will denote manufacturers monogram and 'YY' (numeric) will denote year of manufacture).

5. **Shelf life**. The supplier shall stipulate that the Shelf Life of the ammunition is not less than 10 years from the date of manufacture under the storage condition as mentioned at Para 6 (c) & (d) of this Appendix. The supplier should provide details of Shelf Life assessment done at their end/basis for Shelf Life assessment including details of chemical composition. The OEM should give the methodology along with the procedure for extension of Shelf Life, once the Shelf Life has expired.

6. **ENVIROMENTAL CONDITIONS**

(a)	Minimum temperature for use	-	$-20^0C \pm 5^0C$
(b)	Maximum temperature for use	-	$+45^0C \pm 5^0C$
(c)	Minimum temperature for storage	-	-50^0C
(d)	Maximum temperature for storage	-	$+70^0C$
(e)	Maximum relative humidity	-	95%
(f)	Average relative humidity	-	65%
(g)	Mean value of year's Temperature	-	Not > 32^0C

Note

- The ammunition will be from current manufacture or latest vintage at the time of supply after the date of signing of contract.

- Parameters for inspection/Check Proof are given in **Annexure-I to this Appendix**.

7. The OEM should also provide the details of the following ***(Not part of acceptance criteria)*** : -

(a) Technical Manual giving complete details of ammunition to include functioning, proof testing and technical characteristics of round 40mm MGL Smoke bursting RP M8931 Ammunition, will be supplied.

(b) Whether the ammunition to be supplied, can also be fired from 40mm launchers supplied by other countries. If yes, provide details of compatible launchers.

(c) Procedure for safe removal of stuck up / lodged projectile during firing.

(d) Whether package / ammunition is air droppable or not. If yes, OEM to certify same with restrictions on air dropability if any.

(e) Safe disposal procedure for blinds / misfire / misfire drill to be supplied by the OEM.

8. The following Technical literature will also be provided by OEM : -

(a) General construction of the 40mm MGL Smoke bursting RP ammunition and sectional view alongwith coloured photographs of complete ammunition with complete details.

(b) Computer based, full graphics animation to explain functioning of 40mm MGL Smoke bursting RP ammunition.

(c) Cut sectional model of 40mm MGL Smoke bursting RP ammunition.

9. In order to facilitate Check Proof, the OEM should also provide the following equipments: -

(a) SMT's Test Ring and Chamber Gauges for QA & Proof.

(b) Proof Weapon (for single shot firing) along with cradle for functioning/firing of round.

Annexure-I to Appendix 'C-III'

(Refers to Para (b) of note under Para 6 of Appendix 'C-III')

PARAMETERS FOR TESTING INSPECTION/CHECK PROOF

1. **AT OEM PREMISES**:-

(a) Inspection of Registers/Records/Certificate for correctness of material, explosive and manufacturing date/year.

(b) Visual inspection of grenades for its completeness and quality.

(c) Visual inspection of Packages for its completeness and quality.

(d) Visual inspection for correctness of marking and UN-Hazard Division.

(e) Dynamic Proof firing will be carried out as per ATP provided by the supplier as per **Annexure-I** to Appendix 'C'.

(i) The following tests are to be carried out during PDI as per ATP:-

(aa) Lethality

(ab) Muzzle Velocity

(ac) Non-Arming & Arming Test

(ad) Dispersion & Accuracy on vertical and ground targets.

(ae) Function and reliability at Max Range after conditioning at $-20^{o}C \pm 5^{o}C$,ambient & $+45^{o}C \pm 5^{o}C$ temperature.

(af) Scattered radius test.

(ag) Water Immersion Test followed by dynamic firing.

(ah) Jolt and Vibration Test for transportation and handling safety criteria followed by dynamic firing.

2. **IN INDIA:-**

(a) JRI includes visual inspection for Quality & Quantity received.

(b) DCL & AQL to be provided by OEM for visual inspection and dynamic firing.

(c) **CHECK PROOF**

(i) The test mentioned above at para (e) (i) (aa) to (e) (i) (ah) are also to be carried out during Check Proof as per ATP. Firing of Round, Range and General Performance of Cartridges.

(ii) Chemical analysis of explosive filling of ammunition to evaluate Serviceability and ascertain shelf life.

(iii) OEM rep should attend JRI & Check Proof. In case OEM rep does not attend, theresult of JRI / Check Proof shall be accepted by OEM.

(iv) Supplier shall also provide two numbers of Chamber Gauges for check proof.

(d) **SAFE OPERATION OF ARMAMENTS**

(i) Ammunition should be safe for operation at all environmental Conditions mentioned at Para 6 of Appendix 'A'.

(ii) Ammunition should be safe during handling, transport and storage for the entire period of its specified shelf life.

3. Acceptance Test Certificates along with test results of all components / materials to be provided by the OEM.

4. All test method and acceptance criteria including DCL / AQL should be incorporated in the ATP specially fuze functioning at SD mode.

Appendix 'D-I'
(Refers to para 7 C-I(aa) of Part-I of RFP)

DGQA EVALUATION PROGRAMME FOR 40 mm HEAP AMN

1. **Aim.** To assess the suitability pertaining to the Functional, Ballistic and Safety requirements of the amn.

2. **Ammunition Required.** Total 256 Rounds. Details are as under:-

   (a) **Dynamic Firing.** Total 216 Rounds (186 Rds for Functioning Test +10 Rds as Sighter/Warmer/Reserve +20 Environmental tested Rds for Dynamic firing as per Sl No 6 of enclosed Annexure-II).

   (b) **Environmental Test**. To be conducted as per Specn JSG 0102 / MIL-STD-331 **Total Qty- 60 Nos**.

   (i) 03 Packages (inner & outer) each with 10 Nos Live Round assembled with inert Fuze. (Package No 1, 3 and 5)

   (ii) 03 Packages (inner & outer) each with 10 Nos Inert Round assembled with Live Fuze. (Package No 2, 4 and 6)

   Note:

   (a) OEM in his technical offer should confirm that the amn subjected to environmental tests As per Annexure-I and is safe for subjecting to dynamic firing.

   (b) In case, due to any reason, it is not feasible to conduct these tests during DGQA Evaluation then OEM Certificate of conforms for subject tests shall be considered acceptance.

   (c) Facilities for conducting of the Environmental tests as mentioned in Annexure – I attached will be provided by vendor. In case non availability of the facilities with the Vendor, the tests can be carried out at DGQA/ DRDO/ OFB Lab, if available. If the facilities are not available at DGQA/ DRDO/ OFB Lab then these tests to be carried out at private NABL accredited Lab and the charges for the same to be borne by the Vendor.

   (d) Based on the type of packages offered by the Vendor & technical specifications, environmental tests in packages amn will be suitably modified by DGQA.

3. **Responsibility.** Proof Range, DGQA.

4. **Evaluation Team.**

   (a) Rep of DGQA.
   (b) Rep of User.
   (e) Rep of Vendor / OEM.

5. **Safety Certificate.** To be provided by the Vendor / OEM.

6. **Weapon.**

   (a) 02 Nos of In- Service 40 mm MGL Weapons and 02 Firers to be provided by the User for Evaluation. The Weapons to accompany History Sheet indicating No of rounds fired.

   (b) Ballistic Barrel, Stand, Mounting, Fixtures and Targets to be provided by the OEM at no additional cost.

   Note - In case OEM does not **intend to** provide Ballistic Barrel, Stand**, Mounting, Fixtures** and Targets, **the same shall be informed to MGO and HQ DQA(A) during Pre-Pre-Trial Meeting**. Thereafter the Evaluation will be done using in-service weapon, targets, fixtures and infrastructure available at Proof Range, DGQA and results thereof will have to be accepted by OEM.

7. **Aspects to be checked During Visual Inspection .**

(a) Packing. 100%.

(i) Method of Packing.

(ii) Marking / Stenciling on Packages.

(iii) UN Classification / Hazard Division.

(iv) Stowage Dimensions of Package.

(v) Damaged Package.

(b) Visual Inspection of Rounds.Qty80 rounds (to be selected randomly)

(i) Visual Inspection of Rounds.

(ii) Marking / Stenciling on Round.

(c) Physical Parameters. Sample Size -20 Nos (to be selected randomly).

Sr No	Parameters	Specified	Acceptance Criteria
(i)	Length.	As per OEM/ Vendor specification	All parameters should be within the specified limits as per OEM/ Vendor specification
(ii)	Mass		

(d) Chamber Gauging. 100% (Chamber Gauge to be provided by the OEM / Supplier)

(e) Environmental Testing. Vendors to provide certificate of conformance along with test results to confirm the ammunition is subjected to environmental tests like Bounce (Jolt), Vibration (Jumble) and Impact (Drop) Test as per JSG 0102 / MIL-STD - 331 latest issue and the ammunition is safe to fire before dynamic evaluation.

(f) Dynamic Firing. To be conducted as per Annexure - II.

Note.

(i) The Parameters mentioned at Para 7 (a) and (b) are to be recorded for reference and shall have no bearing on sentencing.

(ii) Pre-requisites forTrialEvaluation.

(aa) The Draft DGQA Technical Evaluation Programme will be discussed with OEM in Pre-Pre-Trial Meeting. However, Final decisions regarding the DGQA Technical Evaluation Programme including all its provisions therein will be that of DGQA.

(ab) OEM may provide the following equipment for DGQA Technical Evaluation at no additional cost if any of these equipment available at Proof Range are not considered acceptable to OEM.

- Ballistic Barrels.
- Targets.
- Weapon/Barrel Mounting Fixtures.
- The above requirements will be discussed and decided in the Pre- Pre-Trial- Evaluation Meeting with OEM. The final list of the agreed items will be provisioned by OEM for DGQA Technical Evaluation .

(ac) DGQA Technical Evaluation will be conducted as per the Infrastructure, Facilities, Conditions, Testing/Measurement Methodology, Equipment (α), Targets(α), Fixtures(α), Service weapons/Ballistic Barrels(α) etc available at Proof Range and Testing laboratories
OEM will have to accept these and results thereof.

Note. (α) In case OEM does not intend to provide these Equipment, Targets, Fixtures & Ballistic Barrels.

8. **Documents / Intimation Required from OEM**.

(a) Technical Literature and User Manual of ammunition giving details of general Construction, Functioning and Safeties incorporated.

(b) Restrictions if any in handling, transportation and exploitation of the ammunition.
(c) UNHD / Compatibility Group.
(d) Range Table.

9. **Verification of Certificates.** Supplier shall submit following certificates & reports of amn lot from which the samples are offered for evaluation.

(a) Certificate of visual and dimensional inspection of complete rounds.
(b) Certificate of Conformity of primer Inspection.
(c) Certificate of Shell inspection and firing tests.
(d) Certificate of Fuze inspection and firing tests.
(e) Certificate of Propellant inspection and firing tests.
(f) Safety certificate mentioning samples offered for trial are safe for handling.
(g) Certificate of accreditation of the laboratory from where testing results have been obtained from NABL / A recognized international body.

Note:- Physical verification of parameters claimed in CoC may be carried out depending on availability of test facilities in Proof Ranges / nominated labs in India.

10. In case it is not feasible to check certain parameters during DGQA Evaluation, then these would be accepted based on Certificate of Conformation. The same to be provided by Vendor and should be accompanied by all test results / Certificate from NABL or an internationally recognized / accredited Laboratory.

11, **Conclusion.** The DGQA Evaluation programme is based on GSQR/ToT/ Past procurement. However these Draft Directives are liable to modifications based on the technical specifications submitted by the vendors, the facilities available at the testing ranges and the discussion with the OEM reps during pre- trial meeting.

* * * * *

ANNEXURE –I to APPENDIX 'D-I'

ENVIRONMENTAL TESTS
(Example quoted as per Specn No JSG-0102(Part-II))

Sr No	Test Name	Sample Size	Test Parameters	Observations	Acceptance Criteria
1.	Bounce Test.	(a)1 Package (inner & outer) with Live Grenade assembled with inert Fuze. (Box No -1) (b)1Package (inner & outer) with Inert Grenade assembled with Live Fuze. (Box No -2)	Subject the package to a Bounce Test as defined in Appendix 'H' for a total duration of 60 minutes. The package shall be oriented so that its longest axis is parallel to the drive shafts of the Bounce Test Machine. Where the aspect ratio of the package (i.e. the ratio of the longest side to the shortest) does not exceed 3:1 and the package mass does not exceed 50 Kg then the attitude of the package shall be arranged so that one- third of the total test time is spent with each of 3 mutually perpendicular faces of the package in contact with the bouncer table. Where the package is marked with preferred transport attitude, e.g. " this way up" then the whole test should be performed with the package in that attitude.	After the test, packages (external and internal) shall be visually examined for the following:- (a) Any major damage to outer Package/ inner Package/container/ Contents. (b) Catches, handles, hinges, planks/latches/ fitments are not damaged to such an extent that they are beyond minor repairs by slight tapping with mallet. (c) Welding (if any) should be intact. (d) Packages should be easy to open and close. (e) Containers/Liners/ Cylinders/Boxes packed therein should be easily removable.	The package shall be examined after the Bounce test and considered to have failed the test, if :- (a) The outer/ inner package is broken/ cracked. (b) Outer package could not be easily opened and closed and inner package is could not be easily removable. (c) The contents or the Package are affected in any way which could cause the contents to become unsafe or Unserviceable.

Sr No	Test Name	Sample Size	Test Parameters	Observations	Acceptance Criteria
2.	Vibration Test.	(a)1 Package (inner & outer) with Live Grenade assembled with inert Fuze. (Box No -3) (b)1Package (inner & outer) with Inert Grenade assembled with Live Fuze. (Box No -4)	Vibration test will be carried out with the vibration frequency swept logarithmically over the stated range at a rate not exceeding one Octave/min :- (a) Package of upto 70 kg in mass shall be vibrated for 2 hours in each of 3 mutually perpendicular planes at a constant peak to peak displacement of 12 mm over the frequency range 5 to 11 Hz and at constant peak acceleration of 30 m/s^2 over the frequency range 11 to 350 Hz. Test Duration. 22 minutes, 5 to11 HZ and 11 to 350 Hz respectively. Repeated in each plane. (b) Packages of over 70 kg in mass shall be vibrated when standing on the base for a total of 6 hours at a constant peak-to-peak displacement of 12 mm over the frequency range 5 to 9 Hz, at a constant peak acceleration of 20 m/s^2 over the frequency range 9 to 150 Hz. Test Duration. 62 minutes and 298 minutes for the ranges 5 to 9 Hz and 9 to 150 Hz respectively.	After the test, packages (external and internal) shall be visually examined for the following:- (a) Any major damage. (b) Catches, handles, hinges, planks/latches/ fitments are not damaged to such an extent that they are beyond minor repairs by slight tapping with mallet. (c) Welding (if any) should be intact. (d) Packages should be easy to open and close. (e) Containers/Liners/ Cylinders/Boxes packed therein should be easily removable.	The package shall be examined after the Vibration Test and considered to have failed the test, if :- (a) The outer/ inner package is broken/ cracked. (b) Outer package could not be easily opened and closed and inner package is could not be easily removable. (c) The contents or the Package are affected in any way which could cause the contents to become unsafe or Unserviceable.

<table>
<tr><th>Sr No</th><th>Test Name</th><th>Sample Size</th><th>Test Parameters</th><th>Observations</th><th>Acceptance Criteria</th></tr>
<tr>
<td>3.</td>
<td>Impact (Vertical)</td>
<td>(a)1 Package (inner & outer) with Live Grenade assembled with inert Fuze.
(Box No -5)

(b)1Package (inner & outer) with Inert Grenade assembled with Live Fuze.
(Box No -6)</td>
<td>(a) The package shall be allowed to fall freely through a distance ‘d’ measured between the lowest point of package and an impacting steel surface of at least 6mm thick, wet floated steel plate and bolted down to concrete of 0.45m minimum thickness. The tests to be carried out as per the details given in JSG 0102 Part II.

(b) The drop height ‘d’ shall be determined by the mass of the package in accordance with following table:-
<table>
<tr><th>Package Mass</th><th>First Drop Height</th><th>Remaining Drop Heights & No of Drops</th></tr>
<tr><td>0 – 70 Kg</td><td>One drop of 1.5m</td><td>Six drops of 0.3m</td></tr>
<tr><td>71 – 125 Kg</td><td>One drop of 0.9m</td><td>Six drop of 0.15m</td></tr>
<tr><td>126 – 500 Kg</td><td>One drop of 0.6m</td><td>Six drop of 0.15m</td></tr>
</table>
(c) Radiographic films of Rounds to be provided by OEM (ie Rounds from Package No 5 & 6 in order to compare them with radiographs of the Rounds post Impact Test)</td>
<td>(a) The store should not be damaged, explode or detonate when subjected to this test.

(b) Although it is expected that the package will be considerably damaged, the content should be safe for removal and disposal.

(c) Comparison of Radiographic Films before & after Tests for any damages to filling/ distortion of Assys.</td>
<td>(a) The package shall be considered to have failed the test, if the store is detonated or explodes and if there is any damage to the content of the package.
(b) Any major damages to filling/ distortion of Assys which can cause the store to become unsafe/ unserviceable.</td>
</tr>
</table>

Sr No	Test Name	Sample Size	Test Parameters	Observations	Acceptance Criteria
4.	Water Immersion Test	(a) Package (inner & outer) with Live Grenade assembled with Inert Fuze. (Box No - 1&3) (b) 01 Package (inner & outer) with Inert Grenade assembled with Live Fuze. (Box No - 2&4)	Bounce and Vibration tested Packages (Box No 1 to 4)shall be subjected to Water Immersion Test as under:- (a) <u>Rectangular Packages up to 250 Kg</u>. Each face shall be immersed in sequence for a period of 20 minutes to a depth of 0.15m in water at a temperature not exceeding 27°C. (b) <u>Rectangular Packages over 250 Kg</u> . Immersion shall be carried out sequence for a period of 20 minutes to a depth of 0.15m in water at a temperature not exceeding 27°C. With the package standing on the base or face upon which it is normally expected to be transported or stored. (c) <u>Cylindrical Packages.</u> The head and tail of the packages shall be immersed alternately for a period of 20 minutes to a depth of 0.15m in water at a temperature not exceeding 27°C. (d) After Water immersion Test the rounds from all the packages shall be subjected to :- (i) Visually Examination. (ii) Chamber Gauging (to be provided by OEM). (iii) Radiographic Examination. **<u>Note</u>** (i) X-ray films of Inert Rounds should be obtained from OEM (ie Rounds from Package No 1 ,2, 3 and 4, in order to compare them with the radiographs of the Rounds post Bounce, Vibration and Water immersion) (ii) Rounds from Package No 2 and 4 i.e Inert Grenade assembled with Live Fuze if found satisfactory in Visual, Chamber gauging and Radiographic examination will be subjected to Dynamic firing as per details given in Annexure –II.	(a) Air leakage. (b) The interior of package shall be free from water and there shall be no sign of round in the container having got wet. Observations after water Immersion Test. (a) Cracks/ Bulge on rounds. (b) Smooth passing of rounds through Chamber Gauge. (c) Any apparent defects in filling of Shell/ Fuze.	The package shall be considered to have failed the test, if there is any ingress of water in inner package or rounds found wet. The Amn shall be considered to have failed in Environmental Tests if :- (i) Any cracks/bulge is observed on round during visual examination. (ii) Rounds have failed to pass chamber gauge. (iii) Any filling defect is observed during radiographic examination.

ANNEXURE – II to APPENDIX 'D-I'

DYNAMIC FIRING

Sl. No.	Test	Sample Size	Weapon/ Equipment	Method	Observations	Acceptance Criteria
1.	Range and Reliability of functioning of rounds conditioned at:- (a) Condition at minus 20 ± 5ºC for 04 hours. (b) Ambient Temp (c) Condition at +45 ± 5ºC for 04 hours.	32 Nos at each temp condition (Total 96 Nos).	40mm MGL In-Service Weapon. (Ex-South Africa)	Rounds should be fired in Single Shot Mode at the elevation corresponding to max range.	(a) Effective Range. (b) Premature. (c) Misfire. (d) Primer Blow Back. (e) Blind. (f) Hard Extraction. (g) Round stuck up in Barrel. (h)) Projectile breaks up in flight within 50 m of Launcher. (h) Pierced Cap. .	**Acceptance Criteria Applicable for each Temp Condition.** (a)**Range**. Average Range should be between 375 to 400m and Range of Individual round should not be less than 375m. (b) **Attribute** (DCL). (i) **Critical Defect**. Premature. (ii) **Major Defects**. (aa) Misfire. (ab) Primer Blow Back. (ac) Blind. (ad) Hard Extraction. (ae) Round stuck up in Barrel. (af) Pierced Cap. (ag) Projectile breaks up in flight within 50 m of Launcher. **Note**. (a) Critical Defect not permitted. (b) Reliability for Attribute Defect should be more than 93% at each temperature condition.

Sl. No.	Test	Sample Size	Weapon/ Equipment	Method	Observations	Acceptance Criteria
2.	Non- Arming at 8 m and Muzzle Velocity.	20 Nos	(a) 40mm MGL In-Service Weapon or Ballistic Barrel with stand. (b) Doppler Radar.	(a) Rds to be fired in Single Shot Mode to impact on 6 mm nominal thick Hard Board / Ply wood Target placed at a distance of 8 ± 0.1 m from the muzzle. (c) Target to be repaired/ replaced after firing of each round so that no round shall pass through a hole in the target caused by previous round. (b) Velocity will be measured by Doppler Radar.	(a) Functioning of the round on or before the target. (b) Muzzle Velocity	(a) No round should function on or before the target. (b) The mean Muzzle Velocity and std Deviation should be within specified limits / as per the OEM specification. **Note**. Critical Defect, Premature, is not permitted.
3.	Aim Test.	20 Nos	40mm MGL In-Service Weapon or Ballistic Barrel with stand.	(a) Rounds to be fired at range of 150 m in Single Shot mode. Elevation to be set accordingly. (b) Target. Ground	Fall of shot / Range	All Rounds should fall within 30% of the aimed distance. **Note**. Critical Defect, Premature, is not permitted.

Sl. No.	Test	Sample Size	Weapon/ Equipment	Method	Observations	Acceptance Criteria
4.	Consistency.	30 Nos	40mm MGL In-Service Weapon	Rounds to be fired on vertical target of size 2X2 m of suitable MS Plate/ Particle Board/ Hessian Cloth placed at a distance of 75 m to obtain clear impressions of hits.	Dispersion of Rds.	25 out of 30 rounds should have a grouping of 0.95 m x 0.95 m. **Note**. Critical Defect, Premature, is not permitted.
5.	Arming at 28 m	20 Nos	40mm MGL In-Service Weapon	(a) Rounds shall be fired to impact on 6 mm nominal thick Hard Board / Ply wood Target placed at a distance of 28 ± 0.1 m from the muzzle. (b) Target to be repaired/ replaced after firing of each round so that no round shall pass through a hole in the target caused by previous round.	Functioning of the round on or before the target.	All rounds should function on hitting the target. **Note**. Critical Defect, Premature, is not permitted.

Sl. No.	**Test**	**Sample Size**	**Weapon/ Equipment**	**Method**	**Observations**	**Acceptance Criteria**
6.	(a) Dynamic Firing of Bounce Tested Rounds. (after Water Immersion Test). (Inert Round with Live Fuze i.e. Box No -2) (b) Dynamic firing of Vibration tested Rounds. (after Water Immersion Test). (Inert Round with Live Fuze i.e. Box No - 4)	10 Nos 10 Nos	40 mm MGL in-service Weapon	Round to be fired at Max range (400 m).	Attribute. (a) *Premature. (b) Blind. (c) Misfire. (d) Primer blow back. (e) Round stuck up. (f) Failure to extract the cartg case. (g) Projectile breaks up in flight within 50 m of Launcher. (h) Pierced Cap. * Premature. Any round functioning in the barrel or during flight.	Defect Classification. **Attribute** (DCL). (i) **Critical Defect**. Premature. (ii) **Major Defects**. (aa) Misfire. (ab) Primer Blow Back. (ac) Blind. (ad) Hard Extraction. (ae) Round stuck up in Barrel. (af) Projectile breaks up in flight within 50 m of Launcher. (ag) Pierced Cap. **Note**. (a) Critical Defect not permitted. (b) Reliability for Attribute Defect should be more than 93% in each case (Bounce Tested samples & Vibration Tested samples).

Appendix 'D-II'
(Refers to para 7 (c) (i) (ab) of Part-I of RFP)

DGQA EVALUATION PROGRAMME FOR 40 MM HEDP AMN

1. **Aim.** To assess the suitability pertaining to the Functional, Ballistic and Safety requirements of the amn.

2. **Ammunition Required.** Total 266 Rounds. Details are as under:-

(a) **Dynamic Firing.** Total 226 Rounds (196 Rds for Functioning Test +10 Rds as Sighter/Warmer/Reserve +20 Environmental tested Rds for Dynamic firing as per Sl No 7 of enclosed Annexure-II).

(b) **Environmental Test**.To be conducted as per Specn JSG 0102 / MIL-STD-331 **Total Qty 60 Nos.**

(i) 03 Packages (inner & outer) each with 10Nos Live grenades assembled with Inert Fuze. (Package No 1, 3and 5)

(ii) 03 Packages (inner & outer) each with 10Nos Inert grenades assembled with Live Fuze. (Package No 2, 4 and 6)

Note:

(a) OEM in his technical offer should confirm that the amn subjected to environmental tests As per Annexure-I and is safe for subjecting to dynamic firing.

(b) In case, due to any reason, it is not feasible to conduct these tests during DGQA Evaluation then OEM Certificate of conforms for subject tests shall be considered acceptance.

(c) Facilities for conducting of the Environmental tests as mentioned in Annexure – I attached will be provided by vendor. In case non availability of the facilities with the Vendor, the tests can be carried out at DGQA/ DRDO/ OFB Lab, if available. If the facilities are not available at DGQA/ DRDO/ OFB Lab then these tests to be carried out at private NABL accredited Lab and the charges for the same to be borne by the Vendor.

(d) Based on the type of packages offered by the Vendor & technical specifications, environmental tests in packages amn will be suitably modified by DGQA.

3. **Responsibility.**Proof Range, DGQA

4. **Evaluation Team.**

(a) Rep of DGQA.

(b) Rep of User.

(c) Rep of Vendor / OEM.

5. **Safety Certificate.** To be provided by the Vendor / OEM.

6. **Weapon.**

(a) 02 Nos of In- Service 40 mm MGL Weapons and 02 Firers to be provided by the User for Evaluation. The Weapons to accompany History Sheet indicating No of rounds fired.

(b) Ballistic Barrel, Stand, Mounting, Fixtures and Targets to be provided by the OEM at no additional cost.

Note - In case OEM does not **intend to** provide Ballistic Barrel, Stand**, Mounting, Fixtures** and Targets, **the same shall be informed to MGO and HQ DQA(A) during Pre-Pre-Trial Meeting**. **Thereafter** the Evaluation will be done using in-service weapon, targets, fixtures and infrastructure available at SQAE (A) & LPR, Khamaria and results thereof will have to be accepted by OEM.

7. **Aspects to be checked During Visual Inspection.**

(a) Packing. 100%.

(i) Method of Packing.
(ii) Marking / Stenciling on Packages.
(iii) UN Classification / Hazard Division.
(iv) Stowage Dimensions of Package.
(v) Damaged package.

(b) Visual Inspection of Rounds.Qty80 rounds (to be selected randomly)

(i) Visual Inspection of Rounds.
(ii) Marking / Stenciling on Round.

(c) Physical Parameters. Qty20 rounds (to be selected randomly)

Sr No	Parameters	Specified	Acceptance Criteria
(i)	Length.	As per OEM/ Vendor specification	All parameters should be within the specified limits as per OEM/ Vendor specification
(ii)	Mass		

(d) Chamber Gauging. 100% (Chamber Gauge to be provided by the OEM / Supplier)

(e) Environmental Testing. Vendors to provide certificate of conformance along with test results to confirm the ammunition is subjected to environmental tests like Bounce (Jolt), Vibration (Jumble) and Impact (Drop) Test as per JSG 0102 / MIL-STD 2105 / 331 latest issue and the ammunition is safe to fire before dynamic evaluation.

(f) Dynamic Firing. To be conducted as per **Annexure - II.**

Note.

(i) The Parameters mentioned at Para 7 (a) and (b) are to be recorded for reference and shall have no bearing on sentencing.

(ii) Pre-requisites forTrialEvaluation.

(aa) The Draft DGQA Technical Evaluation Programme will be discussed with OEM in Pre-Pre-Trial Meeting. However, Final decisions regarding the DGQA Technical Evaluation Programme including all its provisions therein will be that of DGQA.

(ab) OEM may provide the following equipment for DGQA Technical Evaluation at no additional cost if any of these equipment available at Proof Range are not considered acceptable to OEM.

- Ballistic Barrels.
- Targets.
- Weapon/Barrel Mounting Fixtures.

- The above requirements will be discussed and decided in the Pre- Pre-Trial- Evaluation Meeting with OEM. The final list of the agreed items will be provisioned by OEM for DGQA Technical Evaluation .

(ac) DGQA Technical Evaluation will be conducted as per the Infrastructure, Facilities, Conditions, Testing/Measurement Methodology, Equipment (α), Targets(α), Fixtures(α), Service weapons/Ballistic Barrels(α) etc available at Proof Range and Testing laboratories .OEM will have to accept these and results thereof.

Note. (α) In case OEM does not intend to provide these Equipment, Targets, Fixtures & Ballistic Barrels.

8. **Documents / Intimation Required from OEM**.

(a) Technical Literature and User Manual of ammunition giving details of general Construction, Functioning and Safeties incorporated.

(b) Restrictions if any in handling, transportation and exploitation of the ammunition.

(c) UNHD / Compatibility Group.

(d) Range Table.

9. **Verification of Certificates.** Supplier shall submit following certificates & reports of amn lot from which the samples are offered for evaluation.

(a) Certificate of visual and dimensional inspection of complete rounds.

(b) Certificate of Conformity of primer Inspection.

(c) Certificate of Shell inspection and firing tests.

(d) Certificate of Fuze inspection and firing tests.

(e) Certificate of Propellant inspection and firing tests.

(f) Safety certificate mentioning samples offered for trial are safe for handling.

(g) Certificate of accreditation of the laboratory from where testing results have been obtained from NABL / A recognized international body.

Note:- Physical verification of parameters claimed in CoC may be carried out depending on availability of test facilities in Proof Ranges / nominated labs in India.

10. In case it is not feasible to check certain parameters during DGQA Evaluation, then these would be accepted based on Certificate of Conformation. The same to be provided by Vendor and should be accompanied by all test results / Certificate from NABL or an internationally recognized / accredited Laboratory.

11, **Conclusio**n. The DGQA Evaluation programme is based on GSQR/ToT/Past procurement. However these Draft Directives are liable to modifications based on the technical specifications submitted by the vendors, the facilities available at the testing ranges and the discussion with the OEM reps during pre- trial meeting.

ANNEXURE – I to APPENDIX 'D-II)

ENVIRONMENTAL TESTS
(Example quoted as per Specn No JSG-0102(Part-II))

Sr No	Test Name	Sample Size	Test Parameters	Observations	Acceptance Criteria
1.	Bounce Test	(a) 1 Package (inner & outer) with Live Grenade assembled with inert Fuze. (Box No -1) (b) 1 Package (inner & outer) with Inert Grenade assembled with Live Fuze. (Box No -2)	(a) Subject the package to a Bounce Test as defined in Appendix 'H' of JSG for a total duration of 60 minutes. (b) The package shall be oriented so that its longest axis is parallel to the drive shafts of the Bounce Test Machine. Where the aspect ratio of the package (i e the ratio of the longest side to the shortest) does not exceed 3:1 and the package mass does not exceed 50 Kg then the attitude of the package shall be arranged so that one- third of the total test time is spent with each of 3 mutually perpendicular faces of the package in contact with the bouncer table. Where the package is marked with preferred transport attitude, e g " this way up" then the whole test should be performed with the package in that attitude.	After the test, packages (external and internal) shall be visually examined for the following:- (a) Any major damage. (b) Catches, handles, hinges, planks/latches/ fitments are not damaged to such an extent that they are beyond minor repairs by slight tapping with mallet. (c) Welding (if any) should be intact. (d) Packages should be easy to open and close. (e) Containers/Liners/ Cylinders/Boxes packed therein should be easily removable.	The package shall be examined after the Bounce test and considered to have failed the test, if :- (a) The outer/ inner package is broken/ cracked. (b) The outer package could not be easily opened and closed and inner package could not be easily removed. (c) The contents or the Package is affected in any way which could cause the contents to become unsafe or Unserviceable.

Sr No	Test Name	Sample Size	Test Parameters	Observations	Acceptance Criteria
2.	Vibration Test.	(a) 1 Package (inner & outer) with Live Grenade assembled with inert Fuze.(Box No -3) (b) 1 Package (inner & outer) with Inert Grenade assembled with Live Fuze.(Box No -4)	Vibration test will be carried out with the vibration frequency swept logarithmically over the stated range at a rate not exceeding one Octave/min :- (a) Package of upto 70 kg in mass shall be vibrated for 2 hours in each of 3 mutually perpendicular planes at a constant peak to peak displacement of 12 mm over the frequency range 5 to 11 Hz and at constant peak acceleration of 30 m/s^2 over the frequency range 11 to 350 Hz. Test Duration. 22 minutes, 5 to11 HZ and 11 to 350 Hz respectively. Repeated in each plane. (b) Packages of over 70 kg in mass shall be vibrated when standing on the base for a total of 6 hours at a constant peak-to-peak displacement of 12 mm over the frequency range 5 to 9 Hz, at a constant peak acceleration of 20 m/s^2 over the frequency range 9 to 150 Hz. Test Duration. 62 minutes and 298 minutes for the ranges 5 to 9 Hz and 9 to 150 Hz respectively..	After the test, packages (external and internal) shall be visually examined for the following:- (a) Any major damage. (b) Catches, Handles, Hinges, Planks/letches/ Fitments are not damaged to such an extent that they are beyond minor repairs by slight tapping with mallet. (c) Welding (if any) should be intact. (d) Packages should be easy to open and close. (e) Containers/Liners/ Cylinders/Boxes packed therein should be easily removable.	The package shall be examined after the Vibration Test and considered to have failed the test, if :- (a) The outer/ inner package is broken/ cracked. (b) The outer package could not be easily opened and closed and inner package could not be easily removed. (c)The contents or the Package is affected in any way which could cause the contents to become unsafeor Unserviceable.

<table>
<tr><th>Sr No</th><th>Test Name</th><th>Sample Size</th><th>Test Parameters</th><th>Observations</th><th>Acceptance Criteria</th></tr>
<tr>
<td>3.</td>
<td>Impact (Vertical)</td>
<td>(a)1 Package (inner & outer) with Live Grenade assembled with inert Fuze.
(Box No -5)

(b)1Package (inner & outer) with Inert Grenade assembled with Live Fuze.
(Box No -6)</td>
<td>(a) The package shall be allowed to fall freely through a distance ‘d’ measured between the lowest point of package and an impacting steel surface of at least 6mm thick, wet floated steel plate and bolted down to concrete of 0.45m minimum thickness. The test to be carried out as per the details given in JSG 0102 Part II.

(b) The drop height ‘d’ shall be determined by the mass of the package in accordance with following table:-
<table>
<tr><td>Package Mass</td><td>First Drop Height</td><td>Remaining Drop Heights & No of Drops</td></tr>
<tr><td>0 – 70 Kg</td><td>One drop of 1.5m</td><td>Six drops of 0.3m</td></tr>
<tr><td>71 – 125 Kg</td><td>One drop of 0.9m</td><td>Six drop of 0.15m</td></tr>
<tr><td>126 – 500 Kg</td><td>One drop of 0.6m</td><td>Six drop of 0.15m</td></tr>
</table>
(c) Radiographic films of Inert Rounds to be provided by OEM (ie Rounds from Package No 5 & 6 in order to compare them with those of Rounds post Impact Test)</td>
<td>(a) The store should not be damaged, explode or detonate when subjected to this test.

(b) Although it is expected that the package will be considerably damaged, the content should be safe for removal and disposal.

(c) Comparison of Radiographic Films before & after Tests for any damages to filling/ distortion of Assys.</td>
<td>(a) The package shall be considered to have failed the test, if the store is detonated or explodes and if there is any damage to the content of the package.

(b) Any major damages to filling/ distortion of Assys which can cause the store to become unsafe/ unserviceable.</td>
</tr>
</table>

Sr No	Test Name	Sample Size	Test Parameters	Observations	Acceptance Criteria
4.	Water Immersion Test	(a) 1Package (inner & outer) with Live Grenade assembled with Inert Fuze. (Box No -1& 3) (b) 1 Package (inner & outer) with Inert Grenade assembled with Live Fuze. (Box No -2 & 4)	Bounce, Vibration and Impact tested Packages (Box No 1 to 4) shall be subjected to Water Immersion Test as under:- (a) <u>Rectangular Packages up to 250 Kg</u>. Each face shall be immersed in sequence for a period of 20 minutes to a depth of 0.15m in water at a temperature not exceeding 27°C. (b) <u>Rectangular Packages over 250 Kg</u>. Immersion shall be carried out in sequence for a period of 20 minutes to a depth of 0.15m in water at a temperature not exceeding 27°C. With the package standing on the base or face upon which it is normally expected to be transported or stored. (c) <u>Cylindrical Packages</u>. The head and tail of the packages shall be immersed alternately for a period of 20 minutes to a depth of 0.15 minutes in water at a temperature not exceeding 27°C. (d) After Water immersion Test, the rounds from all the packages shall be subjected to :- (i) Visually Examination. (ii) Chamber Gauging. (iii) Radiographic Examination. **<u>Note</u>** (i) X-ray films of Inert Rounds should be obtained from OEM. (i e Rounds from Package No 1, 2, 3 & 4 in order to compare them with the radiographs of Rounds post Bounce, Vibration and Water Immersion.) (ii) Rounds from Package No 2 and 4 i e Inert Grenade assembled with Live Fuze if found satisfactory in Visual, Chamber gauging and Radiographic examination will be subjected to Dynamic firing as per details given in Annexure - II.	(a) Air leakage. (b) The interior of package shall be free from water and there shall be no sign of round in the container having got wet. Observations after water Immersion Test. (a) Cracks/ Bulge on rounds. (b) Smooth passing of rounds through Chamber Gauge. (c) Any apparent defects in filling of Shell/ Fuze.	The package shall be considered to have failed the test, if there is any ingress of water in inner package or rounds found wet. The Amn shall be considered to have failed in Environmental Tests if :- (i) Any cracks/bulge is observed on round during visual examination. (ii) Rounds have failed to pass chamber gauge. (iii) Any filling defect is observed during radiographic examination.

ANNEXURE – II to APPENDIX 'D-II)

DYNAMIC FIRING

Sl. No.	Test	Sample Size	Weapon/ Equipment	Method	Observations	Acceptance Criteria
1.	Range and Reliability of functioning of rounds conditioned at:- (a) Condition at minus 20 ± 5ºC for 04 hours. (b) Ambient Temp (c) Condition at +45 ± 5 ºC for 04 hours. .	32 Nos at each temp condition (Total 96 Nos).	40mm MGL In-Service Weapon. (Ex-South Africa)	Rounds should be fired in Single Shot Mode at the elevation corresponding to max range.	(a) Effective Range. (b) Premature. (c) Misfire. (d) Primer Blow Back. (e) Blind. (f) Hard Extraction. (g) Round stuck up in Barrel. (h) Projectile breaks up in flight within 50 m of Launcher. (j) Pierced Cap. .	**Acceptance Criteria Applicable for each Temp Condition.** (a)**Range**. Average Range should be between 375 to 400m and Range of Individual round should not be less than 375m. (b) **Attribute** (DCL). (i) **Critical Defect**. Premature. (ii) **Major Defects**. (aa) Misfire. (ab) Primer Blow Back. (ac) Blind. (ad) Hard Extraction. (ae) Round stuck up in Barrel. (af) Projectile breaks up in flight within 50 m of Launcher. (ag) Pierced Cap. **Note**. (a) Critical Defect not permitted. (b) Reliability for Attribute Defect should be more than 92% at each temperature condition.

Sl. No.	Test	Sample Size	Weapon/ Equipment	Method	Observations	Acceptance Criteria
2.	Non- Arming at 8 m and Muzzle Velocity.	20 Nos	(a) 40mm MGL In-Service Weapon or Ballistic Barrel with stand. (b) Doppler Radar.	(a) Rds to be fired in Single Shot Mode to impact on 6 mm nominal thick Hard Board / Ply wood Target placed at a distance of 8 ± 0.1 m from the muzzle. (b) Target to be repaired/ replaced after firing of each round so that no round shall pass through a hole in the target caused by previous round. (c) Velocity will be measured by Doppler Radar.	(a) Functioning of the round on or before the target. (b) Muzzle Velocity	(a) No round should function on or before the target. (b) The mean Muzzle Velocity and std Deviation should be within specified limits / as per the OEM specification. **Note**. Critical Defect, Premature, is not permitted.
3.	Aim Test.	20 Nos	40mm MGL In-Service Weapon or Ballistic Barrel with stand.	(a) Rounds to be fired at range of 150 m in Single Shot mode. Elevation to be set accordingly. (b) Target.- Ground	Fall of shot / Range	All Rounds should fall within 30% of the aimed distance. **Note**. Critical Defect, Premature, is not permitted.

Sl. No.	**Test**	**Sample Size**	**Weapon/ Equipment**	**Method**	**Observations**	**Acceptance Criteria**
4.	Consistency.	30 Nos	40mm MGL In-Service Weapon	Rounds to be fired on vertical target of size 2X2 m of suitable MS Plate/ Particle Board/Hessian Cloth placed at a distance of 75 m to obtain clear impressions of hits.	Dispersion of Rds.	25 out of 30 rounds should have a grouping of 0.95 m x 0.95 m. **Note**. Critical Defect, Premature, is not permitted.
5.	Arming at 28 m	20 Nos	40mm MGL In-Service Weapon	(a) Rounds shall be fired to impact on 6 mm nominal thick Hard Board / Ply wood Target placed at a distance of 28 ± 0.1 m from the muzzle. (b) Target to be repaired/ replaced after firing of each round so that no round shall pass through a hole in the target caused by previous round.	Functioning of the round on or before the target.	All rounds should function on hitting the target. **Note**. Critical Defect, Premature, is not permitted.

Sl. No.	**Test**	**Sample Size**	**Weapon/ Equipment**	**Method**	**Observations**	**Acceptance Criteria**
6.	Steel Penetration Test	05 Nos + 05 Nos Extra	40 mm MGL in-service Weapon	Round to be fired to impact at approx 40 meter s from the muzzle of the weapon against a vertical target consisting of 65mm (nominal) thick mild steel plate. The angle of obliquity shall be zero. Replacement rounds shall be fired until a total of 5 projectiles hit the target. (to make the provision for projectiles which miss the target as well as penetration holes overlapping each other)	(a) Penetration of steel plate. (b) *Premature. * Premature. Any round functioning in the barrel or during flight.	All rounds should penetrate through and through the Target. **Defect Classification.** **Attribute** (DCL). **Critical Defect**. Premature. .

Sl. No.	**Test**	**Sample Size**	**Weapon/ Equipment**	**Method**	**Observations**	**Acceptance Criteria**
7.	(a) Dynamic Firing of Impacttested Rounds. (after Water Immersion Test). (Inert Round with Live Fuze i.e. Box No -2) (b) Dynamic firing of Vibration tested Rounds (after Water Immersion Test). (Inert Round with Live Fuze i.e. Box No - 4)	10 Nos 10 Nos	40 mm MGL in-service Weapon	Round to be fired at Max range (400 m).	Attribute. (a) *Premature. (b) Blind. (c) Misfire. (d) Primer blow back. (e) Round stuck up. (f) Failure to extract the cartg case. (g) Projectile breaks up in flight within 50 m of Launcher. (h) Pierced Cap. * Premature. Any round functioning in the barrel or during flight.	Defect Classification. **Attribute** (DCL). (i) **Critical Defect**. Premature. (ii) **Major Defects**. (aa) Misfire. (ab) Primer Blow Back. (ac) Blind. (ad) Hard Extraction. (ae) Round stuck up in Barrel. (af) Projectile breaks up in flight within 50 m of Launcher. (ag) Pierced Cap. **Note**. (a) Critical Defect not permitted. (b) Reliability for Attribute Defect should be more than 92% in each case (Bounce Tested samples & Vibration Tested samples).

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Appendix 'D-III'
(Refers to para 7(c)(i) (ac) of Part-I of RFP)

DGQA EVALUATION PROGRAMME FOR 40 mm RP AMN

1. **Aim.** To assess the suitability pertaining to the Functional, Ballistic and Safety requirements of the amn.

2. **Ammunition Required.** Total 256 Rounds. Details are as under:-

(a) **Dynamic Firing. Total 216 Rounds (186 rds for functioning Test +10 rds as Sighter/Warmer/Reserve +20 Environmental tested Rds for** for Dynamic firing as per Sl No 6 of enclosed Annexure-II).

(b) **Environmental Test**. To be conducted as per Specn JSG 0102 / MIL standard **Qty 60 Nos.**

(i) 03 Packages (inner & outer) each with 10 Nos Live Round assembled with Inert Fuze. (Package No 1, 3 and 5)

(ii) 03 Packages (inner & outer) each with 10Nos Inert Round assembled with Live Fuze. (Package No 2, 4 and 6)

Note:

(a) OEM in his technical offer should confirm that the amn subjected to environmental tests As per Annexure-I and is safe for subjecting to dynamic firing.

(b) In case, due to any reason, it is not feasible to conduct these tests during DGQA Evaluation then OEM Certificate of conforms for subject tests shall be considered acceptance.

(c) Facilities for conducting of the Environmental tests as mentioned in Annexure – I attached will be provided by vendor. In case non availability of the facilities with the Vendor, the tests can be carried out at DGQA/ DRDO/ OFB Lab, if available. If the facilities are not available at DGQA/ DRDO/ OFB Lab then these tests to be carried out at private NABL accredited Lab and the charges for the same to be borne by the Vendor.

(d) Based on the type of packages offered by the Vendor & technical specifications, environmental tests in packages amn will be suitably modified by DGQA.

3. **Responsibility.** Proof Range, DGQA.

4. **Evaluation Team.**
(a) Rep of DGQA.
(b) Rep of User.
(c) Rep of Vendor / OEM.

5. **Safety Certificate.** To be provided by the Vendor / OEM.

6. **Weapon.**

(a) 02 Nos of In- Service 40 mm MGL Weapons and 02 Firers to be provided by the User for Evaluation. The Weapons to accompany History Sheet indicating No of rounds fired.

(b) Ballistic Barrel, Stand, Mounting, Fixtures and Targets to be provided by the OEM at no additional cost.

Note - In case OEM does not **intend to** provide Ballistic Barrel, Stand**, Mounting, Fixtures** and Targets, **the same shall be informed to MGO and HQ DQA (A) during Pre-Pre-Trial Meeting**. Thereafter the Evaluation will be done using in-service weapon, targets, fixtures and infrastructure available at Proof Range, DGQA and results thereof will have to be accepted by OEM.

7. **Aspects to be checked During Visual Inspection.**

(a) Packing. 100%.
- (i) Method of Packing.
- (ii) Marking / Stenciling on Packages.
- (iii) UN Classification / Hazard Division.
- (iv) Stowage Dimensions of Package.
- (v) Damage package.

(b) Visual Inspection of Rounds.Qty80 rounds (to be selected randomly)
- (i) Visual Inspection of Rounds.
- (ii) Marking / Stenciling on Round.

(c) Physical Parameters. Qty20 rounds will be checked for following Physical Parameters.

Sr No	Parameters	Specified	Acceptance Criteria
(i)	Length.	As per OEM/ Vendor specification.	All parameters should be within the specified limits as per OEM/ Vendor specification.
(ii)	Mass		

(d) Chamber Gauging. 100% (Chamber Gauge to be provided by the OEM / Supplier)

(e) Environmental Testing. Vendors to provide certificate of conformance along with test results to confirm the ammunition is subjected to environmental tests like Bounce (Jolt), Vibration (Jumble) and Impact (Drop) Test as per JSG 0102 / MIL-STD 2105 / 331 latest issue and the ammunition is safe to fire before dynamic evaluation

(f) Dynamic Firing. To be conducted as per Annexure - II.

Note.

(i) The Parameters mentioned at Para 7 (a) & (b) above are to be recorded for reference and shall have no bearing on sentencing.

(ii) Pre-requisites forTrialEvaluation.

(aa) The Draft DGQA Technical Evaluation Programme will be discussed with OEM in Pre-Pre-Trial Meeting. However, Final decisions regarding the DGQA Technical Evaluation Programme including all its provisions therein will be that of DGQA.

(ab) OEM may provide the following equipment for DGQA Technical Evaluation at no additional cost if any of these equipment available at Proof Range are not considered acceptable to OEM.

- Ballistic Barrels.
- Targets.
- Weapon/Barrel Mounting Fixtures.
- The above requirements will be discussed and decided in the Pre-Pre-Trial-Evaluation Meeting with OEM. The final list of the agreed items will be provisioned by OEM for DGQA Technical Evaluation .

(ac) DGQA Technical Evaluation will be conducted as per the Infrastructure, Facilities, Conditions, Testing/Measurement Methodology, Equipment (α), Targets(α), Fixtures(α), Service weapons/Ballistic Barrels(α) etc available at Proof Range and Testing laboratories. OEM will have to accept these and results thereof.

Note. (α) In case OEM does not intend to provide these Equipment, Targets, Fixtures & Ballistic Barrels.

8. **Documents / Intimation Required from OEM**.

(a) Technical Literature and User Manual of ammunition giving details of general Construction, Functioning and Safeties incorporated.

(b) Restrictions if any in handling, transportation and exploitation of the ammunition.

(c) UNHD / Compatibility Group.

(d) Range Table.

9. **Verification of Certificates.** Supplier shall submit following certificates & reports of amn lot from which the samples are offered for evaluation.

(a) Certificate of visual and dimensional inspection of complete rounds.
(b) Certificate of Conformity of primer Inspection.
(c) Certificate of Shell inspection and firing tests.
(d) Certificate of Fuze inspection and firing tests.
(e) Certificate of Propellant inspection and firing tests.
(f) Safety certificate mentioning samples offered for trial are safe for handling.
(g) Certificate of accreditation of the laboratory from where testing results have been obtained from NABL / A recognized international body.

Note:- Physical verification of parameters claimed in CoC may be carried out depending on availability of test facilities in Proof Ranges / nominated labs in India.

10. In case it is not feasible to check certain parameters during DGQA Evaluation, then these would be accepted based on Certificate of Conformation. The same to be provided by Vendor and should be accompanied by all test results / Certificate from NABL or an internationally recognized / accredited Laboratory.

11. **Conclusion.** The DGQA Evaluation programme is based on GSQR/ToT/Past procurement. However these Draft Directives are liable to modifications based on the technical specifications submitted by the vendors, the facilities available at the testing ranges and the discussion with the OEM reps during pre- trial meeting.

* * * * *

Annexure – I to Appendix 'D-III)

ENVIRONMENTAL TESTS

(Example quoted as per Specn No JSG-0102(Part-II))

SrNo	Test Name	Sample Size	Test Parameters	Observations	Acceptance Criteria
1.	Bounce Test	(a) 1 Package (inner & outer) with Live Grenade assembled with inert Fuze. (Box No -1) (b) 1 Package (inner & outer) with Inert Grenade assembled with Live Fuze. (Box No -2)	(a) Subject the package to a Bounce Test as defined in Appendix 'H' of JSG for a total duration of 60 minutes. (b) The package shall be oriented so that its longest axis is parallel to the drive shafts of the Bounce Test Machine. Where the aspect ratio of the package (i e the ratio of the longest side to the shortest) does not exceed 3:1 and the package mass does not exceed 50 Kg then the altitude of the package shall be arranged so that one- third of the total test time is spent with each of 3 mutually perpendicular faces of the package in contact with the bouncer table. Where the package is marked with preferred transport altitude, e g " this way up" then the whole test should be performed with the package in that attitude.	After the test, packages (external and internal) shall be visually examined for the following:- (a) Any major damage. (b) Catches, handles, hinges, planks/latches/ fitments are not damaged to such an extent that they are beyond minor repairs by slight tapping with mallet. (c) Welding (if any) should be intact. (d) Packages should be easy to open and close. (e) Containers/Liners/ Cylinders/Boxes packed therein should be easily removable.	The package shall be examined after the Bounce test and considered to have failed the test, if :- (a) The outer/ inner package is broken/ cracked. (b) The outer package could not be easily opened and closed and inner package could not be easily removed. (c) The contents or the Package is affected in any way which could cause the contents to become unsafe or Unserviceable.

Sr No	Test Name	Sample Size	Test Parameters	Observations	Acceptance Criteria
2.	Vibration Test.	(a) 1 Package (inner & outer) with Live Grenade assembled with inert Fuze. (Box No -3) (b) 1 Package (inner & outer) with Inert Grenade assembled with Live Fuze. Box No -4)	Vibration test will be carried out with the vibration frequency swept logarithmically over the stated range at a rate not exceeding one Octave/min :- (a) Package of upto 70 kg in mass shall be vibrated for 2 hours in each of 3 mutually perpendicular planes at a constant peak to peak displacement of 12 mm over the frequency range 5 to 11 Hz and at constant peak acceleration of 30 m/s^2 over the frequency range 11 to 350 Hz. Test Duration. 22 minutes, 5 to11 HZ and 11 to 350 Hz respectively. Repeated in each plane. (b) Packages of over 70 kg in mass shall be vibrated when standing on the base for a total of 6 hours at a constant peak-to-peak displacement of 12 mm over the frequency range 5 to 9 Hz, at a constant peak acceleration of 20 m/s^2 over the frequency range 9 to 150 Hz. Test Duration. 62 minutes and 298 minutes for the ranges 5 to 9 Hz and 9 to 150 Hz respectively..	After the test, packages (external and internal) shall be visually examined for the following:- (a) Any major damage. (b) Catches, Handles, Hinges, Planks/letches/ Fitments are not damaged to such an extent that they are beyond minor repairs by slight tapping with mallet. (c) Welding (if any) should be intact. (d) Packages should be easy to open and close. (e) Containers/Liners/ Cylinders/Boxes packed therein should be easily removable.	The package shall be examined after the Vibration Test and considered to have failed the test, if :- (a) The outer/ inner package is broken/ cracked. (b) The outer package could not be easily opened and closed and inner package could not be easily removed. (c) The contents or the Package is affected in any way which could cause the contents to become unsafe or Unserviceable.

<table>
<tr><th>Sr No</th><th>Test Name</th><th>Sample Size</th><th>Test Parameters</th><th>Observations</th><th>Acceptance Criteria</th></tr>
<tr>
<td>3.</td>
<td>Impact (Vertical)</td>
<td>(a)1 Package (inner & outer) with Live Grenade assembled with inert Fuze.
(Box No -5)

(b)1Package (inner & outer) with Inert Grenade assembled with Live Fuze.
(Box No -6)</td>
<td>(a) The package shall be allowed to fall freely through a distance ‘d’ measured between the lowest point of package and an impacting steel surface of at least 6mm thick, wet floated steel plate and bolted down to concrete of 0.45m minimum thickness. The test to be carried out as per the details given in JSG 0102 Part II.

(b) The drop height ‘d’ shall be determined by the mass of the package in accordance with following table:-
<table>
<tr><td>Package Mass</td><td>First Drop Height</td><td>Remaining Drop Heights & No of Drops</td></tr>
<tr><td>0 – 70 Kg</td><td>One drop of 1.5m</td><td>Six drops of 0.3m</td></tr>
<tr><td>71 – 125 Kg</td><td>One drop of 0.9m</td><td>Six drop of 0.15m</td></tr>
<tr><td>126 – 500 Kg</td><td>One drop of 0.6m</td><td>Six drop of 0.15m</td></tr>
</table>
(c) Radiographic films of Rounds to be provided by OEM (ie Rounds from Package No 5 & 6 in order to compare them with radiographs of the Rounds post Impact Test)</td>
<td>(a) The store should not be damaged, explode or detonate when subjected to this test.

(b) Although it is expected that the package will be considerably damaged, the content should be safe for removal and disposal.

(c) Comparison of Radiographic Films before & after Tests for any damages to filling/ distortion of Assys.</td>
<td>(a) The package shall be considered to have failed the test, if the store is detonated or explodes and if there is any damage to the content of the package.
(b) Any major damages to filling/ distortion of Assys which can cause the store to become unsafe/ unserviceable.</td>
</tr>
</table>

Sr N	Test Name	Sample Size	Test Parameters	Observations	Acceptance Criteria
4.	Water Immersion Test	(a) 1Package (inner & outer) with Live Grenade assembled with Inert Fuze. (Box No -1 & 3) (b)1 Package (inner & outer) with Inert Grenade assembled with Live Fuze. (Box No -2 & 4)	Bounce and Vibration tested Packages (Box No 1 to 4) shall be subjected to Water Immersion Test as under:- (a) Rectangular Packages up to 250 Kg. Each face shall be immersed in sequence for a period of 20 minutes to a depth of 0.15m in water at a temperature not exceeding 27°C. (b) Rectangular Packages over 250 Kg. Immersion shall be carried out in sequence for a period of 20 minutes to a depth of 0.15m in water at a temperature not exceeding 27°C. With the package standing on the base or face upon which it is normally expected to be transported or stored. (c) Cylindrical Packages. The head and tail of the packages shall be immersed alternately for a period of 20 minutes to a depth of 0.15 minutes in water at a temperature not exceeding 27°C. (d) After Water immersion Test, the rounds from all the packages shall be subjected to :- (i) Visually Examination. (ii) Chamber Gauging. (iii) Radiographic Examination. **Note** (i) X-ray films of Inert Rounds should be provided by the vendor/ OEM (ie Rounds from Package No 1 ,2, 3 and 4, in order to compare them with the radiographs of the Rounds post Bounce, Vibration and Water immersion) (ii) Rounds from Package No 2 and 4 i.e Inert Grenade assembled with Live Fuze if found satisfactory in Visual, Chamber gauging and Radiographic examination will be subjected to Dynamic firing as per details given in Annexure –II.	(a) Air leakage. (b) The interior of package shall be free from water and there shall be no sign of round in the container having got wet. Observations after water Immersion Test. (a) Cracks/ Bulge on rounds. (b) Smooth passing of rounds through Chamber Gauge. (c) Any apparent defects in filling of Shell/ Fuze.	The package shall be considered to have failed the test, if there is any ingress of water in inner package or rounds found wet. The Amn shall be considered to have failed in Environmental Tests if :- (i) Any cracks/bulge is observed on round during visual examination. (ii) Rounds have failed to pass chamber gauge. (iii) Any filling defect is observed during radiographic examination.

Annexure – II to Appendix-'D-III'

DYNAMIC FIRING

Sl. No.	Test	Sample Size	Weapon/ Equipment	Method	Observations	Acceptance Criteria
1.	Range and Reliability of functioning of rounds conditioned at:- (a) + 45 ± 5 °C, for 04 Hrs (b) Minus 20 ± 5 °C, for 04 Hrs (c) Ambient Temp.	32 Nos at each temp condition (Total 96 Nos).	40mm MGL In-Service Weapon. (Ex-South Africa)	Rounds should be fired in Single Shot Mode at the elevation corresponding to max range.	(a) Effective Range. (b) Premature. (c) Misfire. (d) Primer Blow Back. (e) Blind. (f) Hard Extraction. (g) Round stuck up in Barrel. (h) Projectile breaks up in flight within 50 m of Launcher. (j) Pierced Cap. .	**Acceptance Criteria Applicable for each Temp Condition.** (a)**Range**. Average Range should be between 375 to 400m and Range of Individual round should not be less than 375m. (b) **Attribute** (DCL). (i) **Critical Defect**. Premature. (ii) **Major Defects**. (aa) Misfire. (ab) Primer Blow Back. (ac) Blind. (ad) Hard Extraction. (ae) Round stuck up in Barrel. (af) Projectile breaks up in flight within 50 m of Launcher. (ag) Pierced Cap. **Note**. (a) Critical Defect not permitted. (b) Reliability for Attribute Defect should be more than 93% at each temperature condition.

Sl. No.	**Test**	**Sample Size**	**Weapon/ Equipment**	**Method**	**Observations**	**Acceptance Criteria**
2.	Non- Arming at 8 m and Muzzle Velocity.	20 Nos	(a) 40mm MGL In-Service Weapon or Ballistic Barrel with stand. (b) Doppler Radar.	(a) Rds to be fired in Single Shot Mode to impact on 6 mm nominal thick Hard Board / Ply wood Target placed at a distance of 8 ± 0.1 m from the muzzle. (b) Target to be repaired/ replaced after firing of each round so that no round shall pass through a hole in the target caused by previous round. (c) Velocity will be measured by Doppler Radar.	(a) Functioning of the round on or before the target. (b) Muzzle Velocity	(a) No round should function on or before the target. (b) The mean Muzzle Velocity and std Deviation should be within specified limits / as per the OEM specification. **Note**. Critical Defect, Premature, is not permitted.

Sl. No.	Test	Sample Size	Weapon/ Equipment	Method	Observations	Acceptance Criteria
3.	Aim Test.	20 Nos	40mm MGL In-Service Weapon or Ballistic Barrel with stand.	(a) Rounds to be fired at range of 150 m in Single Shot mode. Elevation to be set accordingly. (b) Target.- Ground	Fall of shot / Range	All Rounds should fall within 30% of the aimed distance. **Note**. Critical Defect, Premature, is not permitted.
4.	Consistency.	30 Nos	40mm MGL In-Service Weapon	Rounds to be fired on vertical target of size 2X2 m of suitable MS Plate/ Particle Board/ Hessian Cloth placed at a distance of 75 m to obtain clear impressions of hits.	Dispersion of Rds.	25 out of 30 rounds should have a grouping of 0.95 m x 0.95 m. **Note**. Critical Defect, Premature, is not permitted.
5.	Arming at 28 m	20 Nos	40mm MGL In-Service Weapon	(a) Rounds shall be fired to impact on 6 mm nominal thick Hard Board / Ply wood Target placed at a distance of 28 ± 0.1 m from the muzzle. (b) Target to be repaired/ replaced after firing of each round so that no round shall pass through a hole in the target caused by previous round.	Functioning of the round on or before the target.	All rounds should function on hitting the target. **Note**. Critical Defect, Premature, is not permitted.

Sl. No.	**Test**	**Sample Size**	**Weapon/ Equipment**	**Method**	**Observations**	**Acceptance Criteria**
6.	(a) Dynamic Firing of Bounce Tested Rounds. (after Water Immersion Test) (Inert Round with Live Fuze i.e. Box No – 2). (b) Dynamic firing of Vibration tested Rounds. (after Water Immersion Test) (Inert Round with Live Fuze i.e. Box No -4)	10 Nos 10 Nos	40 mm MGL in-service Weapon	Round to be fired at Max range (400 m).	Attribute. (a) *Premature. (b) Blind. (c) Misfire. (d) Primer blow back. (e) Round stuck up. (f) Failure to extract the cartg case. For info only. (a) Duration of Smoke emission. (b) Colour of Smoke Emission (Orange/ other than Orange). (c) Range. * Premature. Any round functioning in the barrel or during flight.	Defect Classification. **Attribute** (DCL). (i) **Critical Defect**. Premature. (ii) **Major Defects**. (aa) Misfire. (ab) Primer Blow Back. (ac) Blind. (ad) Hard Extraction. (ae) Round stuck up in Barrel. (af) Projectile breaks up in flight within 50 m of Launcher. (ag) Pierced Cap. **Note**. (a) Critical Defect not permitted. (b) Reliability for Attribute Defect should be more than 93% in each case (Bounce Tested samples & Vibration Tested samples).

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Appendix 'D-IV'
(Refers to para 7(c)(i) (ad) of Part-I of RFP)

DGQA EVALUATION PROGRAMME FOR 40 mm HEAP AMN

1. **Aim.** To assess the suitability pertaining to the Functional, Ballistic and Safety requirements of the amn.

2. **Ammunition Required.** Details are as under:-

(a) **Dynamic Firing**. **Total 216 Rounds (186** Rds for Functioning Test + **10** Rds as Sighter / Warmer/ Reserve + **20** Environmental tested Rds for Dynamic firing as per Sl No 6 of enclosed Annexure-II)

(b) **Environmental Test**. To be conducted as per Specn JSG 0102 / MIL-STD-331 **Total Qty- 60 Nos** .

(i) 03 Packages (inner & outer) each with 10 Nos Live Round assembled with inert Fuze. (Package No 1, 3 and 5)

(ii) 03 Packages (inner & outer) each with 10 Nos Inert Round assembled with Live Fuze. (Package No 2, 4 and 6)

Note:

(a) OEM in his technical offer should confirm that the amn subjected to environmental tests As per **Annexure-I** and is safe for subjecting to dynamic firing.

(b) In case, due to any reason, it is not feasible to conduct these tests during DGQA Evaluation then OEM Certificate of conforms for subject tests shall be considered acceptance.

(c) Facilities for conducting of the Environmental tests as mentioned in Annexure – I attached will be provided by vendor. In case non availability of the facilities with the Vendor, the tests can be carried out at DGQA/ DRDO/ OFB Lab, if available. If the facilities are not available at DGQA/ DRDO/ OFB Lab then these tests to be carried out at private NABL accredited Lab and the charges for the same to be borne by the Vendor.

(d) Based on the type of packages offered by the Vendor & technical specifications, environmental tests in packages amn will be suitably modified by DGQA.

3. **Responsibility.** Proof Range, DGQA.

4. **Evaluation Team.**

(a) Rep of DGQA.

(b) Rep of User.

(c) Rep of Vendor / OEM.

5. **Safety Certificate.** To be provided by the Vendor / OEM.

6. **Weapon.**

(a) 02 Nos of 40 mm UBGL (Ex-Trichy) and 02 Firers to be provided by the User for Evaluation. The Weapons to accompany History Sheet indicating No of rounds fired.

(b) Ballistic Barrel, Stand, Mounting, Fixtures and Targets to be provided by the OEM at no additional cost.

Note - In case OEM does not **intend to** provide Ballistic Barrel, Stand**, Mounting, Fixtures** and Targets, **the same shall be informed to MGO and HQ DQA (A) during Pre-Pre-Trial Meeting**. Thereafter the Evaluation will be done using in-service

weapon, targets, fixtures and infrastructure available at Proof Range, DGQA and results thereof will have to be accepted by OEM.

7. **Aspects to be checked During Visual Inspection .**

(a) Packing. 100%.

(i) Method of Packing.

(ii) Marking / Stenciling on Packages.

(iii) UN Classification / Hazard Division.

(iv) Stowage Dimensions of Package.

(v) Damaged Package.

(b) Visual Inspection of Rounds. Qty 80 rounds (to be selected randomly)

(i) Visual Inspection of Rounds.

(ii) Marking / Stenciling on Round.

(c) Physical Parameters. Sample Size - 20 Nos (to be selected randomly).

Sr No	Parameters	Specified	Acceptance Criteria
(i)	Length.	As per OEM/ Vendor specification	All parameters should be within the specified limits as per OEM/ Vendor specification
(ii)	Mass		

(d) Chamber Gauging. 100% (Chamber Gauge to be provided by the OEM / Supplier)

(e) Environmental Testing. Vendors to provide certificate of conformance along with test results to confirm the ammunition is subjected to environmental tests like Bounce (Jolt), Vibration (Jumble) and Impact (Drop) Test as per JSG 0102 / MIL-STD - 331 latest issue and the ammunition is safe to fire before dynamic evaluation.

(f) Dynamic Firing. To be conducted as per **Annexure - II**.

Note.

(i) The Parameters mentioned at Para 7 (a) and (b) are to be recorded for reference and shall have no bearing on sentencing.

(ii) Pre-requisites for Trial Evaluation.

(aa) The Draft DGQA Technical Evaluation Programme will be discussed with OEM in Pre-Pre-Trial Meeting. However, Final decisions regarding the DGQA Technical Evaluation Programme including all its provisions therein will be that of DGQA.

(ab) OEM may provide the following equipment for DGQA Technical Evaluation at no additional cost if any of these equipment available at

Proof Range are not considered acceptable to OEM.

- Ballistic Barrels.
- Targets.
- Weapon/Barrel Mounting Fixtures.
- The above requirements will be discussed and decided in the Pre- Pre-Trial- Evaluation Meeting with OEM. The final list of the agreed items will be provisioned by OEM for DGQA Technical Evaluation.

(ac) DGQA Technical Evaluation will be conducted as per the Infrastructure, Facilities, Conditions, Testing/Measurement Methodology, Equipment (α), Targets(α), Fixtures(α), Service weapons/Ballistic Barrels(α) etc available at Proof Range and Testing laboratories

OEM will have to accept these and results thereof.

Note. (α) In case OEM does not intend to provide these Equipment, Targets, Fixtures & Ballistic Barrels.

8. **Documents / Intimation Required from OEM**.

(a) Technical Literature and User Manual of ammunition giving details of general Construction, Functioning and Safeties incorporated.

(b) Restrictions if any in handling, transportation and exploitation of the ammunition.

(c) UNHD / Compatibility Group.

(d) Range Table.

9. **Verification of Certificates.** Supplier shall submit following certificates & reports of amn lot from which the samples are offered for evaluation.

(a) Certificate of visual and dimensional inspection of complete rounds.

(b) Certificate of Conformity of primer Inspection.

(c) Certificate of Shell inspection and firing tests.

(d) Certificate of Fuze inspection and firing tests.

(e) Certificate of Propellant inspection and firing tests.

(f) Safety certificate mentioning samples offered for trial are safe for handling.

(g) Certificate of accreditation of the laboratory from where testing results have been obtained from NABL / A recognized international body.

Note:- Physical verification of parameters claimed in CoC may be carried out depending on availability of test facilities in Proof Ranges / nominated labs in India.

10. In case it is not feasible to check certain parameters during DGQA Evaluation, then these would be accepted based on Certificate of Conformation. The same to be provided by

Vendor and should be accompanied by all test results / Certificate from NABL or an internationally recognized / accredited Laboratory.

11. **Conclusion.** The DGQA Evaluation programme is based on GSQR/ToT/ Past procurement. However these Draft Directives are liable to modifications based on the technical specifications submitted by the vendors, the facilities available at the testing ranges and the discussion with the OEM reps during pre- trial meeting.

ANNEXURE –I of Appendix 'D-IV
(Refers to para 7(c)(i) (ad) of Part-I of RFP)

ENVIRONMENTAL TESTS
(Example quoted as per *Specn No JSG-0102(Part-II)*)

Sr No	Test Name	Sample Size	Test Parameters	Observations	Acceptance Criteria
1.	Bounce Test.	(a)1 Package (inner & outer) with Live Grenade assembled with inert Fuze. (Box No -1) (b)1Package (inner & outer) with Inert Grenade assembled with Live Fuze. (Box No -2)	Subject the package to a Bounce Test as defined in Appendix 'H' for a total duration of 60 minutes. The package shall be oriented so that its longest axis is parallel to the drive shafts of the Bounce Test Machine. Where the aspect ratio of the package (i.e. the ratio of the longest side to the shortest) does not exceed 3:1 and the package mass does not exceed 50 Kg then the attitude of the package shall be arranged so that one- third of the total test time is spent with each of 3 mutually perpendicular faces of the package in contact with the bouncer table. Where the package is marked with preferred transport attitude, e.g. " this way up" then the whole test should be performed with the package in that attitude.	After the test, packages (external and internal) shall be visually examined for the following:- (a) Any major damage to outer Package/ inner Package/container/ Contents. (b) Catches, handles, hinges, planks/latches/ fitments are not damaged to such an extent that they are beyond minor repairs by slight tapping with mallet. (c) Welding (if any) should be intact. (d) Packages should be easy to open and close. (e) Containers/Liners/ Cylinders/Boxes packed therein should be easily removable.	The package shall be examined after the Bounce test and considered to have failed the test, if :- (a) The outer/ inner package is broken/ cracked. (b) Outer package could not be easily opened and closed and inner package is could not be easily removable. (c) The contents or the Package are affected in any way which could cause the contents to become unsafe or Unserviceable.

Sr No	Test Name	Sample Size	Test Parameters	Observations	Acceptance Criteria
2.	Vibration Test.	(a)1 Package (inner & outer) with Live Grenade assembled with inert Fuze. (Box No -3) (b)1Package (inner & outer) with Inert Grenade assembled with Live Fuze. (Box No -4)	Vibration test will be carried out with the vibration frequency swept logarithmically over the stated range at a rate not exceeding one Octave/min :- (a) Package of upto 70 kg in mass shall be vibrated for 2 hours in each of 3 mutually perpendicular planes at a constant peak to peak displacement of 12 mm over the frequency range 5 to 11 Hz and at constant peak acceleration of 30 m/s^2 over the frequency range 11 to 350 Hz. Test Duration. 22 minutes, 5 to11 HZ and 11 to 350 Hz respectively. Repeated in each plane. (b) Packages of over 70 kg in mass shall be vibrated when standing on the base for a total of 6 hours at a constant peak-to-peak displacement of 12 mm over the frequency range 5 to 9 Hz, at a constant peak acceleration of 20 m/s^2 over the frequency range 9 to 150 Hz. Test Duration. 62 minutes and 298 minutes for the ranges 5 to 9 Hz and 9 to 150 Hz respectively.	After the test, packages (external and internal) shall be visually examined for the following:- (a) Any major damage. (b) Catches, handles, hinges, planks/latches/ fitments are not damaged to such an extent that they are beyond minor repairs by slight tapping with mallet. (c) Welding (if any) should be intact. (d) Packages should be easy to open and close. (e) Containers/Liners/ Cylinders/Boxes packed therein should be easily removable.	The package shall be examined after the Vibration Test and considered to have failed the test, if :- (a) The outer/ inner package is broken/ cracked. (b) Outer package could not be easily opened and closed and inner package is could not be easily removable. (c) The contents or the Package are affected in any way which could cause the contents to become unsafe or Unserviceable.

<table>
<tr><th>Sr No</th><th>Test Name</th><th>Sample Size</th><th>Test Parameters</th><th>Observations</th><th>Acceptance Criteria</th></tr>
<tr>
<td>3.</td>
<td>Impact (Vertical)</td>
<td>(a)1 Package (inner & outer) with Live Grenade assembled with inert Fuze.
(Box No -5)

(b)1Package (inner & outer) with Inert Grenade assembled with Live Fuze.
(Box No -6)</td>
<td>(a) The package shall be allowed to fall freely through a distance ‘d’ measured between the lowest point of package and an impacting steel surface of at least 6mm thick, wet floated steel plate and bolted down to concrete of 0.45m minimum thickness. The tests to be carried out as per the details given in JSG 0102 Part II.

(b) The drop height ‘d’ shall be determined by the mass of the package in accordance with following table:-
<table>
<tr><th>Package Mass</th><th>First Drop Height</th><th>Remaining Drop Heights & No of Drops</th></tr>
<tr><td>0 – 70 Kg</td><td>One drop of 1.5m</td><td>Six drops of 0.3m</td></tr>
<tr><td>71 – 125 Kg</td><td>One drop of 0.9m</td><td>Six drop of 0.15m</td></tr>
<tr><td>126 – 500 Kg</td><td>One drop of 0.6m</td><td>Six drop of 0.15m</td></tr>
</table>
(c) Radiographic films of Rounds to be provided by OEM (ie Rounds from Package No 5 & 6 in order to compare them with radiographs of the Rounds post Impact Test)</td>
<td>(a) The store should not be damaged, explode or detonate when subjected to this test.

(b) Although it is expected that the package will be considerably damaged, the content should be safe for removal and disposal.

(c) Comparison of Radiographic Films before & after Tests for any damages to filling/ distortion of Assys.</td>
<td>(a) The package shall be considered to have failed the test, if the store is detonated or explodes and if there is any damage to the content of the package.
(b) Any major damages to filling/ distortion of Assys which can cause the store to become unsafe/ unserviceable.</td>
</tr>
</table>

Sr No	Test Name	Sample Size	Test Parameters	Observations	Acceptance Criteria
4.	Water Immersion Test	(a) Package (inner & outer) with Live Grenade assembled with Inert Fuze. (Box No -1&3) (b) 01 Package (inner & outer) with Inert Grenade assembled with Live Fuze. (Box No -2&4)	Bounce and Vibration tested Packages (Box No 1 to 4)shall be subjected to Water Immersion Test as under:- (a) <u>Rectangular Packages up to 250 Kg</u>. Each face shall be immersed in sequence for a period of 20 minutes to a depth of 0.15m in water at a temperature not exceeding 27°C. (b) <u>Rectangular Packages over 250 Kg</u> . Immersion shall be carried out sequence for a period of 20 minutes to a depth of 0.15m in water at a temperature not exceeding 27°C. With the package standing on the base or face upon which it is normally expected to be transported or stored. (c) <u>Cylindrical Packages.</u> The head and tail of the packages shall be immersed alternately for a period of 20 minutes to a depth of 0.15m in water at a temperature not exceeding 27°C. (d) After Water immersion Test the rounds from all the packages shall be subjected to :- (i) Visually Examination. (ii) Chamber Gauging (to be provided by OEM). (iii) Radiographic Examination. **<u>Note</u>** (i) X-ray films of Inert Rounds should be obtained from OEM (ie Rounds from Package No 1 ,2, 3 and 4, in order to compare them with the radiographs of the Rounds post Bounce, Vibration and Water immersion)Rounds from Package No 2 and 4 i.e Inert Grenade assembled with Live Fuze if found satisfactory in Visual, Chamber gauging and Radiographic examination will be subjected to Dynamic firing as per details given in Annexure –II.	(a) Air leakage. (b) The interior of package shall be free from water and there shall be no sign of round in the container having got wet. **<u>Observations after water Immersion Test.</u>** (a) Cracks/ Bulge on rounds. (b) Smooth passing of rounds through Chamber Gauge. (c) Any apparent defects in filling of Shell/ Fuze.	The package shall be considered to have failed the test, if there is any ingress of water in inner package or rounds found wet. The Amn shall be considered to have failed in Environmental Tests if :- (i) Any cracks/bulge is observed on round during visual examination. (ii) Rounds have failed to pass chamber gauge. (iii) Any filling defect is observed during radiographic examination.

Contd-P/9

Annexure - II ANNEXURE –I of Appendix 'D-IV
Refers to para 7(c)(i) (ad) of Part-I of RFP)

DYNAMIC FIRING

Sl. No.	Test	Sample Size	Weapon/ Equipment	Method	Observations	Acceptance Criteria
1.	Range and Reliability of functioning of rounds conditioned at:- (a) Condition at minus 20 ± 5ºC for 04 hours. (b) Ambient Temp (c) Condition at +45 ± 5ºC for 04 hours.	32 Nos at each temp condition (Total 96 Nos).	40mm UBGL (Ex-Trichy)	Rounds should be fired in Single Shot Mode at the elevation corresponding to max range.	(a) Effective Range. (b) Premature. (c) Misfire. (d) Primer Blow Back. (e) Blind. (f) Hard Extraction. (g) Round stuck up in Barrel. (h)) Projectile breaks up in flight within 50 m of Launcher. (j) Pierced Cap. .	**Acceptance Criteria Applicable for each Temp Condition.** (a) **Range**. Average Range should be between 375 to 400m and Range of Individual round should not be less than 375m. (b) **Attribute** (DCL). (i) **Critical Defect**. Premature. (ii) **Major Defects**. (aa) Misfire. (ab) Primer Blow Back. (ac) Blind. (ad) Hard Extraction. (ae) Round stuck up in Barrel. (af) Pierced Cap. (ag) Projectile breaks up in flight within 50 m of Launcher. **Note**. (a) Critical Defect not permitted. (b) Reliability for Attribute Defect should be more than 93% at each temperature condition.

Sl. No.	**Test**	**Sample Size**	**Weapon/ Equipment**	**Method**	**Observations**	**Acceptance Criteria**
2.	Non- Arming at 8 m and Muzzle Velocity.	20 Nos	(a) 40mm UBGL (Ex-Trichy) Weapon or Ballistic Barrel with stand. (b) Doppler Radar.	(a) Rds to be fired in Single Shot Mode to impact on 6 mm nominal thick Hard Board / Ply wood Target placed at a distance of 8 ± 0.1 m from the muzzle. (b) Target to be repaired/ replaced after firing of each round so that no round shall pass through a hole in the target caused by previous round. (c) Velocity will be measured by Doppler Radar.	(a) Functioning of the round on or before the target. (b) Muzzle Velocity	(a) No round should function on or before the target. (b) The mean Muzzle Velocity and std Deviation should be within specified limits / as per the OEM specification. **Note**. Critical Defect, Premature, is not permitted.
3.	Aim Test.	20 Nos	40mm UBGL (Ex-Trichy) Weapon or Ballistic Barrel with stand.	(a) Rounds to be fired at range of 150 m in Single Shot mode. Elevation to be set accordingly. (b) Target. Ground	Fall of shot / Range	All Rounds should fall within 30% of the aimed distance. **Note**. Critical Defect, Premature, is not permitted.

Sl. No.	**Test**	**Sample Size**	**Weapon/ Equipment**	**Method**	**Observations**	**Acceptance Criteria**
4.	Consistency.	30 Nos	40mm UBGL (Ex-Trichy) Weapon	Rounds to be fired on vertical target of size 2X2 m of suitable MS Plate/ Particle Board/ Hessian Cloth placed at a distance of 75 m to obtain clear impressions of hits.	Dispersion of Rds.	25 out of 30 rounds should have a grouping of 0.95 m x 0.95 m. **Note**. Critical Defect, Premature, is not permitted.
5.	Arming at 28 m	20 Nos	40mm UBGL (Ex-Trichy) Weapon	(a) Rounds shall be fired to impact on 6 mm nominal thick Hard Board / Ply wood Target placed at a distance of 28 ± 0.1 m from the muzzle. (b) Target to be repaired/ replaced after firing of each round so that no round shall pass through a hole in the target caused by previous round.	Functioning of the round on or before the target.	All rounds should function on hitting the target. **Note**. Critical Defect, Premature, is not permitted.

Sl. No.	Test	Sample Size	Weapon/ Equipment	Method	Observations	Acceptance Criteria
6.	(a) Dynamic Firing of Bounce Tested Rounds. (after Water Immersion Test). (Inert Round with Live Fuze i.e. Box No -2) (b) Dynamic firing of Vibration tested Rounds. (after Water Immersion Test). (Inert Round with Live Fuze i.e. Box No - 4)	10 Nos 10 Nos	40 mm UBGL (Ex-Trichy) Weapon	Round to be fired at Max range (400 m).	Attribute. (a) *Premature. (b) Blind. (c) Misfire. (d) Primer blow back. (e) Round stuck up. (f) Failure to extract the cartg case. (g) Projectile breaks up in flight within 50 m of Launcher. (h) Pierced Cap. * Premature. Any round functioning in the barrel or during flight.	Defect Classification. **Attribute** (DCL). (i) **Critical Defect**. Premature. (ii) **Major Defects**. (aa) Misfire. (ab) Primer Blow Back. (ac) Blind. (ad) Hard Extraction. (ae) Round stuck up in Barrel. (af) Projectile breaks up in flight within 50 m of Launcher. (ag) Pierced Cap. **Note**. (a) Critical Defect not permitted. (b) Reliability for Attribute Defect should be more than 93% in each case (Bounce Tested samples & Vibration Tested samples).

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Appendix 'E-I'
(Refers to Part-I,para 7(c) (ii)

METHODOLOGY AND DISTR OF 40MM UBGL INSAS AND MGL 40MM AMMUNITION USER TRIALS

S/No	Parameters	Test	Methodology	Nos of Rds fired	Remarks
1.	Physical characteristics	Physical verification	Verification of all physical parameters to be carried out.	Nil	Conducted from within ammunition allotted for subsequent tests.
2.	Accuracy	Firing to be conducted at fwg rgs:- (a) 100M (b) 200M (c) 375M	(a) 06 rds to be fired at each rg. (b) Tgt area marked on grnd & indicated by 4'x4' tgt/flag.	18	(a) Both parameters to be assessed simultaneously. (b) Considering arming dist of 28m, min rg of firing be taken as 30m.
3.	Cas area	Fig 11 tgts placed longitudinally at dist of 5m, 10m & 15m on both sides of pt of aim.	Rds to be fired within designated tgt area & hits recorded on tgts after each fire.	06	
4.	Percentage of misfires		Assessed during complete firing		Total tabulated at end of trial. Max of 5% blinds/ misfires acceptable (i.e. 95% reliability).
5.	Percentage of blinds				
6.	Effect of sustained firing by MGL	Firing of 24 rds rapid fire each during day & ni	Stoppages, heating or any abnormalities to be checked	48	
7.	Excessive Smk	Smk emitted from barrel to be checked	Assessed during Ser 6		Test to be conducted during day firing of Ser 6Above
8.	Flash	Relative size of flash emitted from barrel to be recorded			Test to be conducted during ni firing of Ser 6 above

S/No	Parameters	Test	Methodology	No of Rds fired	Remarks
9.	Effect on eyes	Adverse effects, if any, on eyes to be recorded			Test to be conducted during day & ni firing of Ser 8 above
10.	Fouling		Assessed during Ser 6		Test to be conducted on completion of day firing of Ser 8 above
11.	Packing mtrl robustness	(a) Physical verification of ruggedness of packing mtrl (b) Tn over 20-30 km in cross country route (c) Rough handling, loading, unloading and stocking of amn packing box/crates	One sealed wooden crate and metallic amn box to be subjected to testing	-	One each of widen and metallic amn pkg sealed with live amn as recd from vendor will be subjected to testing.
12.	Water immersion test	Amn to be fired after being immersed in water	18 rds to be immersed completely in water for 30 mins. Thereafter the rds to be removed, wiped and fired	18	06 rds to be fired each at close, inter & far rgs to ascertain deviation from std firing pattern
13.	Safety		During entire trials		No deviation from safety acceptable i.e. 100% safety parameters to be achieved.
			Reqmt	**90**	
Reqmt for trials-90 rds. In addn qty 12 rds reqd for familiarization and 10% res. Thus total reqmt for one trial is 113 rds. Another 113 rds reqd for trials in HAA. (Total -226)				**113**	
			Grand Total reqmt	**452**	'R' to be carried out separate trials for MGL & UBGL wpns.

Appendix 'E-II"

(Refers to Part -1, para 7 (c) (ii) of RFP)

METHODOLOGY AND REQUIREMENT OF AMMUNITION FOR USER TRIALS FOR AMMUNITION FOR 40 MM MGL HEDP

Ser No	Parameters	Test	Methodology	No of Rounds Fired	Remarks
1.	Physical characteristics	Physical verification	Verification of all physical parameters to be carried out	Nil	Conducted from within ammunition allotted for subsequent tests
2.	Minimum & Maximum ranges	Firing to be conducted at following ranges:- 30 M 100 M 200 M 375 M	(a) 06 rounds to be fired at each range. (b) Target area marked on ground & indicated by 4'X4' target/flag.	24	(a) Both parameters to be assessed simultaneously. (b) Considering arming dist of 28 m, min range of firing be taken as 30 m.
3.	Accuracy & consistency				
4.	Maximum effective ranges	-	Assessed during Ser 3	-	-
5.	Casualty area	Figure 11 targets placed longitudinally at dist of 5 m, 10 m &15 m on both sides of point of aim	Rounds to be fired within designation target area & hits record on targets after each fire	06	-
6	Percentage of misfires	-	Assessed during complete firing	-	Total tabulated at end of trial
7.	Percentage of blinds	-	Assessed during complete firing	-	Total tabulated at end of trial
8.	Effect of sustained firing by MGL	Firing of 24 rounds rapid fire each during day & night	Stoppages, heating or any abnormalities to be checked	48	-
9.	Excessive Smoke	Smoke emitted from barrel to be checked	Assessed during Ser 8	-	Test to be conducted during day firing of Ser 8 above
10.	Flash	Relative size of flash emitted from barrel to be recorded	Assessed during Ser 8	-	Test to be conducted during night firing of Ser 8 above
11.	Effect on eyes	Adverse effects, if any, on eyes to be recorded	-	-	Test to be conducted during day & ni firing of Ser 8 above
12.	Fouling	-	Assessed during Ser 8	-	Test to be conducted during day firing of Ser 8 above

Ser No	Parameters	Test	Methodology	No of Rds Fired	Remarks
13.	Packing material robustness	(a) Physical verification. (b) Tn over 20-30 km in cross country route.	06 Rounds to be subjected to tn test	06	-
14.	Effect of 40 mm HEDP ammunition against the following (a) 50 mm Armour Plate. (b) 65mm Mild Steel Plate. (c) 400 mm Concrete Wall.	18 Rounds to be fired against each type of plate /wall at following dist:- (a) 06 rounds at 50m. (b) 06 rounds at 150m. (c) 06 rounds at 200m.	Degree of penetration to be recorded	54	-
15.	Water immersion test	Ammunition to be fired after being immersed in water	18 Rounds to be subject to water test	18	06 Rounds to be fired each at close, inter & far ranges to ascertain deviation from standard firing pattern
16.	Safety		Assessed during entire trials	18	
Requirement				154	
Ammunition required for familiarization				12	
Total				166	
10% Reserve				16.6 say 17	
Total requirement				183	
17.	Requirement of Ammunition for trials in High Altitude Area			183	
Grand total requirement				**366**	

Appendix E-III

(Refers to Part-1, para 7(c) (iii) of RFP)

METHODOLOGY AND REQUIREMENT OF AMMUNITION FOR USER TRIALS FOR AMMUNITION FOR 40 MM MGL RP

Ser No	Parameters	Test	Methodology	No of Rounds Fired	Remarks
1.	Physical characteristics	Physical verification	Verification of all physical parameters to be carried out	Nil	Conducted from within ammunition allotted for subsequent tests
2.	Minimum & Maximum ranges	Firing to be conducted at following ranges:-	(a) 06 rounds to be fired at each range.	24	(a) Both parameters to be assessed simultaneously.
3.	Accuracy & consistency	30 M 100 M 200 M 375 M	(b) Target area marked on ground & indicated by 4'X4' target/flag.		(b) Considering arming dist of 28 m, min range of firing be taken as 30 m.
4.	Maximum effect range	-	Assessed during Ser 3	-	-
5.	Smoke Emission	-	Duration of Smoke Emission to be recorded.	06	-
6	Percentage of misfires	-	Assessed during complete firing	-	Total tabulated at end of trial
7.	Percentage of blinds	-	Assessed during complete firing	-	Total tabulated at end of trial
8.	Effect of sustained firing by MGL	Firing of 24 rounds rapid fire each during day & night	Stoppages , heating or any abnormalities to be checked	48	
9.	Excessive Smoke	Smoke emitted from barrel to be checked	Assessed during Ser 8	-	Test to be conducted during day firing of Ser 8 above
10.	Flash	Relative size of flash emitted from barrel to be recorded	Assessed during Ser 8	-	Test to be conducted during night firing of Ser 8 above
11.	Effect on eyes	Adverse effects, if any, on eyes to be recorded	-	-	Test to be conducted during day & night firing of Ser 8 above

Ser No	Parameters	Test	Methodology	No of Rounds Fired	Remarks
12.	Fouling	-	Assessed during Ser 8	-	Test to be conducted on completion of day firing of Ser 8 above
13.	Packing material robustness	(a) Physical verification. (b) Tn over 20-30 km in cross country route.	06 Rounds to be subjected to tn test	06	-
14.	Water immersion test	Ammunition to be fired after being immersed in water	18 Rounds to be subject to water test	18	06 Rounds to be fired each at close, inter & far target to ascertain deviation from std firing pattern
15.	Safety	-	Assessed during entire trials		Total tabulated at end of trial
Requirement				102	
Ammunition required for familiarization **Total**				12 114	
10% Reserve				11.4 say 12	
Total requirement 16. Requirement of Ammunition for trials in High Altitude Area **Grand total requirement**				126 126 **252**	