

No. 90211/SOP/Proof/DGQA/Tech Coord-16TC

29 Dec 2023

**MINISTRY OF DEFENCE**  
**(DGQA / TECH COORD / 16TC)**

**SOP FOR ALLOTMENT AND UTILISATION OF PROOF RANGES/ LAB TESTING**  
**FACILITIES BY PRIVATE DEFENCE INDUSTRY**

1. As per directives of AS(DP) a presentation on the proposed draft SOP on the subject and its implementation aspects in the Defence Testing Portal is to be made in 2<sup>nd</sup> week of Jan 2024 (Tentatively). The exact date and time is being ascertained. The Presentation will be prepared in two parts, as follows:-


(a) Part-I : Salient aspects of revised SOP for allotment and utilisation of proof ranges/ lab testing facilities by private defence industry with emphasis on changes incorporated - to be prepared by DQA(Armt).

(b) Part-II : Implementation aspects/ methodology of incorporating the SOP in Defence Testing Portal – to be prepared by SDCC.

2. Brig Aakash Bajaj , Brig QA (Wpn), Lt Col Amitesh Sinha, GSO-1QA(Wpn) and Dir/Offg SDCC are requested to prepare and present the above mentioned presentation to ADGQA(PP&T) on 08 Jan 2024. Comments of MoD/DDP on the subject case file may be referred by concerned offrs while preparing.

3. Copy of the proposed draft SOP is enclosed herewith.

4. This is for info and necessary action, please.

  
(R Sahaya Raj)  
Col  
GSO-I QA (PP&T)

Encl. : As above

**DQA(Armt)**

**SDCC**

**Copy to:**

TS to DG DGQA

**STANDARD OPERATING PROCEDURE**  
**FOR**  
**ALLOTMENT AND UTILISATION OF**  
**PROOF, FIELD FIRING RANGES AND**  
**TESTING FACILITIES**  
**BY**  
**GOVT AGENCIES, DPSUs &**  
**PRIVATE INDUSTRY**

**DEC 2023**

# **STANDARD OPERATING PROCEDURE FOR ALLOTMENT AND UTILISATION OF PROOF AND FIELD FIRING RANGES BY GOVT AGENCIES/ DPSUs / PRIVATE INDUSTRY**

## **General**

1. The MoD is committed to facilitate active participation of the Govt Agencies/ DPSUs/Private Industry (Registered Defence Vendor) to rapidly take forward Government of India initiative of 'Make in India' programme in the defence sector. It envisions creation of a well-developed defence industrial base as a functional imperative for modernisation of the Indian Armed Forces. Towards achieving this goal various initiatives have been taken by Ministry of Defence like GoI policy on indigenisation wherein Industry is encouraged to indigenise products in lieu of imported stores and launch of Defence Export Promotion Scheme to encourage Indian Defence Manufacturer for export promotion. One of the main impediments holding back the Private Industry is the non-availability of firing ranges to carry out R&D. It is well understood that the Govt Agencies, DPSUs and Private Industry would require prior facilities to evaluate and test the equipment developed by them. Presently, minimal proof / testing facilities are available outside of the Government owned infrastructure and it may not be financially viable for companies to create a huge proof testing infrastructure.

2. Testing and proving facilities are only held with various MoD agencies i.e. SHQ(Army), DGQA, DRDO, DGAQA, DGNAI and DPSUs. These include firing ranges, laboratories and trained personnel of these agencies. To assist the Indian private firms in achieving the 'Make in India' initiative and to further test and improve their products, there is a need to streamline the guidelines for allotment and utilization of Proof/Field Firing Ranges for Govt Agencies, DPSUs & Private Industry through this Standard Operating Procedure (SOP).

## **Aim**

3. To lay down the Standard Operating procedure for allotment and utilisation of Proof / Field Firing Ranges/ Test Facilities under the MoD by Govt Agencies, DPSUs & Private Industry.

## **Layout of SOP**

4. The SOP for Allotment and Utilisation of Proof and Field Firing Ranges/ Test Facilities by Govt Agencies, DPSUs & Private Industry (herein will be referred as Requisitioning Agency) is laid out in two parts as under:-

- (a) **Part I.** Overview of trials.
- (b) **Part II.** Allotment and utilisation of firing ranges: -
  - (i) For Army Field Firing Ranges.
  - (ii) For DGQA Proof Ranges.
  - (iii) For DRDO Proof Ranges.
  - (iv) For DGAQA Proof Ranges.
  - (v) For DGNAI Proof Ranges.
  - (vi) For DPSUs Proof Ranges.

## **PART I : OVERVIEW OF TRIALS**

### **Types of Trials**

5. Trials required to be undertaken by the requisitioning agency can be classified into two broad categories: -

- (a) **Evolutionary Ballistic Trials (Armament and Explosives Related).** Ballistic Trials relate to all armament, ammunition and other explosives related examination, including blast trials for materials, such as composites and steel, and vehicles fitted with such materials (light armoured vehicles, etc).
- (b) **All types of Test / Trials less Ballistic Trials (Including Mechanical, Electrical, etc).** Functional trials relate to all types of tests other than those related to armament, ammunition and explosives. These Test/trials encompass a wide variety of tests such as electronic / electrical tests / automotive trials, NBC trials, software development etc.

6. **Categorisation of Trials as per Stages of Development.** Trials / Tests can further be categorised as under: -

(a) **Developmental Trials (Conducted by Private Defence Industry/ DPSUs).** Developmental Trials are conducted by the Private Industry/ DPSUs during the course of product development. These trials are applicable to indigenously developed products and not imported equipment and do not form part of the User Trials but are carried out to bring the equipment to User Trial level. Developmental Trials are conducted in order to ensure that the equipment meets the desired parameters and safety standards, before it is offered for User Trials. These tests fall under the following categories: -

(i) **Proof Tests.** Proof test or stress testing is used by the product development agency to demonstrate the fitness of a system or entity by subjecting the same to deliberately intense testing (beyond normal operational capacity, often up to the breaking point).

(ii) **Experimental Testing.** Experimental tests are conducted in the course of product development, by generally manipulating one or more variables to determine their effect on a dependent variable.

(iii) **Validation Tests.** Validation trials of products will be required to be conducted by product developers to validate the products developed including carrying out of certain minor improvements/modification to products keeping the future requirements of armed forces or for technical demonstration or for export purposes. Internal evaluation will be carried out by the developer to check the performance of equipment during the product development phase.

(b) **Field Trials (Conducted under the Aegis of Service Headquarters).** Field Trials are conducted to assess the performance of the equipment against desired parameters. Field Trials are carried out under the aegis of a nominated directorate of the Service Headquarters by a nominated command or Trial Cell of User Directorate in Service Headquarter controlled ranges.

(c) **Indigenisation Trials (Conducted by Private Industry/ DPSUs).** To encourage indigenisation, especially of Armaments and Ammunition stores which is developed by Industry/ DPSUs as an indigenised product in lieu of imported products shall be taken up for proof testing at these proof ranges.

(d) **Trials for Defence Export Promotion.** Under the scheme for Defence Export Promotion any Indian Defence Manufacturer who has produced an item having export potential can get his product validated at these proof ranges.

### **Allotment of Ranges**

7. **Delegation of Authority for Allocation and Control.** With a large number of requisitioning agency players showing keen interest to set up manufacturing units, it is visualised that these entities would need to be provided with the existing testing infrastructure. To encourage defence production in the private sector all assistance possible will be provided by various Government / MoD stake holders to the industry.

8. In order to ensure a fair allotment of the facilities, it is considered prudent to adopt a decentralised approach for allocating these resources. Authority to exercise control and coordination of allotment of ranges has been delegated. The overall coordination of the allotment of ranges & test facilities will rest with the Additional Director General Quality Assurance (Armament) i.e ADGQA(Armt)/ Designated ADG level Officer of DGQA. The following HQs / offices are authorised to allocate the various types of ranges: -

(a) **Service HQ Controlled Field Firing Ranges/ Test Facilities (Army).** ADG ADB.

(b) **DGQA Proof Ranges & Test facilities.** ADGQA (A) / Designated ADG level officer of DGQA.

(c) **DRDO Proof Ranges /Test Facilities.** Director DIITM (Directorate of Industry Interface & Technology Management)

- (d) **DGAQA Proof Ranges/Test Facilities.** ADG(N&CZ), C/o HAL, Lucknow
- (e) **DGNAI/ Test Facilities.** –Cmde (API) DAPI, New Delhi.
- (f) **Test Facilities / Proof Ranges under new DPSUs.** Director/CGM/GM of respective new DPSUs.

9. The detailed procedure for allotment of the ranges and test facilities is as laid out in Part II of the SOP. Part II A deals with DGQA, DRDO, DGAQA, DGNAI & DPSUs proof ranges while Part II B deals with Service HQ (Army) Field Firing Ranges.

#### **PART II A : PROCEDURE FOR ALLOCATION AND UTILISATION OF PROOF RANGES AND TEST FACILITIES OF DGQA, DRDO, DGAQA , DGNAI & DPSUs**

10. In order to extend assistance to any requisitioning agency, guidelines are being issued for allotment and utilisation of proof and field firing ranges so that the procedures become as user friendly as possible. Processes for allocation and utilisation have been defined to include aspects of requisition, allotment procedure, availability of proof stock components/ ammunition and other consumables that may be required. Issues of range security, liability and compensation in case of accidents, legal approvals required by requisitioning agency, costing etc have been comprehensively addressed. Roles and responsibilities of all stakeholders have been clearly defined in the SOP. There are a number of proof and field firing ranges and test facilities with various departments of MoD & Service HQs. These ranges can be utilised for conducting R&D. Details of proof and field firing ranges and procedures for requisitioning and utilising these ranges are covered in two sub parts. The details of NABL accredited test facilities with organisation/ department under MoD are available on the NABL website ([nabl-india.org](http://nabl-india.org)) and respective on Departmental websites.

11. The test facilities / Proof ranges of DGQA, DRDO, **DGAQA**, DGNAI and DPSUs are available to Private Industry or any other govt agency for conducting tests, trials and proof tests. The details of facilities and infrastructure available in each agency are given in **Appendices A, B, C, D, DPSU 1, DPSU 2, DPSU 3, DPUS 4, DPSU 5, DPSU 6, DGAQA 1, DGAQA 2 & DGNAI**. Proof ranges under different departments of MoD are as under: -

(a) **DGQA.**

- (i) CPE, Itarsi.
- (ii) LPR, Khamaria.
- (iii) Any other proof ranges held with DGQA.

(b) **DRDO.**

- (i) PXE, Balasore.
- (ii) TBRL, Chandigarh.
- (iii) Any other proof ranges held with DRDO.

(c) **DGAQA.**

- (i) SPR (Short Proof Range) Khamaria
- (ii) Proof Range ORDAQA, Kirkee

(d) **DGNAI.** Naval Prof Team are available at LPR Khamaria, SPR Khamaria and PXE Balasore.

(e) **New DPSUs**

- (i) **Munitions India Ltd (MIL).**
  - (aa) OF Varangaon.
  - (ab) AFK Kirkee Pune.
- (ii) **Advanced Weapons and Equipment India Ltd (AWEIL).**
  - (aa) Proof Range Sasrul (OF Kanpur)
  - (ab) OF Trichi
  - (ac) RFI Ichapore
- (iii) **Armoured Vehicle Nigam Ltd (AVNL).**
  - HVF Avadi

Note: The details of NABL accredited /Test Facilities are available on NABL website (nabl-india.org) and also on respective department website.



## **Requisitioning Procedure**

12. **Nodal Officer.** Requisitioning Agency desirous of utilising the proof ranges are required to approach the respective nodal officers along with information / documents duly provided as per **Appendix E**. The documents have to be forwarded to the Nodal Officer through email and also informed telephonically. Request for Proof Ranges should approach to the under mentioned Nodal officer: -

Ser	Agency	Range/ Facility	Contact details of Nodal Officer
(a)	DGQA	(i) CPE, Itarsi (ii) LPR, Khamaria	<b>ADG QA(A)</b> DGQA, 3 <sup>rd</sup> Floor, B-Block, Africa Avenue, Defence Offices Complex, PO: Sarojini Nagar, New Delhi- 110 023 Tele No: 011 2419 6707, E-mail: <a href="mailto:armt-dgqa@nic.in">armt-dgqa@nic.in</a>
(b)	DGAQA	(i) SPR (Short Proof Range) Khamaria (ii) Proof Range ORDAQA, Kirkee	ADG(N&CZ), c/o HAL, Lucknow MoD DGAQA, Lucknow - 226016 Tel No. 0522-2975040/2970119 Fax No. 0522-2351208, E-mail : <a href="mailto:ddgncz.dgaqa@nic.in">ddgncz.dgaqa@nic.in</a>
(c)	DRDO	(i) PXE, Balasore (ii) TBRL, Chandigarh	<b>Director</b> Directorate of Industry Interface & Technology Management (DIITM) Room No 44, DRDO Bhawan, DRDO HQ Rajaji Marg, New Delhi – 110011 Ph - 011-2301 3209, 2301 5291 Fax – 011 23793008, Email – <a href="mailto:diitm@hqr.drdo.in">diitm@hqr.drdo.in</a>
(d)	DPSUs	<u>Munitions India Ltd.</u> (i) OF Varangaon (ii) AFK Kirkee	Director/ Operations MIL HQ, Nyati Unitree 2 <sup>nd</sup> Floor Nagar road, Yerwada, Pune-411006 Phone no 020-67080400 Email: <a href="mailto:operations@munitionsindia.in">operations@munitionsindia.in</a>

		<u>Advanced Weapons and Equipment India Ltd</u>	
		(i) Proof Range Sasrul (OF Kanpur)	Shri R.K. SINGH, General Manager AWEIL/ Sarsaul (OF Kanpur) Ph- 0517-2213368 e-mail Id.- <a href="mailto:rksingh1-iofs@aweil.in">rksingh1-iofs@aweil.in</a> or <a href="mailto:rksingh@ord.gov.in">rksingh@ord.gov.in</a>
		(ii) OF Trichi	Shri S. Krishnaswamy, Jt. General Manager , AWEIL/ OF Trichy Ph- 0431 -2585717 e-mail Id.- <a href="mailto:skswamy@ord.gov.in">skswamy@ord.gov.in</a>
		(iii) RFI Ichapore	Shri Ajay Prabhakar, General Manager AWEIL/ RFI Ishapore  Ph.-033- 75963307 e-mail Id. - <a href="mailto:aiavprabhakar@ord.gov.in">aiavprabhakar@ord.gov.in</a>
		<u>Armoured Vehicle Nigam Ltd</u>	
(e)	DGNAI	HVF Avadi	<b>DDG /AV HQRS.</b> The Dte of Ordnance (Coord & Service) 10A, S.K. Bose Road, Kolkata – 700 001 Ph- e-mail: <a href="mailto:ofbqcs.ofb@gov.in">ofbqcs.ofb@gov.in</a>
		(i) NAI Jabalpur (ii) NPT PXE Balasore	The Commodore (Armament Production & Indigenisation) Dte of Armament Production and Indigenisation Naval Headquarters, Ministry of Defence West Block V, R K Puram New Delhi 110066 Ph: 011-26194691 Fax: 011-26194273 Email: <a href="mailto:dapi.ihq@navy.gov.in">dapi.ihq@navy.gov.in</a>

13. **Acceptance.** In respect of proof ranges /Test Facilities under DGQA, Acceptance / Non Acceptance of the request of requisitioning agency for conduct of proof/ trial firing/ testing will be done by ADGQA (A)/ Designated ADG level officer of DGQA under intimation to the nominated proof range/ test facilities. In case of ranges under DRDO, the same will be accorded by Directorate of Industry Interface & Technology Management (DIITM). In respect of proof ranges under new DPSUs, Acceptance / Non Acceptance of the request of requisitioning agency for conduct of trial firing will be done by concerned DPSUs under intimation to the nominated Proof Range, without affecting the commercial interests of the concerned DPSU. In respect of proof ranges under DGAQA, Acceptance/ Non Acceptance of the request of requisitioning agency for conduct of proof/trial firing/testing will be done by ADG(N&CZ), c/o HAL, Lucknow/Designated ADG level officer under intimation to the nominated proof range. In respect of proof ranges/ test facilities under DGNAI, acceptance/ non-acceptance of the request of requisitioning agency for conduct of proof/ trial firing/ testing will be done by Cmde(API). **Appendix E** will be forwarded to the nominated proof range by the nodal officers with information to the requisitioning agency for acceptance/non-acceptance and contact detail of the nominated proof establishment.

14. The concerned Proof range lab will establish communication with the private firm as per **Appendices F, G and H**. **Appendix F** is for requirement of any additional information from requisitioning agency. **Appendix G** is for giving Executive Instructions for conduct of Trial Firing.

#### **Cost of Proof and Testing**

15. As per details provided in the application by the requisitioning agency, Proof and Testing expenditure will be worked out as per methodology enunciated in **Annexure 1 & Annexure 2** of this SOP. The Methodology of pricing and payment of proof /testing carried out for private sector by DGQA/DGAQA/DRDO/ and DPSUs proof ranges and their laboratories issued vide **MoD ID No S/209/QA Charges/DGQA/DQA(A)/TC/938/D(QA)/2020 dated 16 Dec 2020** is hereby superseded. On receipt of trial date from the proof range (**Appendix G**), the requisitioning agency will forward Commitment Certificate as per **Appendix H** along with advance payment of 25% (Non Refundable) of estimated cost of Trial Firing. Remaining cost of firing trial, wherever applicable, will be deposited by the requisitioning agency one week prior to conduct of trial firing.

16. However, Proof and Testing Charges will be waived off by Proof Establishments and MoD Laboratories respectively in case of confirmed Export Orders, iDEX projects, Make projects, TDF projects and Developmental projects by the DRDO, Services, Indian Coast Guard and DPSUs. However, these charges will be payable for In-house R&D projects of DRDO & DPSUs. The booking of the range in these cases will, however, stand confirmed only on receipt of the requisite documents pertaining to the Project/Export order. Consumables and Proof Stock Components as per agreed Proof Schedule will be provisioned and positioned at Proof Range by the Requisitioning Agency. Facilities including equipment, targets, instruments, gauges, infrastructure requirements etc not available with the Proof Establishments will also be provisioned by the Proof Requisitioning Agency. All other provisions of the SOP besides the cost of Proof Testing charges will be applicable for Proof Firing undertaken for the exempt categories mentioned in this Para. SHQ (Army), DGQA, DGAQA, DRDO and DPSUs will annually promulgate the details of charges for utilisation of the ranges and facilities in the first month of each financial year. The rates to be charged will include all fixed (to be promulgated) and variable charges (depending upon actual utilisation of resources in the instance).

17. Testing charges at laboratories under Indian Army /DGQA/ DGAQA/ DRDO/ DPSUs will be calculated as per 'Procedure for Calculation of Lab Testing Charges' enunciated in **Annexure 2** of this SOP. Previous instructions regarding 'Undertaking of Testing Work by Defence Inspection Establishment and Research and Development Establishment for Civil Govt Departments/Private Firms', issued vide MoD ID No 53940/DGI(Adm 16)/0776/D(Prod) dt 31 Aug 1976 is hereby superseded. All lab test facilities with govt agencies under MoD would be provided to other govt agencies within MoD, free of cost.

Note: Paras 18 to 24 below are specific to 'Proof firing and associated tests only'.

### **Change in Schedule**

18. Any change in the schedule of trials will be intimated by the requisitioning agency to the nodal officer and concerned range establishment minimum forty days in advance of the allotted date of commencement of firing. Any delay beyond this will invite a forfeiture of 15% of the total estimated trial cost. No forfeiture will, however, occur for reasons beyond the control of proof requisitioning agency such as for reasons attributable to the range provider or force majeure etc.

### **Proof Stock Equipment and Ammunition**

19. Success of “Make in India” programme in Defence Sector would largely depend on timely proof of weapon/ ammunition manufactured by various firms, both in Public & Private Sectors. Proof Stock Components (PSCs) are required for validation, proof and developmental trials of weapons and ammunition. Matching PSC required for proof needs to be provided by the agency requesting conduct of trial of their product from established supplier of PSC meeting quality criteria specified by the proof establishments. PSCs will be made available at Proof Range by the proof Requisitioning agencies.

### **Security Clearance for Foreign Nationals**

20. In case of foreign nationals attending the test/ evaluation/ proof firing, full details along with passport, visa and sponsoring company be intimated at least 60 days in advance so that security clearance can be obtained.

### **Submission of Certificates**

21. Commitment Certificate, Safety Certificate, Fit for Firing Certificate and Bond of Indemnity and other documents as per **Appendices H, J, K, L, M and N** are to be submitted by the requisitioning agency during final co-ordination meeting held at the proof range one working day prior to commencement of trial firing.

### **Timelines**

22. Timelines of various activities relating to conduct of trial firing by requisitioning agency at various proof establishments on payment basis are as given below: -

(a) **Timelines for Various Activities.**

Ser No	Activity	From	To	**Timeline (Days)
(i)	Receipt of request for conduct of Test/Trial Firing as per <b>Appendix E</b> from Requisitioning Agency.	Requisitioning Agency	Nodal Officer	D Day

(ii)	Forwarding of <b>Appendix E</b> and any additional inputs received by the Nodal Officer.  Information to Requisitioning Agency for acceptance/ non-acceptance and contact detail of the nominated proof establishment.	Nodal Officer	Proof range  Requisitioning Agency	D plus 7
(iii)	Forwarding of initial response on <b>Appendix E</b> as per <b>Appendix F</b> after checking availability of Weapon required for proof.	Proof Establishment	Requisitioning Agency	D plus 17*
(iv)	Clarifications if any to be provided by Requisitioning Agency on <b>Appendix F</b> .	Requisitioning Agency	Proof range	D plus 27
(v)	Final response to Requisitioning Agency as per <b>Appendix G</b> giving complete details and methodology of conduct of Trials Firing and Time Lines by Proof Establishment.	Proof Establishment	Requisitioning Agency	D plus 37
(vi)	Deposition of advance payment by private company, latest by.	Requisitioning Agency	Proof range	D plus 50

\* If all the desired information is available ab-initio, then the Executive Instruction for conduct of Trial Firing as per **Appendix G** will be issued by D+17.

**\*\* Timelines are applicable for proof only and for testing timelines laid down by respective labs will be applicable.**

(b) **Meetings with the Requisitioning Agency.** If at any stage, it is considered necessary to hold meeting with all the stake holders, the same can be held at the proof establishment. This would be most appropriate to resolve all the issues and expedite trial firing. These meetings should be held in the time frame D plus 17 to D plus 37. Final co-ordination meeting at nominated proof range with all the stake holders will be held one day prior to conduct of trials.

(c) **Time Lines for Various Activities as per the Scheduled Date of Trial Firing.**

Ser No	Activity	*Timeline (Days)
(i)	Scheduled date of Test/Trial Firing.	TF Day
(ii)	Payment of remaining cost of Test /Trial Firing by Requisitioning Agency. GST will be deposited by Vendor at their end and receipt details of the same will be provided to the Proof Establishment.	TF minus 7
(iii)	Positioning of Weapon / Ammunition store/Eqpt under Trial Firing at Proof Establishment/testing labs by Requisitioning Agency.	TF minus 7
(iv)	Positioning of Proof Stock Component at Proof Establishment by Requisitioning Agency.	TF minus 7
(v)	Positioning of equipment, targets, instruments, gauges, infrastructure requirements etc not available with the Proof Establishments by the Proof Requisitioning Agency.	TF minus 7
(vi)	Submission of nominal roll and security clearance of the personnel participating in Trial Firing by Requisitioning Agency to the Proof Establishment.	TF minus 7

	In case of foreign nationals attending the Test/Trial Firing full details along with passport, visa and details of sponsoring company etc be intimated to Proof Establishment.	TF minus 60
(vii)	Final co-ordination meeting at Test / Proof Establishment.	TF minus 1
(viii)	Submission of Safety Certificate, Fit for Firing Certificate, Bond of Indemnity, Arbitration Clause Document, wherever applicable.	TF minus 1
(ix)	Conduct of Proof Firing/Trial Firing/ Test.	TF Day
(x)	Preparation and compilation of Trial Firing Data Report/ Test Report.	TF plus 7
(xi)	Dissemination of Trial Firing Data Report/ Test report.	TF plus 8

**\* Timelines are applicable for proof only and for testing timelines laid down by respective labs will be applicable.**

### **Conduct of Firing**

24. Firing will be carried out by remote firing mechanism. All the personnel will be under cover for safety reasons. If for some reason firing cannot be conducted remotely, then it is representative of the requisitioning agency who would be required to operate the equipment. All personnel of proof range will always be under cover and Instructions and Standing Operating Procedures of Proof ranges will be strictly adhered to.

### **Liability and Compensation**

25. Trials/ Tests are to be conducted strictly as per date and time schedule decided beforehand.



26. Any damages to Proof Range equipment / instrument/ Test equipments / property / personnel would be assessed by a Board of Officers after the firing / testing and the cost of damages thereof shall be made good by the requisitioning agency.

27. Ministry of Defence, Govt of India will not be legally liable to pay any compensation for personnel/ equipment of the requisitioning agency or their representative witnessing / participating in the proof / trial / testing activities, in case of any mishap / accident or in an eventuality of fatal nature.

28. All necessary insurance / risk coverage for the trial firing / testing shall be the responsibility of the requisitioning agency. Insurance should adequately cover the cost of proof equipment involved & other related assets.

29. Arbitration Clause listed in **Appendix M** is to be signed by representatives of both the proof establishment / laboratory and private firm during the final co-ordination meeting and any legal dispute with the requisitioning agency are to be settled as per the Arbitration Clause.

### **Preparation of Result**

30. Responsibility of preparation of result will be decided before the commencement of firing / testing clearly indicating whether the Requisitioning Agency requires detailed result from proof establishment or whether the firm wants to record own data.

31. **Sentencing**. Test/ Proof establishment will compile the result and provide the same to the requisitioning agency, if required. Test/ Proof establishment will not carry out any sentencing of the stores after the Trial Firing.

32. **Communication of Results**. The result will be communicated through email, Fax & Post.

**PART II B : PROCEDURE FOR ALLOCATION OF FIELD FIRING RANGES/  
TEST FACILITIES BY SERVICE HQ (ARMY)**

33. Field Firing Ranges / Test Facilities are under charge of Indian Army for conduct of their test/ annual firing practices. These firing test facilities/ ranges can be made available to Requisitioning Agency for utilisation after the necessary clearances from Field Firing Ranges have been obtained. A certificate to this effect needs be furnished by the Requisitioning Agency at the time of raising application for allotment of range.

**Procedure for Allotment of Field Firing Ranges /Test Facilities**

34. **Processing of Requests for Field Firing Ranges / Test Facilities.** To ensure that requests for test facilities/ field firing ranges are from authorised and established requisitioning agency and for bona-fide purposes, applications for allotment of Field Firing Ranges shall be received and vetted by a nominated office of Ministry of Defence. The list of Field Firing Ranges for allotment is given at **Appendix O**. The detail of Field Firing Ranges test laboratories available with Army can be obtained from ADG ADB IHQ of MoD (Army) (Contact details given below).

35. **Nodal Agency: Army Headquarters.** Additional Director General, Army Design Bureau (ADG ADB) will be the nominated nodal officer for processing of request from Requisitioning Agency. For processing of requests of Requisitioning Agency/ Private Industry, the appointment, address and telephone number of the contact persons are as under: -

- (a) **Contact Address.** ADG ADB, A Wing, Sena Bhawan, IHQ of MoD (Army), New Delhi – 110011
- (b) **Telephone No** 011-23018861, 0931158576
- (c) **E mail:** ddgtechres-mod@gov.in

36. **Format.** Govt Agencies, DPSUs and Private Industry will apply in the format as given at **Appendix P**.

37. @ **Receipt of Requests**. All requests for Field Firing Ranges shall reach the Nodal Agency Office by post, e-mail and telephonically on or before 01 December, for consideration of allotment of Field Firing Ranges for the next training year. Training year commences on 01 July of the year and ends on 30 June of the next year. While requisitioning agency may indicate requirement of specific field firing range, final allotment will be coordinated with Apvl-3 based on slack time available between service requirements, which take priority, and consequent availability of time slots.

38. @ **Screening Procedure**. Comments of concerned directorates will be obtained by the ADG ADB to screen the requisitioning agency, so as to allow only the serious proof requisitioning agency to participate.

39. @ **Acceptance**. Acceptance/ Non-Acceptance of the request of requisitioning agency for conduct of trial firing will be done by ADG ADB. Apvl-3 will coordinate the allotment with various command HQs.

@ Only in case of Field Firing / Proof firing.

40. **Interaction**. Direct interaction will be carried out between requisitioning agency representative and Col ADB (Industry) at the ADG ADB to clarify and iterate the demand raised by the requisitioning agency before the range is allotted. Nominated nodal officers at command HQs will additionally establish communication with the private firm as per **Appendices Q, R & S**. **Appendix R** is for requirement of any additional information from requisitioning agency. **Appendix S** is for giving Executive Instructions for conduct of Firing.

### **Proof /Testing Cost**

41. Expenditure incurred on account of utilisation of weapons, ammunition, manpower, equipment and administrative facilities during conduct of trial will be charged from the requisitioning agency as per laid down Government rates. Cost will be worked out by the respective Command HQ as per details provided in the application and will be

communicated to the requisitioning agency. However, proof and testing charges will be waived off in case of confirmed export orders, iDEX projects, Make projects, TDF projects, Developmental projects by the DRDO, Services, Indian Coast Guard & DPSUs. However, these charges will be payable for In-house R&D projects of DRDO & DPSUs. On receipt of date of firing from Command HQ (**Appendix R**), the requisitioning agency will forward Commitment Certificate as per **Appendix S** along with advance payment of 25% of estimated cost of firing wherever charges are applicable. Prior to this the booking will only be considered provisional. Booking of the range will stand confirmed only on receipt of the advance payment through a Demand Draft (Details as given by Command HQ), which is required to be done by the requisitioning agency at least 45 days prior to the scheduled date of commencement of firing. Remaining cost of firing trial, wherever applicable, will be deposited by the requisitioning agency, again through a Demand Draft, one week prior to conduct of firing. Proof Stock Components as per agree Proof Schedule will be provisioned and positioned by the proof requisitioning agency. Facilities including equipment, targets, instruments, gauges, infrastructure requirements etc not available with the Field Firing Ranges will be provisioned by the proof requisitioning agency.

42. HQ Comds in colabration with concerned directorate at Army Headquarters will calculate charges to be levied for utilization of weapon, ammunition, equipment and administrative facilities. These will be shared by Nov of every year. These shall be promulgated in the first month of commencement of each financial year. The rates to be charged by the Command HQ will include all fixed (to be promulgated by concerned Dte at Army Headquarters) and variable charges (depending upon actual utilisation of resources in the instance).

#### **Change in Schedule.**

43. Payment of advance where applicable and will not be refundable. Any change in the schedule of trials testing will be intimated by the Requisitioning Agency to the nodal officer and concerned range establishment minimum forty days in advance beyond which rescheduling will not be carried out. Rescheduling of request, will not be entertained for emergent demands. No forfeiture will occur for reasons beyond the control of Requisitioning Agency, such as for reasons attributable to the range provider or force majeure. In such cases, firing will be rescheduled by Apvl-3 / Command HQ on mutually acceptable dates.

## Timelines

44. Timelines of various activities relating to conduct of trial firing by Requisitioning Agency at various Field Firing Ranges on payment basis are as given below: -

(a) **Timelines for Various Activities.**

S No	Activity	From	To	**Normal Demand	**Emergent
(i)	Receipt of request for conduct of <b>Firing as per Appendix P</b> from Requisitioning Agency Industry.	Requisitioning Agency	Nodal Officer at Army HQ.	01 Dec	D Day
(ii)	Forwarding of <b>Appendix P</b> and any additional inputs received by the Nodal Officer.	Nodal Officer / Apvl-3	Command HQ	15 Mar	D plus 10
(iii)	Forwarding of initial response on <b>Appendix P</b> as per <b>Appendix Q.</b>	Command HQ	Requisitioning Agency	25 Mar	D plus 20*
(iv)	Clarifications if any to be provided by Requisitioning Agency on <b>Appendix Q.</b>	Requisitioning Agency	Command HQ	05 Apr	D plus 27

(v)	Final response to Requisitioning Agency as per <b>Appendix R</b> giving complete details and methodology of conduct of Trials Firing and Time Lines.	Command HQ	Requisitioning Agency	15 Apr	D plus 37
(vi)	Deposition of advance payment by Requisitioning Agency latest by.	Requisitioning Agency	Command HQ	45 days prior to the scheduled date of commencement of firing.	45 days before the scheduled date of commencement of firing.

\* If all the desired information is available ab-initio, then the Executive Instruction for conduct of Firing as per **Appendix R** will be issued by D plus 20.

**\*\* Timelines are applicable for proof only and for testing timelines laid down by respective labs will be applicable.**

(b) **Meetings with the Requisitioning Agency** A preliminary meeting will be held at the nominated field firing range/ test facilities 10 days prior to conduct of trials to resolve any issues/ familiarise with the range / test facilities. Final co-ordination meeting at nominated Test facilities/ Field Firing Range with all the stakeholders will be held one day prior to conduct of trials.

(c) **Time Lines for Various Activities as per the Scheduled Date of Trial Firing.**

Ser No	Activity	*Timeline (Days)
(i)	Scheduled date of Firing/Test.	TF Day
(ii)	Payment of remaining cost of Test / Firing if applicable, by Requisitioning Agency.	TF minus 7
(iii)	Positioning of Weapon / Ammunition/ Equipment/ store under Firing at Test facilities/ Field Firing Range by Requisitioning Agency.	TF minus 7
(iv)	Positioning of special instruments and other range facilities if required at Field Firing Range by Requisitioning Agency.	TF minus 7
(v)	Submission of nominal roll and security clearance of the personnel participating in Firing by Requisitioning Agency to the Field Firing Range.	TF minus 7
	In case of foreign nationals attending the Firing, full details along with passport, visa and details of sponsoring company etc be intimated to Field Firing Range.	TF minus 30
(vi)	Initial coordination meeting at Field Firing Range/ Test facilities.	TF minus 10
(vii)	Final co-ordination meeting at Field Firing Range / Test facilities.	TF minus 1
(viii)	Submission of Safety Certificate, Fit for Firing Certificate, Bond of Indemnity and Arbitration Clause Certificate.	TF minus 1
(ix)	Conduct of Firing/ Test.	TF Day

**\* \* Timelines are applicable for proof only and for testing timelines laid down by respective labs will be applicable.**

45. **Action by Requisitioning Agency.** On receipt of intimation of allotment, the Requisitioning Agency shall get in touch with the Local Military Authority (LMA) in charge of the allotted Test facilities/ Field Firing Range at the earliest to get acquainted with the local range orders and to carry out formalities that would be specific to the Test facilities /Field Firing Range allotted. It is pertinent to point out that this SOP relates to range allocation only. Ranges are different in terms of testing facilities and related infrastructure available. They have differing security considerations and accordingly, have different detailed range utilisation SOPs.

46. **Contact Information.** Contact information of the nodal officer at concerned Command HQ intimated to the Requisitioning Agency / DPSUs by ADG ADB. Contact of the LMA at the nominated Test facilities/ Field Firing Range will be intimated by the Command HQ to the Requisitioning Agency while issuing out the allotment letter (**Appendices Q&R**).

47. **Emergent Requests.** Emergent requests for allotment of Test facilities/ Field Firing Ranges will be forwarded to the Nodal Agency minimum three months in advance from the proposed date of commencement. These requests will thereafter be processed for clearance as per the laid down procedure above. Format of the Emergent Request Form is given at **Appendix T**.

48. **Priority.** IA will reserve the rights to change/ cancel allocation based on its own requirements.

49. **@ Submission of Certificates.** Commitment Certificate, Safety Certificate, Fit for Firing Certificate and Bond of Indemnity and other documents as per **Appendices H, J, K, L, M and N** are to be submitted by the private firms/DPSUs during final co-ordination meeting held at the Field Firing Range one working day prior to commencement of trial firing.



## **Field Firing Ranges Handing / Taking Over**

50. @ **Range Handing/ Taking Over Procedure**. On being allotted the Field Firing Range by the Nodal Agency, requisitioning agency shall contact the LMA with a copy of range allotment letter by the nominated office. The LMA at the Field Firing Range shall make the requisitioning agency fully conversant with the Field Firing Range Standing Orders and safety guidelines. The Field Firing Range Standing Orders shall be perused by requisitioning agency. In addition to the Field Firing Range Standing Orders, a separate comprehensive SOP for requisitioning agency requisitioning field firing shall be prepared by the LMA and copy given to the requisitioning agency. The following will be adhered to:-

(a) @ **Taking Over of Field Firing Range**. Once the requisitioning agency has fully read and understood the FFR Standing Orders and comprehensive SOP for requisitioning agency, the allotted FFR or part of it will be handed over to the requisitioning agency by the LMA.

(b) @ **Handing Over of Field Firing Range**. The range SOP available with the LMA and adherence to the range safety drills shall be binding on the requisitioning agency. Onus of obtaining clearance from the local civil administration and the police prior to handing over the range back to LMA will be that of the requisitioning agency. Metal scrap generated, if any, would be collected by the local range contractor as per range SOP.

(c) @ **Communication**. In view of range safety requirements, telephone lines as required will be provided by the LMA through the local exchange. In addition, mobile telephony communication will be used when available as a backup medium of communication. In addition, the requisitioning agency will have at least three hand held UHF Radio Sets of which one shall be given to the LMA as an out station.

(d) **Verification of ID/MI Clearance**. All members of the testing/firing team shall carry valid nationally accepted ID proof. MI clearance shall be obtained as per procedure, where required.

@ Applicable only for field firing only.

51. **Liability and Compensation.** All liabilities that may accrue once the FFR or designated portion of it is handed over to the requisitioning agency, till the time it remains with them will be that of the requisitioning agency.

52. **Legal Jurisdiction.** All legal issues that may arise shall be under the jurisdiction of the Court of Law nearest to the FFR, and in the state where it is located.

53. **Decision of LMA.** The decision of the LMA or personnel authorized on its behalf on all aspects will be binding on the requisitioning agency while utilizing the allotted Field Firing Range.

#### **Assistance at the FFRs/ Test Facilities**

54 The following assistance shall be provided at the ranges on payment basis:-

- (a) **Manpower Support.** Manpower support will be limited to coordination and facilitation of firing at the ranges.
- (b) Survey and Meteorological Data.
- (c) Medical cover.
- (d) Water.
- (e) Equipment and ammunition.

55. Army will try to assist with administrative arrangements to the extent possible but due to the extremely limited facilities that are available currently at the ranges, Requisitioning Agency would be well advised to harness local civilian administrative infrastructure available. Any additional requirements shall be obtained by them from the appropriate agencies under their own arrangement. Limited local facilities in terms of existing infrastructure may be earmarked/ allotted by the LMA as per availability.

#### **Liability and Compensation**

56. Trials are to be conducted strictly as per date and time schedule decided beforehand.

57. Any damages to Field Firing Range equipment / test equipment / instrument / property / personnel would be assessed by a Board of Officers after the firing and the cost of damages thereof shall be made good by the Requisitioning Agency.

58. Govt. of India / Indian Army / Local Military Authority will not be legally liable to pay any compensation for personnel / equipment of the Requisitioning Agency or their representative witnessing / participating in the proof / trial activities, in case of any mishap/ accident or in an eventuality of fatal nature.

59. All necessary insurance / risk coverage for the trial shall be the responsibility of the Requisitioning Agency. Insurance should adequately cover the cost of equipments & other assets.

60. Arbitration Clause listed in **Appendix M** is to be signed by representatives of both the Field Firing Ranges and Requisitioning Agency during the final co-ordination meeting and any legal dispute with the Requisitioning Agency are to be settled as per the Arbitration Clause.

61. All service personnel involved with the Proof Testing and Field Firing will be deemed to be on bonafide military duty.

62. **Relevant / Additional Guidelines.** To increase the chance of allotment and to ensure subsequent smooth conduct of firing/ trials/testing etc, the following guidelines may be followed by the applicants :-

(a) Give more than one choice of Test facilities/ Field Firing Ranges, and for each choice, give multiple options in respect of dates. Restrict the period of requirement to the minimum possible.

(b) Be aware of the capabilities of Test facilities/ Field Firing Ranges applied for, in terms of weapons/ ammunitions that can be fired/ tested there, as also the infrastructure available.

(c) Summer months, from May to July are the months when Field Firing Ranges are more likely to be available than in winters, especially in North and Central India.

(d) Be well acquainted with the various acts, rules, legal rulings and SOP issued by the LMA that govern the use of Field Firing Ranges.

(e) Establish contact with LMA immediately on allocation of Field Firing Range to be aware of the various acts and local rules governing the use of the allotted Field Firing Range as also on the issue of availability of local resources.

(f) Liaise with various agencies to ensure that additional requirements/assistances are tied up well in time.

### **Coordination**

63. The overall coordination of the allotment of ranges (Test facilities, Proof Testing & Field Firing Ranges) will rest with the **Additional Director General Quality Assurance (Armament) i.e ADGQA(Armt)/ Designated ADG level Officer of DGQA**. He will enable the industrial partners by: -

(a) Giving directions to ensure smooth conduct of trials.

(b) Ensuring overlap and smooth conduct, whenever more than one establishment / agency is involved.

(c) Addressing any issues being faced by private firms during implementation of the SOP.

### 64. **Contact Details.**

Additional Director General (ADG) DQA (ARMAMENT)/Arm-6  
DGQA, 3<sup>rd</sup> Floor, B-Block, Africa Avenue  
Defence Offices Complex, PO: Sarojini Nagar, New Delhi- 110 023  
Tele No: 011 24196707, E-Mail: armt-dgqa@nic.in

## **Conclusion**

65. The MoD is committed to the success of 'Ease of Doing Business' and 'Atma Nirbharta' in Defence. Opening up of scarce resources like proof, field firing ranges and test facilities to the Requisitioning Agency would significantly contribute to the process. It is well appreciated that development of huge testing infrastructure is not financially viable for the Requisitioning Agency, therefore, all possible assistance has been sought to be provided to the Indian Private Industry. The complete process of requisition, allotment and utilisation has been made transparent and time bound.

66. All possible efforts will be made at handholding of the nascent Indian private defence industry/DPSUs. But it may be appreciated that the Army has minimal administrative infrastructural facilities, presently, at the ranges. Assistance to the extent possible will be provided. Similarly, existing support for safety and security aspects, where available, will be extended. However, Requisitioning Agency will be well advised to harness local civilian administrative infrastructure available and be self-contained for their requirements.

67. This SOP will be reviewed after a period of three years or earlier, based on experience and feedback and will be in vogue till the time an amendment/revision is issued.

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**DETAILS OF PROOF UNDERTAKEN BY PROOF RANGES AND AVAILABILITY OF  
INFRASTRUCTURE (CPE ITARSI)**

<b><u>Calibre</u></b>	<b><u>Weapons Available</u></b>	<b><u>Stores Under Proof</u></b>	<b><u>Type of Proof</u></b>
12.7mm	Gun Machine 12.7 AD	Cartg.SA.12.7 APIT	Tracer functioning
81mm	81mm Mortar E-1	(i) HE	Functioning proof
		(ii) PWP Smoke	Functioning proof
		(iii) Illg	Functioning proof
		(iv) Prop.NGB 221	Velocity & Pressure
		(v) Fuze 162 Mk-8	Functioning proof
		(vi) Fuze 213 Mk-5	Functioning proof, Absence of premature, Time proof
		(vii) Tail Unit for 81mm Illg	Range & Functioning proof
		(viii) Breech Block for 81mm	Pressure proof
		(ix) Complete Barrel assembly	Pressure proof
105mm	(i) Ord 105/53 Tk Gun Mounted on 7.2" How Carrier	(i) Primer Electric L-1A4	Dynamic Proof, Functioning proof
		(ii) Case Cartg RW-242	Pressure & Functioning proof
		(iii) Shell 105mm Tk Sh Practice & Shell 105mm Tk HESH	Function proof
		(iv) Prop. NQ/S 156-056, Prop NQ/M 028 & Prop NQ/,-047	Velocity & Pressure
		(v) Tracer No 30 & 33	Functioning proof
		(vi) Fuze L-29A3	Functioning proof

	(ii) Ord QF 105/37 IFG	(i) Prof N 017	Velocity & pressure
		(ii) Fuze 213 Mk-5	Safety from Premature
		(iii) Shell 105mm IFG BE colour Smoke	Functioning proof
		(iv) Primer Electric 1A	Functioning proof
		(v) Shell 105mm IFG HESH	Functioning proof, Plate proof
		(vi) Fuze 117Mk-20	Absence of premature, Arming & Time Proof
120mm	120mm Mortar	(i) Fuze 162 Mk-9	Functioning proof
		(ii) Prop NGB 011 & 241	Velocity & Pressure
		(iii) HE	Range & Functioning
		(iv) Smoke PWP	Range & Functioning
		(v) Primary Cartg CL-3	Range & Functioning
		(vi) Tail Unit 2A	Range & Functioning
		(vii) Fuze 213 Mk-5	Functioning, Time, Absence of Premature & Percussion proof
125mm	(i) 125mm SB Gun 2A46 Tk T-72 (ii) 125mm SB Gun Article 2A46 Mounted on fix firing stand	(i) 125mm Shell 125mm TK HE	Vertical Target Consistency, Absence from premature & Order of Burst
		(ii) SCCC 125mm	Functioning safety
		(iii) Fuze B-15	Functioning proof, Absence of premature & safety from premature
		(iv) Tracer No 12	Functioning
		(v) Shell 125 mm HE	Area Target Consistency

		(vi) Shell 125mm Tk HEAT	Absence of premature & Strength of filling, Armour penetration
		(vii) Fuze B429E	Absence of premature Functioning proof
		(viii) Primer GUV-7	Functioning by Electric & Percussion method
		(ix) Funnel cone assembly	Armour Penetration
		(x) Combination proof metallic base & Primer GUV-7	Functioning proof
130mm	Ord QF 130MM Fd Gun M-46	(i) Primer Percn 18A * 19B	Functioning & Pressure proof
		(ii) Case Cartg IRW-154	Pressure proof
		(iii) Prop 130mm RVC/FVC	Velocity & Pressure
		(iv) Fuze B 429	Absence of premature, Arming proof
		(v) Breech Block for 130mm	Functioning proof
		(vi) Muzzle Brake for 130mm	Functioning proof
		(vii) Barrel for 130mm	Pressure proof



155mm	(i) Ord 155mm FH 77 BO 2  (ii) Ord 155mm Up gunned Mk-1	(i) Prop No 1180 CBI (Clear Burning igniters)	Velocity & Pressure
		(ii) Primer 191A2	Functioning proof
		(iii) Shell 155mm M107 HE	Functioning proof
		(iv) Fuze PDM 572 C1	Functioning Delay proof
		(v) Prop. SB/M82	Velocity & Pressure
		(vi) Obturating Spindle/Pad, Breech Screw/Breech	Pressure proof
		(vii) Muzzle brake	Functioning proof
		(viii) Packing/Sealing Rings	Functioning proof
		(ix) Recoil Buffer Assy	Functioning proof

122MM	(I) 122mm D-30 HOW	(i) Shell HE	Absence of premature. Functioning delay, Functioning proof
		(ii) Smoke	Functioning, Absence of premature
		(iii) Illg	Functioning, Absence of premature
	(ii) 122mm grad bm-21	(i) Rocket HE	Functioning proof

**DETAILS OF INSTRUMENT AVAILABLE AT CPE ITARSI**

<b><u>Ser No</u></b>	<b><u>Nomenclature</u></b>	<b><u>Usage</u></b>	<b><u>Range</u></b>	<b><u>Accuracy</u></b>
1.	Digital Chronometer BAL 605 & 303A	Fuze delay time Measurement	1 Sec - 15 Min	±0.01%
2.	Sky Screen LS 28 including Multipurpose Chronometer Bal 303 & 303A	Fuze delay time Measurement	1 Sec – 15 Min	±0.01%
3.	Fuze Delay Recording Apparatus (FDRA)	Fuze delay time Measurement	1 Sec – 15 min	±0.01%
4.	Doppler Radar DR – 5000	Measurement of MV	30 -2200 m/s	--
5.	MV Indicator MK-3 Sr.No. 450300001 for 155mm Gun	Measurement of MV	50-2400 m/s	±0.05%
6.	Time Interval Counter 2 Channel	For measurement of hang fire	Nk	--
7.	Doppler Radar (W-700/ SL-520M)	Measurement of MV	30-3000 m/s	±0.05%
8.	Internal Piezo Gauges	Measurement of pressure, Pressure curve, Rotary	48-800 Mpa	±2.5%
9.	Air Burst and Ground Burst System	Measurement of Range & Height of burst	Nk	--
10.	Digital Video Recorder with 2 Camera	Videography of 125mm tank	NA	--
11.	Automatic Weather Station Davis Vantage PRO2	Measurement of meteorological data	Wind speed = 0-80 m/s Humidity – 1-100% Atm Pr = 540-1100mb Temp = -40° to + 60° C	-- -- --

**Appendix B**

Refer to Para 11 of SOP

**DETAILS OF PROOF UNDERTAKEN BY PROOF RANGES AND AVAILABILITY  
OF INFRASTRUCTURE (LPR KHAMARIA)**

<b><u>Calibre</u></b>	<b><u>Weapon Available</u></b>	<b><u>Stores Under Proof</u></b>	<b><u>Type of Proof</u></b>
0.50"	Gun Machine 1A 0.50 "	Depot Proof – Functioning	
	Gun Machine RMG 0.50"	Cartridge 0.50 " RMG	Depot Proof – Functioning
	Rifle Spotting 0.50" Machine Gun	Cartridge 0.50 " Spotter	Depot Proof – Functioning
7.62mm	Rifle 7.62mm SLR	Tube Launching	Range (50m/100m/150m)
14.5mm	Gun Machine 14.5mm KNBT Ex-USSR	Bullet (Indigenous) U/D	Penetration
		Primer KB-25	Functioning
		Propellant 5/7	Charge assessment & Confirmatory
		Cartridge (OTL)	MV, Pressure, Consistency, Functioning & Casualty, Penetration and Incendiary
23mm	(a) 23mm AA Twin Gun ZU-23	Case	MV/Pressure & Strength, Extraction and Obstruction Proof
		Tracer	Tracer Burning time
		Det. NR 3	Shooting Test & Ballistic Time
		Fuze MG 25- Check Proof	Safety, Reliability, SD Proof

23mm	(b) 23mm Velocity Barrel	Propellant	Charge Assessment, Confirmatory
	(c) 23mm Pressure Barrel	Propellant with Det NR-3	Suitability
	(d) 23mm A Twin Gun ZU-23	Complete Round (OTL & Check Proof)	MV/Pressure, Tightness of Shell, Correct Cartridge Assy (Auto Mode & Single Shot), Tracer Burning time, Penetration & Incendiary
	(e) 23mm Pressure Barrel		
	(f) 23mm Velocity Barrel		
30mm	(a) 30mm Article 2A42	Case	Functioning & Strength
		Primer KB 30	Functioning & Ballistic Time
		Fuze A670 (HET & HEI)	Lower Limit, Reliability, Self Destruction Time
		Tracer (APT&HET)	Tracer Burning Time
		Ballistic Cap (APT)	Functioning
		Depot Proof	Functioning & Tracer BT
	(b) 30mm Ballistic Crusher Barrel	Shell APT	Accuracy, Recovery, MV/Penetration
		Shell HET	Accuracy, Recovery
		Shell HEI	Accuracy, Recovery & Stability
		Propellant	Charge Assessment & Confirmatory
		HE Pellet (HET & HEI)	Functioning
		Round Standardization	MV/Pressure
		Copper Crusher	MV/Pressure
	(c) 30mm Article 2A42 & Ballistic Crusher Barrel	Complete Round (OTL)	MV/Pressure & Functioning

40mm	(a) Eqpt 40mm L-70	Shell HET	Post Impact Delay
		Shell PFFC	Pressure & Functioning
		Case HET	Functioning & Strength
		Case PFFC	Pressure, Functioning & Strength
		Primer No.12 MK-4	Functioning
		Primer IM 87	Pressure & Functioning
		Propellant NC 1066	Charge Assessment & Confirmatory
		Propellant 19 Hole- PFFC	Charge Assessment, Confirmatory & TCF Firing
		Tracer for HET	Tracer Burning Time
		Fuze Fz104 M12 for HET	Safety From Premature, Post Impact Delay, Self Destruction Time
		Fuze FB 40 for PFFC	Safety From Premature, Percussion Self Destruction
		Copper Standardization	MV/Pressure
		Depot Proof	Functioning & Tracer Burning Time
		Complete Round HET (OTL)	MV/Pressure, RL, Auto Functioning Tracer Burning Time, Self Destruction
		Complete Round PFFC (OTL)	Functioning (Auto) & MV
	(b) Ballistic Barrel 40mm UBGL Ex Bulgaria	Grenade 40mm UBGL	Functioning

81mm	(a) 84mm RL MK-II	Cap 5.7	Functioning
		Tracer 56D for TPT	Tracer Burning Time
		Stabilizing Tube for TPT	MV, RL & Consistency
		Fuze 64C for Illg	Time to Burst
	(b) 84mm RL MK-III	Arming Device - 551	Non-Arming/Muzzle Safety, MV/Arming
		Nose Plug-551	Type Test (MV, RL, Penetration)
	(c) 84mm RL MK-II & MK-III	Case for MK-II & III	Functioning, Strength & RL
		Round HE, Illg, HEAT 551 & 651 – Depot Proof	Functioning
	(d) 84mm RL MK-II, HPG	Propellant NGB 204 for HE/Illg/TPT	Charge Assessment, Confirmatory
		Propellant NGB 204 for TPT	Standardisation Proof
		Propellant NGB 204 for HE/Illg	Combination Proof
		Propellant AKB 204 for 551	Charge Assessment, Confirmatory & Charge Establishment
		Projectile for TPT	MV, Pressure, RL, Consistency, Recovery
		TPT (OTL)	Pressure, RL, MV Consistency

84mm	(d) 84mm RL MK-II, HPG	Round –IIIg (OTL)	Pressure, RL, Time to Burst & Burning Time
		Round –HE (OTL)	Pressure, RL & Time to Burst
		War Head Body – 551	Type Test (Pressure, RL, MV, MPI (Accuracy), penetration, Functioning)
		Round -551 (OTL)	Pressure, RL, MV MPI (Accuracy), Penetration, Functioning
12 Bore	Shot Gun Single Bore Barrel	Cartridge 12 Bore	Strength Proof
	Shot Gun Double Bore Barrel	Cartridge 12 Bore	-do-
23mm	23mm Barrel	STD, APT & HEI	Strength & Attestation
30mm	30mm Ballistic Crusher Barrel	STD, APT & HEI	Strength & Attestation
40mm	40mm L-70 Barrel	STD, Complete RD	Functioning & Strength
51mm	Mortar	Plug-I & II, Primary Cartridge & Augmenting Charge	Functioning & Strength
81mm	Mortar	Bomb Inert (Normal & Modified), Primary Cartridge Augmenting Charge	Functioning & Strength
	Smoke Grenade Launcher	81mm Smoke Grenade Complete RD	Functioning
120mm	Mortar	Mortar Bomb Inert, Primary Cartridge, Augmenting Charge	Functioning & Strength
84mm	84mm MK-III	STD Round TPT	Integration Check Proof
105mm	LFG	Proof Shot, Cartridge Case, Primer, Charge Bag	Functioning

125mm	T-72 Spare Barrel & T-90 Spare Barrel	Hydro Cartridge, FSAPDS AMK-340, HE Inert	Functioning & Strength
	T-72 Article /OE	Hydro Cartridge, FSAPDS AMK-340, HE Inert	Acceptance Proof
	T-72 Article/OE	Hydro Cartridge, FSAPDS AMK-339	Accuracy Proof
	T-72 OH	Hydro Cartridge	Functioning
	T-90 Article/OE	Hydro Cartridge, FSAPDS AMK-340	Acceptance Proof
	T-90 Article/OE	Hydro Cartridge, FSAPDS AMK-339	Accuracy Proof



### **DETAILS OF INSTRUMENTS AVAILABLE AT LPR KHAMARIA**

<b><u>Ser No</u></b>	<b><u>Nomenclature</u></b>	<b><u>Usage</u></b>	<b><u>Range</u></b>	<b><u>Accuracy</u></b>
1.	EDH South Africa Radar (2 NOs) Model : 3080	MV Rate of fire	50 m/s to 3000 m/s	Better than 0.3m/s
2.	Chronometer CC 3000 with EO 420 Long Range Photocell Transducer, PCC Sky screen	Time to burst for 84mm HE/IIIg	0.01 Sec to 59 Min 59 Sec to 99 Sec	Max Failure IS $\pm 0.01\%$
3.	Pressure Recording system (Oscilloscope, Charge Amplifier, Piezo-electric Transducer)	Pressure measurement of 84mm, 20mm AMR, 30mm Rudra Grenade	Upto 80, 000	0.5%
4.	Digital Chronometer BAL 303 with EO 420 Long Range Photocell Transducer	Ballistic Time measurement 23mm, 30mm	1 Mili Sec to 900 Sec	
5.	Digital Chronometer BAL 303 with 2 PCC sky Screen	MV for T-70/ T-90		
6.	Internal Piezo Gauge (IPG) internal Pressure Gauge	Pressure measurement of T-72/ t-90	Upto 800 MPa	$\pm 0.02\%$
7.	Stop Watch 3 NOs	Time measurement, Time to Burst, Burning Time, TR B.T, SD	0.01 Sec to 9 Min 59 Sec	
8.	Dynalab Weather Tech	Measurement of Atmospheric Pressure, Temp Wind Speed, RH		

9.	Binocular (4 nos)	30mm Accuracy & PID, 40mm PID, 84 consistency)		
10.	Anemometer Hand Held	For Measuring Wind Speed	0.4 m/s to 30 m/s	
11.	Binocular (04 Nos)	30mm Accuracy & PID, 40mm PID, 84 consistency		
12.	Conditioning Chamber (Static-7 Nos)	For conditioning of Amn at various temperature	CH-1:-60 to +60CH-2:0°C to +60°C	$\pm 3^{\circ}\text{C}$ $\pm 1^{\circ}\text{C}$
13.	Infra Red Thermometer	Temperature Measurement of Conditioned Amn	20°C to 270°C	

**DETAILS OF PROOF UNDERTAKEN AND AVAILABILITY OF INFRASTRUCTURE  
PROOF & EXPERIMENTAL ESTABLISHMENT (PXE). BALASORE**

**Infrastructure Available**

1. **Weapons.** The weapons available are not on charge of PXE, Balasore. Approval for utilisation of these weapons should be taken from concerned agencies.

(a) **Army**

- (i) 155mm Up gun
- (ii) 130mm Field Gun
- (iii) 105mm IFG & LFG
- (iv) 40mm L/70.81 Mortar
- (v) 51mm Mortar
- (vi) 12.7mm rifle
- (vii) 7.62 mm rifle
- (viii) 120mm MBT ARJUN & NAKUL
- (ix) 125mm T-72 Tank

(b) **Navy**

- (i) 76.2mm
- (ii) 76/62mm SRGM
- (iii) 100mm for AK 100
- (iv) 40/60 Gun
- (v) 30mm AK 630

2. **Conditioning Chambers.** Heating/Cooling Chamber (-50 to +50).

3. **Instruments.**

- (a) High speed solid state cameras
- (b) Ultra High speed soli state camera
- (c) DVCAM System with Editing Facility
- (d) Still Photography System

- (e) CCTV System
- (f) Long Range Projectile Tracking Radar
- (g) Velocity Analyzing Doppler radar
- (h) Muzzle Velocity Radar
- (j) Acoustic Sensors
- (k) Accelerometer
- (l) Internal Piezo Gauge
- (m) Frequency Analyser
- (n) Fuze Delay Recorder
- (o) Spectrum Analyser (up to 10 GHz)
- (p) Digital Storage Oscilloscope
- (q) Voltage Pulse Generator
- (r) Upper Air Metrological Recording system
- (s) Automatic Weather Station
- (t) Smart Station with DGPS

**DETAILS OF FACILITIES AVAILABLE AT TBRL**

1. Details of facilities available at TBRL, Chandigarh are as under :-
  - (a) Ballistics Test Facility for testing of bullet resistant material against small arms fire.
  - (b) Instrumented Small Arms Ballistic Range.
  - (c) Blast Evaluation of Ammunition in free air, underground and under water.
  - (d) Quantitative Evaluation of Blast Protective System.
  - (e) BAM Fall Hammer Apparatus.
  - (f) Differential Scanning Calorimeter.
  - (g) Dynamic Mechanical Analyser.
  - (h) Friction Sensitivity Tester.
  - (j) Gas Chromatography-Mass Spectroscopy.
  - (k) High Performance Liquid Chromatography.
  - (l) Rail Track Rocket Sled (RTRS) Test Facility.
  - (m) Thermo Mechanical Analyser.

**APPLICATION FORM FOR TRIAL FIRING OF AMMUNITION / WEAPON IN MoD  
PROOF RANGES**

Ser	QUESTIONNAIRE
1.	<b><u>Details of Requisitioning Agency.</u></b> (a) Name and type of the Requisitioning Agency. (b) DPSUs/ Private (Indian company). (c) Private (Indian company in collaboration with Foreign Manufacturer).
2.	<b><u>Status of Requisitioning Agency.</u></b> (a) Registered with MoD/DGQA/New DPSU/DPSU/DGOS/DRDO/MHA (any Govt agency/ Holder of Defence Equipment License). (b) Green Channel status with details of approving agency.
3.	<b><u>Store to be tested.</u></b> (a) Ammunition and its calibre. (b) Weapon and its calibre. (c) Any other.
4.	<b><u>Type of Proof/ Test</u></b> (a) Static. (b) Dynamic. (c) Recovery. (d) Any other.
5.	<b><u>Mode of Firing.</u></b> (a) Direct Firing. (b) In-direct Firing. (c) Any other. (d) Environmental. (e) Dynamic. (f) Any other
6.	Parameters to be tested along with desired range and accuracy of measurement.
7.	Observation to be recorded.
8.*	Proof Schedule if any.
9.	Whether testing of this particular armament, ammunition or equipment has been carried out earlier? Provide details.
	* (Mandatory).

10.	<b><u>Technical Assistance required during Test/ Proof from Test/ Proof Establishment.</u></b> (a) Measurement of Pressure. (b) Measurement of Velocity. (c) Photography and Videography. (d) Type of Target including specification if any. (e) Environmental conditioning including duration of conditioning. (f) Maximum and minimum range for proof. (g) Performance at Observation Post /Target end:- (i) Range. (ii) Functioning. (iii) Time to burst. (iv) Height of burst. (v) Duration of smoke/Illumination. (vi) Delay distance/timings. (vii) Any other. (h) Any other instrumentation requirements. (j) Any other technical assistance.
11.	Details of Proof Stock Components, Equipments, Instruments, Gauges etc being provided by the Requisitioning Agency.
12.	Availability of range table of subject store. (YES / NO)
13.	Firing Series of the Trial (Detailed methodology of conduct of firing including number of rounds).
14.	Safety & Range precautions to be observed during conduct of Trial Firing.
15.	EMI/EMC details/compatibility.
16.	Name, Address, Telephone / Mobile Number of the individual / appointment to be contacted for further correspondence / planning of the Trial Firing.
17.	Name and details of the individuals including Foreign Representative participating in proof firing for obtaining security clearance.
18.	Any administrative requirements (subject to availability).
19.	Any miscellaneous relevant information to be provided / required.
20.	Firm to furnish the component details of ammunition to be tested namely composition, source (whether Ex-Import or Indigenous), explosive used etc.

**FORMAT FOR INITIAL RESPONSE BY PROOF ESTABLISHMENT TO  
REQUISITIONING AGENCY FOR UNDERTAKING TRIAL FIRING OF AMMUNITION /  
WEAPON IN MOD PROOF RANGES**

1.	Reference of Nodal Cell letter.
2	Name of the Requisitioning Agency.
3.	Store under proof/ Test.
4.	Type of proof / Mode of Firing/ Test.
5.	Details of the Nodal Officer at Proof Establishment (along with contact details).
6.	<p>Feasibility of under taking proof w.r.t to the following (if applicable):-</p> <ul style="list-style-type: none"><li>• Range.</li><li>• Range restriction.</li><li>• Safety.</li><li>• Parameter / observation which can be recorded.</li><li>• Parameter / observation which cannot be recorded.</li><li>• Equipments, Targets, Instruments, Gauges, Infrastructure Requirements etc available.</li><li>• Equipments, Targets, Instruments, Gauges, Infrastructure Requirements etc not available.</li><li>• Equipments, Targets, Instruments, Gauges, Infrastructure Requirements etc to be made available by the Private industry /requisitioned from other source (other Proof Establishment, DRDO etc).</li></ul>
7.	Any clarifications w.r.t. observations /parameters for conduct of Trial Firing/ Test.
8.	Any other information desired from Requisitioning Agency.
9.	Administrative support, if any, which can be provided to the Requisitioning Agency.



**FORMAT FOR FINAL RESPONSE BY PROOF ESTABLISHMENT TO  
REQUISITIONING AGENCY FOR UNDERTAKING TRIAL FIRING OF AMMUNITION /  
WEAPON IN MoD PROOF RANGES**

1.	Reference of Nodal Cell letter.
2.	Name of Requisitioning Agency.
3.	Store under proof.
4.	Type of proof / Mode of Firing.
5.	Details of the Nodal Officer at Proof Establishment (along with contact details).
6.	Date of Trial Firing / Likely date (Subject to likely placement of Proof Stock Components)
7.	Cost of Trial Firing.
8.	Amount to be deposited by Requisitioning Agency as security (25% of the cost of proof firing).
9.	Remaining cost of Proof Firing and date by which payment to be made by Requisitioning Agency (Min one week prior to conduct of Proof).
10.	Payment: Account details in which payment to be made by the Requisitioning Agency (NEFT transfer details).
11.	Insurance Cover : Details of equipment& asset to be covered & the cost thereof.
12.	Day and time by which store under testing to be positioned at Proof Establishment by Requisitioning Agency (Min one week prior to day of conduct of Trial Firing).
13.	Date by which Proof Stock Component to be provided by the Requisitioning Agency (Minimum one week in advance).
14.	Date by which instruments facilities to be provided by the Requisitioning Agency (Minimum one week in advance).

15.	Date by which security clearance of personnel attending the proof by the Requisitioning Agency (Minimum one week in advance). In case of foreign nationals attending the firing full details along with passport, visa and sponsoring company etc be intimated to Proof Range 30 days in advance.
16.	Date by which Safety Certificate, Fit for Firing Certificate and Bond of Indemnity to be provided by the Requisitioning Agency (minimum one working day prior to conduct of Trial Firing).
17.	Date of final coordination meeting (minimum one working day prior to conduct of Trial Firing).
18.	Security requirement wrt the personnel, transport, equipment etc of Requisitioning Agency.
19.	Administrative support, If any which can be provided to the Requisitioning Agency.
20.	Any other information desired / instructions.

Note : Waiver of cost of Proof and Testing charges will be applicable for cases mentioned in Para 16 of the SOP.

**COMMITTMENT CERTIFICATE TO BE FURNISHED BY THE REQUISITIONING  
AGENCY TO PROOF ESTABLISHMENT ON RECEIPT OF DATE OF TRIAL  
FIRING OF AMMUNITION / WEAPON IN MOD PROOF RANGES**

I, Shri / Smt \_\_\_\_\_ hereby commit the following w.r.t Trial Firing being conducted for on behalf of \_\_\_\_\_ (Firm Name) :-

- (a) Commitment Amount. Payment of 25% of the cost of Trial Firing on confirmation of the date of Trial Firing. In case of failure to participate in the Trial Firing, the Commitment Amount is liable to be Forfeited.
- (b) Remaining cost of Proof Firing will be paid minimum one week prior to conduct of Trial Firing.
- (c) Weapon / Amn Store under proof will be positioned at the nominated Proof Establishment minimum one week prior to conduct of Trial Firing.
- (d) Proof Stock Component if required will be positioned at the nominated Proof Establishment minimum one week prior to conduct of Trial Firing.
- (e) Instrument and other range facilities like target, etc if required will be positioned at the nominated Proof Establishment minimum one week prior to conduct of Trial Firing.
- (f) Safety Certificate, Fit for Firing Certificate and Bond of Indemnity will be submitted minimum one working day prior to conduct of Trial Firing.
- (g) Final Trial Co-ordination meeting one working day prior to conduct of Trial Firing will be attended by reps of the Requisitioning Agency.
- (h) Adhere to safety and range instructions/restrictions of the Proof Range.
- (j) Adhere to security requirement of the Proof Range.
- (k) Adhere to rules and regulation w.r.t. vehicle, personal and other administrative rules of the Proof Range.
- (l) Will make good or pay the cost for any damage to the equipment, store, instrument, range facility etc caused during Trial Firing.
- (m) Will be liable to pay compensation for any injury both fatal / non-fatal to any personnel as a result of Trial Firing.
- (n) Will be liable to settle any legal dispute as per the Arbitration clause given at Annexure 8 of this SOP.
- (o) Firm / Foreign Collaboration Firm is not currently blacklisted by Govt of India.

Place :

Name:

Appointment :

Date :

Name of the Firm:

**Note** To be provide on the official letterhead of the firm and to be signed by the appropriate authority.

**SAFETY CERTIFICATE**

**PROOF OF WEAPON / AMMUNITION STORE .....**

1. Refer MoD instructions and grant of permission for undertaking the proof of \_\_\_\_\_ (weapon/ ammunition store) at \_\_\_\_\_ (nominated Proof Establishment).

2. It is hereby certified that the following weapon / ammunition store are safe for firing:-

Weapon (along with details of components)

Ammunition (Types of Ammunition)

3. It is also certified that the Weapon / Ammunition Store/ Component is safe to be Proof Fired with Charge\_\_\_\_\_ with increment up to \_\_\_\_\_ gms and conditioned up to \_\_\_\_\_temp tp achieve Pressure of \_\_\_\_\_ MPa .

4. Responsibility of any accident or defect during Trial Firing due to firing at higher pressure by addition of charge mass or high temp conditioning is that of Private Firm/ Private Industry and not of the Proof Establishment.

5. I also undertake the responsibility of making good in case of any accident or damage to the equipment/ building/ personnel occurs during the Trial Firing.

**(Private Industry)**

**Note**:- Suggested format may be modified suitably to meet the requirement.

**FIT FOR FIRING CERTIFICATE**

1. Refer MoD instructions and grant of permission for undertaking the proof of \_\_\_\_\_ (weapon/ ammunition store) at \_\_\_\_\_ (nominated Proof Establishment).
  
2. It is hereby certified that Weapon \_\_\_\_\_ and Barrel Regd No \_\_\_\_\_ have been physically inspected and pre firing checks carried out in-situ by the undersigned and found satisfactory. The equipment is certified 'FIT FOR FIRING'.
  
3. Ammunition assembly/conditioning has been witnessed and physical inspection of ammunition has been carried out and it is hereby certified that ammunition is 'FIT FOR FIRING'.

**(Signature)**

**Note**:- Suggested format may be modified suitably to meet the requirement.

**BOND OF INDEMNITY**

To,

The President of India

In consideration of Trial Firing / Testing at \_\_\_\_\_ (Proof Estt / Test facilities) of \_\_\_\_\_ (Store) of \_\_\_\_\_ (firm) of whom I am the authorised and legal representative, I undertake and agree that neither I nor my executors or administrators or other legal representatives will make any claim against the Government, Proof Establishment / Test facilities or against person for any loss or injury including injury resulting in death which one may suffer during the conduct of Trial Firing / Testing and I understand and agree that no compensation will be paid by the Government, Proof Establishment or by any officer or by other rank or employee of the DGQA or any person in the service of the Government in respect of any such loss or injury and I further agree so as to bind myself, my heirs, my executors and administrator to indemnify Proof Establishment / Test facilities and any officer or other rank or employee of the Indian Government and any person in the service of the Government against any claim which may be made by any third party against Proof Establishment / Test facilities during or in connection with such Trial Firing testing.

Dated the \_\_\_\_\_ day of \_\_\_\_\_ 20

No \_\_\_\_\_

(Sign of the Individual)

Name \_\_\_\_\_

Address \_\_\_\_\_

Mobile No \_\_\_\_\_

Witness:-

1. Sign \_\_\_\_\_  
Name \_\_\_\_\_  
Address \_\_\_\_\_  
Mobile No \_\_\_\_\_

2. Sign \_\_\_\_\_  
Name \_\_\_\_\_  
Address \_\_\_\_\_  
Mobile \_\_\_\_\_ No. \_\_\_\_\_

**COUNTERSIGNED**

Station:

Date:

**ARBITRATION CLAUSE**  
**(TRIAL FIRING TESTING AT MoD PROOF RANGE)/ LABORATORY)**

1. All disputes or differences arising out of or in connection with the present Trial Firing/ Testing, including the one concerned with the validity of the present Trial Firing/ Testing or any part thereof, shall be settled by bilateral discussion.
2. Any dispute, disagreement of question arising out of or relating to this Trial Firing/ Testing or relating to damage to equipment/property/range/test infrastructure or human casualties both fatal/not fatal (except as to any matter the decision or determination whereof is provided for by these conditions), which cannot be settled amicably, shall within sixty (60) day or such longer period as may be mutually agreed upon, from the date on which either party informs the other in writing by a notice that such dispute, disagreement or question exists, will be referred to the Arbitration Tribunal consisting of three arbitrators.
3. Within sixty (60) days of the receipt of the said notice, one arbitrator shall be nominated in writing by the Private Industries and one arbitrator shall be nominated by the Proof Establishment / test facilities.
4. The third arbitrator, shall be nominated by the parties within ninety (90) days of the receipt of the notice mentioned above, failing which the third arbitrator may be nominated under the provision of Indian Arbitration and Conciliation Act, 1996 or by dispute resolution institution like Indian Council of Arbitration or ICADR, at the request of either party, but the said nomination would be after consultation with both the parties. The arbitrator nominated under this Clause shall not be regarded nor act as an umpire.
5. The Arbitration Tribunal shall have its seat in New Delhi or such other place in India as may be decided by the arbitrator.
6. The Arbitration Proceedings shall be conducted in India under the Indian Arbitration and Conciliation Act, 1996 and the award of such Arbitration Tribunal shall be enforceable in Indian Courts only.
7. The decision of the majority of the arbitrators shall be final and binding on the parties of this contract.
8. Each party shall bear its own cost of preparing and presenting its case. The cost of arbitration including the fees and expenses of the third arbitrator shall be shared equally unless otherwise awarded by the Arbitration Tribunal.
9. In the event of vacancy caused in the office of the arbitrators, the party which nominated such arbitrator shall be entitled to nominate another in his place and the arbitration proceedings shall continue from the stage they were left by the retiring arbitrator.

10. In the event of one of the parties failing to nominate its arbitrator within sixty (60) days as above or if any of the parties does not nominate another arbitrator within sixty (60) days of the place of arbitrator failing vacant, then the other party shall be entitled after due notice of at least thirty (30) days to request dispute resolution in India like Indian Council of Arbitration and ICADR to nominate another arbitrator as above.

11. If the place of the third arbitrator falls vacant, his substitute shall be nominated according to the provisions herein above stipulated.

12. The parties shall continue to perform their respective obligations under this contract during the pendency of the arbitration proceedings except in so far as such obligations are the subject matter of the said arbitration proceedings.

**(Signature of Proof Establishment/**

**Test Facility rep)**

**(Signature of Requisitioning Agency  
rep)**



### **NON DISCLOSURE AGREEMENT**

This agreement made this \_\_\_\_ Day of \_\_\_\_ Month \_\_\_\_ Year between the President of India through the Director (Name of Lab/Estt), hereinafter referred to as “**First Party**” on the one part and the \_\_\_\_\_ Firm Name with address \_\_\_\_\_ (“**Second Party**”) herein after referred as “**Receiving Party**” which expression shall unless it be repugnant to or inconsistent with subject or context thereof, include and be deemed to include their Heirs, Executors, Successors or Administrators and permitted assigns on the other part.

Hereafter collectively referred to as the “Parties” or individually as the “Party”

WHEREAS, First Party/Lab/Estt. (Disclosing Party) possess certain sensitive and confidential information and desires to disclose it to the Firm (the Receiving Party) to further co-development relationship between the Parties subject to the Terms and Conditions of this Agreement.

NOW IT IS AGREED AND DECLARED BY AND BETWEEN THE PARTIES AS FOLLOWS:

1. **Identification.** When Confidential information is disclosed in writing or other tangible form, the information shall be marked “CONFIDENTIAL” or with similar legend on each page containing Confidential information. When Confidential information is disclosed orally, visually or in any other intangible form, such information shall be identified as confidential at the time of disclosure, subsequently summarized and confirmed in writing within Thirty (30) days from the initial disclosure, referring the date of disclosure.
2. **Standard of Care.** The Receiving Party shall protect the confidential information disclosed by the First Party with appropriate care.
  - (a) Receiving Party shall communicate to First Party in writing the list of nominated persons for receiving confidential information.
  - (b) Confidential information should not be communicated through phone, fax, or email. Confidential information should be exchanged only through signed letters.
  - (c) When confidential information is received by Receiving Party, the Receiving Party should acknowledge the receipt of confidential information in writing.
  - (d) Receiving Party should not discuss the confidential information disclosed by First Party with any Third Party, within Government Organisations or outside Government Organisations without the prior written approval of Director/First Party. The Firm agrees to promptly notify First Party of any misuse/ misappropriation/ loss/ comprise of the confidential information.

3. Either Party's failure to enforce any provision, right or remedy under this agreement shall not constitute a waiver of such provision, right or remedy.

4. This Agreement will be construed in, interpreted and applied to accordance with the laws of India.

5. **Confidentiality Period.** For the terms of this Agreement and Ten (10) years thereafter, the Receiving Party shall neither disclose the First Party's confidential information to any Party other than its Employees who have express need to know in the context of the relevant co-development.

6. **Exceptions.** No obligation shall be imposed regarding confidential information if the Receiving Party can demonstrate that the confidential information:

(a) Is or becomes thereafter available to the public through no breach of this Agreement;

(b) Is disclosed pursuant to governmental or judicial order requirement.

7. **Return of Materials.** The Receiving Party shall return to the First Party, or at the direction on the First Party certify the destruction of all copies of the First Party's confidential information upon written request of First Party.

8. **No License.** Nothing herein constitutes a license or other transfer of rights in respect of either Party's interest in any Confidential information disclosed pursuant to this Agreement.

9. **Term.** The Term of this agreement is Five (5) years from the effective Date, however, those Sections 5,6, 8 and 11 hereof shall survive even after expiration of termination hereof.

10. **Assignment, Modification and Waiver.** No assignment, modification, or waiver of any Tem of this Agreement shall be effective unless set forth in writing and signed by an Authorised Representative of each party. No failure to enforce any provision of this Agreement shall be construed as waiver.

11. **Dispute Resolution.** Difference of opinion, if any, arising during the period of this Agreement, concerning the execution of the responsibilities will be settled on the basis of mutual consultation by the signatories or their designated nominees. The parties will make best possible efforts to resolve the dispute and in case of their failure to do so and reconciling the dispute mutually, the same shall be referred for Arbitration.

12. **Arbitration.** Any question, dispute or difference arising under the Contract (except as to any matter, the decision of which is specifically provided for) shall be referred to the Sole Arbitration of the Scientific Advisor to Raksha Mantri. It will not be valid objection that the Arbitrator is Government Servant and that he had to deal with the matters to which the Agreement relates or that in the course of his duties as a Government Servant

he had expressed views on all or any of the matters, disputes or difference. The Award of the Arbitrator shall be final and binding on both the Parties. The Arbitrator shall be entitled to extend time of award by the consent of the parties from time to time. The venue of Arbitration shall be New Delhi or any other Place as may be decided by the Arbitrator and the expenses of the Arbitration shall be at the discretion of the Arbitrator. Subject as aforesaid, the Arbitration and Conciliation Act 1996 and the Rules there under and any statutory modification thereof for the time being in force shall be deemed to apply to the Arbitration proceedings under this condition.

13. **Entire Agreement.** This Agreement constitutes the entire Agreement between the Parties with respect to the matters covered by this Agreement, supersedes all prior agreements and understandings with respect thereof, and may only be amended in writing signed by both Parties.

14. **Binding Effect.** This Agreement shall be binding and inure to the benefit of the undersigned Parties, their Successors and Assigns.

IN WITNESS THEREOF, the parties have executed this Agreement to be executed as the effective date written above when signed below by their duly authorised representatives.

**For Lab/Estt/First Party**

Name :  
Designation :  
Address :  
Date :

**For Firm/Second Party**

Name :  
Designation :  
Address :  
Date :

1. **Definitions:**

In this Non-Disclosure Agreement the following terms shall, unless the context otherwise requires, have the following meanings:

**1.1 'Disclosing Party' or 'First Party'** means Proof Firing Establishment, disclosing Confidential Information to the Private Industry/Seller/ Development Partner under this Agreement.

**1.2 'Receiving Party' means** the Private Industry /Seller / Development Partner receiving Confidential Information from Proof Firing Establishment under this Agreement.

**1.3 'Confidential Information'** means any information, which shall include but is not limited to, design, fabrication and assembly drawings, know-how, processes, product specifications, raw materials, product samples, inventions, concepts and any other technical and /or commercial information, disclosed directly or indirectly and in any form whatsoever (including, but not limited to, disclosure made in writing, oral or in the form of samples, models, computer programmes, drawings or other instruments)furnished by the Disclosing Party to the Receiving Party under this Agreement.

**1.3.1** Such Confidential Information shall also include but shall not be limited to:

**1.3.1.1** information disclosed by the Disclosing Party / First Party in writing marked as confidential at the time of disclosure;

**1.3.1.2** Information disclosed by the Disclosing Party / First Party orally which is slated to be confidential at the time of disclosure;

**1.3.1.3** Information disclosed in any other manner is designated in writing as Confidential Information at the time of disclosure ; or

**1.3.1.4** Notwithstanding sub-clauses 1.3.1.1, 1.3.1.2 and 1.3.1.3 of this definition, any information whose nature makes it obvious that it is confidential.

**1.3.2** Such Confidential information shall not include any information which:

**1.3.2.1** is, at the time of disclosure, publicly known ; or

**1.3.2.2** becomes at a later date, publicly available otherwise than a wrongful act or negligence or breach of this Agreement of or by the Receiving Party ;or

**1.3.2.3** the Receiving Party can demonstrate by its written records was in its possession, or known to the Receiving Party

before receipt under this Agreement, and which was not previously acquired under an obligation of confidentiality; or

**1.3.2.4** is legitimately obtained at any time by the Receiving Party from a third Party without restrictions in respect of disclosure or use, or use; or

**1.3.2.5** the Receiving Party can demonstrate to the satisfaction of the Disclosing Party, has been developed independently of its obligations under this Agreement and without access to the Confidential Information.

**2. Administrative Instructions:**

**2.1** Authority of the Signatory of Receiving Party in NDA shall be established prior to signing of NDA. Preferably, a letter should be obtained from CEO / MD of the Receiving Party authorising a named senior level official to sign NDA on their behalf. Only such authorised Senior Level Officer should sign the NDA document on behalf of Receiving Party / Second Party.

**2.2** The confidentiality of the documents shall also be maintained by the Consortium Partners of the Suppliers/Receiving Party.

**2.3** The Proof Firing Establishment. Test facilities are advised to enter into his NDA in all Contracts wherein any Confidential Information is being shared with the Receiving Party/ Second Party.

**LIST OF FIELD FIRING RANGES (FFRs)**

<b><u>S/ No</u></b>	<b><u>FFR</u></b>	<b><u>State</u></b>	<b><u>Max Range (KM)</u></b>	<b><u>Weapons to be Tested*</u></b>
1.	Bamori (Saugor)	MP	3	Small Arms (SA) weapons 81 mm mortar, Rocket Launcher (RL), Automatic Grenade Launcher (AGL) and 14.5 mm Artillery (Arty) Trainer
2.	Sikkim (HAA Area)	Sikkim	6	All infantry weapons and field guns at limited range
3.	Teesta	West Bengal	10	All infantry weapons and field guns at limited range
4.	Balwanta (Nasirabad)	Rajasthan	3	SA weapons 81 mm mortar RL, AGL and 14.5 mm Arty Trainer
5.	Gamrala (HAA Area)	Arunachal Pradesh	6	All infantry weapons and field guns at limited range
6.	Mahajan	Rajasthan	20	Tank and Infantry Combat Vehicle (ICV) Gun, Tank and ICV Missiles, All Inf, Army Air Defence (AAD) and Arty weapons
7.	Pokhran	Rajasthan	32	Tank and ICV Gun, Tank and ICV Missiles, All Inf, AAD and Arty weapons
8.	Babina	MP	10	Tank and ICV Gun, Tank and ICV Missiles, All Inf, AAD and Arty weapons
9.	KK Ranges	Maharashtra	34	125mm HEAT, 125mm HE, 105mm Arty Gun, Inf Bn Sp wpn, IAF
10.	Nasik	Maharashtra	21	All Arty Guns, Rkt Sys except SMERCH and PINAKA
11.	Mhow (Hema)	MP	3.5	SA weapons, 81mm mortar, 84mm RL, Automatic Grenade Launcher & ATGM.
12.	Mhow (Choral)	MP	6	SA weapons, 81mm mortar, 84mm RL, AGL & ATGM.
13.	Gopalpur	Odisha	76	All AAD weapons.

**REQUEST FOR FIELD FIRING RANGE (FFR)/ TEST FACILITY**

1. Name of Firm:
2. Details of Firm :  
  
Registered with MoD / DGQA / DGAQA/ DPSUs / DGOS / DRDO / MHA Govt  
(any agency) :Defence Equipment Licence Holder :
3. Contact Person (with designation):
4. Telephone and e-mail details:
5. Brief Reason for Requirement of FFR /Test: (To be appended on a separate sheet)
6. Name of Weapon System (s) / Ammunition (s)/ Equipment (s) to be Tested
7. Name of Preferred Range(s)/ Laboratory/ Test facility : (In descending order)
8. Requirement of FFRs Laboratory/ Test facility (Number of days):
9. **Dates.**

S/No	Requirement of FFR/ Test Facility					Remarks
	Dates FFR / Test Facility Required		Alternate Dates			
	From	To		From	To	
(a)			Priority 2			
			Priority 3			

- \*10. Type(s) and Quantity of Ammunition to be fired:
- \*11. Distance between Gun End and Target for each type of ammunition
12. Technical and Infrastructure assistance required.
13. Any other details:

Date: (Signature of Private industry with stamp)

\*In case of Field firing application only

**RECOMMENDATION OF DIRECTOR GENERAL CAPABILITY DEVELOPMENT**

RECOMMENDED/ NOT RECOMMENDED

**FORMAT FOR INITIAL RESPONSE BY COMMAND HQ TO REQUISITIONING AGENCY FOR UNDERTAKING TRIAL FIRING OF AMMUNITION / WEAPON / EQUIPMENT/ TESTING OF STORE**

1.	Reference of Nodal Cell letter.
2	Name of the Requisitioning Agency.
3.	Store under trial / testing.
4.	Details of the Nodal Officer at Firing Range / Test Facility allotted (along with contact details).
5.	Any clarifications w.r.t. observations /parameters for conduct of Trial Firing.
6.	Any other information desired from Requisitioning Agency.
7.	Administrative support. If any which can be provided to the Requisitioning Agency.



**FORMAT FOR FINAL RESPONSE BY PROOF ESTABLISHMENT TO  
REQUISITIONING AGENCY FOR UNDERTAKING TRIAL FIRING OF  
AMMUNITION / WEAPON IN MoD PROOF RANGES/ TESTING OF STORE**

1.	Reference of Nodal Cell letter.
2.	Name of Requisitioning Agency.
3.	Store under trial / Test.
4.	Details of the Nodal Officer at range establishment / Test Facility (along with contact details).
5.	Date of Trial Firing / Test.
6.	Cost of Trial Firing / Test.
7.	Amount to be deposited by Requisitioning Agency as security (25% of the estimated cost).
8.	Remaining cost of Proof Firing/ Test and date by which payment to be made by Requisitioning Agency (Min one week prior to conduct of Proof).
9.	Payment: Account details in which payment to be made by the Requisitioning Agency (NEFT transfer details).
10.	Day and time by which store under testing to be positioned at range establishment / Lab by Requisitioning Agency (Min one week prior to day of conduct of Trial Firing).
11.	Date by which security clearance of personnel attending the firing/ testing by the Requisitioning Agency (Minimum one week in advance). In case of foreign nationals attending the firing, full details along with passport, visa and sponsoring company etc be intimated to command HQ 30 days in advance.
12.	Date of final coordination meeting (minimum one working day prior to conduct of Trial Firing).
13.	Security requirement wrt the personnel, transport, equipment etc of Requisitioning Agency.
14.	Administrative support. If any which can be provided to the Requisitioning Agency.
15.	Any other information desired / instructions.

**COMMITTMENT CERTIFICATE TO BE FURNISHED BY THE REQUISITIONING  
AGENCY TO COMMAND HQ ON RECEIPT OF DATE OF TRIAL FIRING OF  
AMMUNITION / WEAPON IN FIELD FIRING RANGES**

I, Shri / Smt \_\_\_\_\_ hereby commit the following w.r.t Trial Firing being conducted for  
\_\_\_\_\_ on behalf of \_\_\_\_\_ (Firm Name) :-

- (a) **Commitment Amount.** Payment of 25% of the cost of Trial Firing on confirmation of the date of Trial Firing. In case of failure to participate in the Trial Firing, the Commitment Amount is liable to be Forfeited.
- (b) Remaining cost of trial firing will be paid minimum one week prior to conduct of Trial Firing.
- (c) Weapon / Amn Store under trial will be positioned at the nominated Firing Range minimum one week prior to conduct of Trial Firing.
- (d) Instrument and other range facilities like target, etc if required will be positioned at the nominated at the Firing Range minimum one week prior to conduct of Trial Firing.
- (e) Safety Certificate, Fit for Firing Certificate and Bond of Indemnity will be submitted minimum one working day prior to conduct of Trial Firing.
- (f) Final Trial Co-ordination meeting one working day prior to conduct of Trial Firing will be attended by reps of the Requisitioning Agency.
- (g) Adhere to safety and range instructions/restrictions of the Field Firing Range.
- (h) Adhere to security requirement of the Firing Range.
- (j) Adhere to rules and regulation w.r.t. vehicle, personal and other administrative rules of the Firing Range.
- (k) Will make good or pay the cost for any damage to the equipment, store, instrument, range facility etc caused during Trial Firing.
- (l) Will be liable to pay compensation for any injury both fatal / non-fatal to any personnel as a result of Trial Firing.
- (m) Will be liable to settle any legal dispute as per laid down Arbitration clause.
- (n) Firm / Foreign Collaboration Firm is not currently blacklisted by Govt of India.

Place :

Name:

Date :

Appointment:

Name of the Requisitioning  
agency:

**Note:** To be provide on the official letterhead of the firm and to be signed by the appropriate authority.

**EMERGENT REQUEST FOR FIELD FIRING RANGE (FFR)**

1. Name of Requisitioning Agency:
2. Address of Firm:
3. Contact Person (with designation):
4. Telephone and e-mail details:
5. Brief Reason for Requirement of FFR: (To be appended on a separate sheet)
6. Brief Reasons for Emergent request of FFRs: (To be appended on a separate sheet)
7. Name of Weapon System(s) / Ammunition (s) to be tested:
8. Name of Preferred Range(s): (In descending order)
9. Requirement of FFRs (Number of days):
10. **Dates**.

S/No	Requirement of FFR					Remarks
	Dates FFR Required		Alternate Dates			
	From	To		From	To	
(a)			Priority 2			
			Priority 3			

11. Type(s) and Quantity of Ammunition to be fired:
12. Distance between Gun End and Target for each type of ammunition:
13. Requirement of additional facilities:-
  - (a) Survey:
  - (b) Ammunition:
  - (c) Equipment:
  - (d) Store:

- (e) Safety:
- (f) Technical Command Posts:
- (g) Administrative support:
- (h) Medical cover:

Date:

(Signature of Requisitioning Agency with stamp)

**RECOMMENDATION OF DIRECTOR GENERAL WEAPONS AND EQUIPMENT**

RECOMMENDED/ NOT RECOMMENDED

**DETAILS OF PROOF UNDERTAKEN BY PROOF RANGS AND AVAILABILITY OF  
INFRASTRUCTURE (O.F. VARANGAON) \***

<b><u>Calibre</u></b>	<b><u>Weapons Available</u></b>	<b><u>Stores Under Proof</u></b>	<b><u>Type of Proof</u></b>
5.56 mm	i) 5.56 mm Rifle  ii) Gun Machine 5.56 mm LA1  iii) Ballistic Barrels	Cartg. SA 5.56 mm Ball/TCR	a) Functioning & Causality b) Mean Observed Velocity c) Mean Chamber pressure d) Consistency e) Action time f) Primer Sensitivity g) Trace Test
7.62 mm	i) 7.62 mm RIFLE 1A1  ii) 7.62 MM Gun Machine 1B  iii) 7.62 mm Gun Machine (MAG) 2A/2A1  iv) Ballistic barrels	Cartg. SA 7.62 mm M-80/M-62	a) Functioning & Casualty b) Mean Observed Velocity c) Mean Chamber pressure d) Consistency e) Action time f) Sensitivity g) Port Pressure h) Trace Test
7.62 KT	i) Gun Machine 7.62 mm PKT (Co-Axial Type)  ii) Ballistic Barrels	Cartg. SA 7.62 mm PKT	a) Functioning & Casualty b) Mean Observed Velocity c) Mean Chamber pressure d) Consistency e) Action time f) Penetration
A-7 ( 7.62 X 39 mm)	i) AK-47 Rifle  ii) Ballistic Barrels	Cartg. SA 7.62 A-7 mm	a) Functioning & Casualty b) Mean Observed Velocity c) Mean Chamber pressure d) Consistency e) Action time f) Sensitivity g) Port Pressure
12.7 mm	i) Machine Gun 12.7 mm AD  ii) Ballistic Barrels	Cartg. SA 12.7 mm API/APIT	a) Functioning & Casualty b) Mean Observed Velocity c) Pressure d) Consistency e) Action time f) Sensitivity g) Piercing h) Incendiary i) Jolt test

\*The above test facilities for ammunition proof only and not for any type of weapon or spare accessory of the weapon.

### **DETAILS OF FACILITIES AVAILABLE AT O.F. VARANGAN**

Details of facilities available at O.F. Varangaon are as under: -

- (a) Environmental test chamber temp range: +50° to -75° C
- (b) Environmental test chamber temp range: 0° to 100° C
- (c) Environmental test chamber temp range: +50° to -60° C
- (d) Environmental test chamber temp range: +27° C
- (e) Velocity Screen
- (f) Microsecond chronometer for Action time proof
- (g) Jolt test machine

**DETAILS OF PROOF UNDERTAKEN BY PROOF RANGS AND AVAILABILITY OF  
INFRASTRUCTURE (AFK Kirkee Pune) \***

<b><u>Calibre</u></b>	<b><u>Weapons Available</u></b>	<b><u>Stores Under Proof</u></b>	<b><u>Type of Proof</u></b>
5.56 mm	5.56mm Rifle, 1 MG , Ballaistic Barrels, JVPC Weapon for Carbine	5.56mm Ball 5.56mm NATO 5.56mm Carbine	Functioning Proof, Consistency, Pressure, Action Time
9mm	Carbine, Pistol 9mm VD Weapon for 9mm Tracer	9mm Ball 9mm tracer Ammunition	Functioning Proof, Consistency, Pressure, Action Time
7.62 mm	7.62 mm GPMG, LMG, Rifle, Ballistic Barrels	7.62 mm Blank Ammunition	Functioning proof, Action Time
0.22" RF	Sporting Rifle, Rifle No. .2 Mk 4	0.22 Ammunition	Functioning Proof, Consistency, Velocity
0.380"	Revolver and Ballistic Barrels	0.380" Ammunition	Functioning Proof, Consistency, Velocity
8 mm	8m Rifles, Ballistic Barrels	8 mm Ball Ammunition	Functioning Proof, Consistency, Velocity, Pressure.
12 Bore	12 Bore Pump Action Gun, DBBL Gun, 12  Bore Pressure Barrels	12 Bore Ammunition	Functioning Proof, Consistency, Velocity
0.32" Pistol & Rev.	0.32" Pistols, 0.32" Rev & Barrels	0.32" Pistol 0.32" Rev. RL	Functioning Proof, Consistency, Velocity.
Primer for 5.56 mm, 9 mm, 0.22", 0.380, 303" etc.	Sensitivity Test	Various primers for SAA	Sensitivity Test
51mm	51 mm Mortar	Bomb 51mm HE OT	Range & Functioning
Cartg.51 mm	51 mm Mortar	HE & Illug. Cartidges OT	Velocity
Fuze DA5 A	51 mm Mortar	E/F/P, F/P	Functioning
Fuze DA5A Fuze 117	Proof Facility Available	Fuze DA5A & Fuze 117	Sealing & Detonation
FMC 605	Proof Facility Available	FMC 605	Functioning (Pull & Force)
Mine APM 16	Proof facility available	Mine APM 16	Functioning

Charge Demolition	Proof facility available	Charge Demolition	Functioning
40 mm UBGL, HE, HEDP, PRF	40 mm UBGL 40 mm MGL 40mm Rounds	40 mm UBGL	Velocity, Pressure, Aim & Range , Functioning
Det.356mg, Det 110mg, Det 86, Det 87, Det 27, Det N5, Det Elec. No. 33	Proof facility available	All types Detonators	Drop Sensitivity, Pressure bar, Flash Delivery, Flash Pick up, Detonation.
Primer M 191 A2	Proof facility Available	Primer M191 A2	Safety, Functioning Proof, Performance Test, Delay Time
Det 36 M 4 sec Delay	Proof facility Available	Det. 36 M 4 sec Delay ATS	Delay time, functioning Proof
Cartg. 81 mm MTD	Proof facility Available	Cartgs. 81 mm MTD	Drop Sensitivity
Switch No. 4	Proof facility Available	Switch No. 4	Functioning proof



**DETAILS OF PROOF UNDERTAKEN BY PROOF RANGS AND AVAILABILITY OF  
INFRASTRUCTURE (O.F. KANPUR)**

<b><u>Calibre</u></b>	<b><u>Weapons Available</u></b>	<b><u>Stores Under Proof</u></b>	<b><u>Type of Proof</u></b>

**Note:** The Sarshaul Proof Range (SPR) is still a green field area and not at all operational. It will take minimum 2-4 years for it to get operational. Once operationalized, only “**Strength Proof**” can be done at the range due to limited range area.

**DETAILS OF PROOF UNDERTAKEN AT HVF. PROOF RANGE. AVADI**

<b>Sl. No.</b>	<b>Type of Proof</b>	<b>Caliber</b>	<b>Ammunition</b>	<b>Remarks</b>
1	Mounting Stability Proof of Tank T-72 and its variants, Tank T-90	125 mm	125 mm HE (Inert)	Remote firing from 100 m to Arrestor Butt
2	Mounting Stability Proof of MBT Arjun	120 mm	120 mm Proof Shot	Remote firing from 100 m to Arrestor Butt
3	Zeroing and Functional proof of 12.7 mm AD Gun	12.7 mm	12.7 mm API	100 m Target, single & burst firing
4	Zeroing and Functional proof of 7.62 mm PKT Gun	7.62 mm	7.62 mm PKT	100 m Target, single & burst firing

**DETAILS OF INSTRUMENTS AVAILABLE AT HVF. PROOF RANGE. AVADI**

NIL

**DETAILS OF PROOF UNDERTAKEN BY PROOF RANGS AND AVAILABILITY OF  
INFRASTRUCTURE (O.F. Tiruchirappalli)**

<b><u>Calibre</u></b>	<b><u>Stores Under Proof</u></b>	<b><u>Type of Proof</u></b>	<b><u>Range</u></b>
30 mm	30mm Cannon	Function &Rate of Fire	15 meter Range
		Accuracy Muzzle velocity	100 meter Range
12.7 mm	12.7 mm AD Gun	Function, Rate of Fire & Accuracy	100 meter Range
14.5 mm	14.5 SCD		
7.62 mm	7.62 mm PKT		
0.315"	0.315" Sporting Rifle	Function & Accuracy	100 meter Range
7.62 mm	7.62 mm SLR	Function & Accuracy	50 meters (Function)
5.56 mm	7.62 mm TAR		30.5 meters (Accuracy)
	5.56 mm INSAS		
38 mm & 40 mm	40 mm MGL 40 mm UBGL 38mm MSL	Function, Range & Accuracy	Up to 600 meter Grenade range

**DETAILS OF PROOF UNDERTAKEN BY PROOF RANGS AND AVAILABILITY OF  
INFRASTRUCTURE (Rifle factory, Ishapore)**

<b><u>Calibre</u></b>	<b><u>Weapons Available</u></b>	<b><u>Stores Under Proof</u></b>	<b><u>Type of Proof</u></b>
5.56 mm	Not Applicable	Rifle 5.56mm 1B 1	Functional Firing proof of weapons
5.56 mm		Rifle 5.56 mm Ex-calibur	
5.56 mm		Rifle 5.56 mm INSAS 1C	
7.62 mm		7.62 mm Ghaatak	
7.62 mm		7.62 m Sniper Rifle	
9 mm		Pistol Auto 9 mm 1A	
12 mm		12 Bore pump Action Gun	
0.315		0.315 Sporting Rifle	
3006		30-06 Sporting Rifle	
0.22		0.22 Sporting Rifle	
0.32		0.32 Pistol	

It is pertinent to mention that RFI carries out only the functional test of weapons for internal assessment and remaining types of proof done by resident SQAE(SA), Ishapore.

**DETAILS OF PROOF UNDERTAKEN BY PROOF RANGES AND AVAILABILITY OF INFRASTRUCTURE (AQAW(A) / SHORT PROOF RANGE (SPR)) KHAMARIA, JABALPUR**

Sl. No.	Name of Firing/ Proof Range	Names of Facilities and What is Tested
1	Short proof Range (SPR) at O.F Khamaria Jabalpur	<ul style="list-style-type: none"> <li>- <u>Jolt test</u>-30mm Aden Cap, ERU/PPLT cap.</li> <li>- <u>Hygroscopic test</u>- Cartg ERU, Cartg PPLT and case study proof.</li> <li>- <u>Ignition delay test</u>- Cartg ERU, Cartg PPLT, Aden cap , PPLT cap, ERU cap, 30mm GHASA Ammunition.</li> <li>- <u>Time delay test</u>- PPLT cap, EKV Primer, ERU cap, Aden cap.</li> <li>- <u>Pressure test</u>-30mm GHASA Ammunition, 30mm Aden 23 mm GHASA, pyro ppl and all types of power and Escape AID cartgs.</li> <li>- <u>Velocity test</u>- All gun ammunition and squib cable cutter.</li> <li>- <u>Hang fire test</u>- All gun ammunition.</li> <li>- <u>Resistance test</u>- All electrically operated caps and cartgs.</li> <li>- <u>Vaccum test</u>- PV-50, PV-35, PK-3M1 Cartgs.</li> <li>- <u>Accuracy test</u>- 30mm GHASA Ammunition, 30mm Aden, 23 mm GHASA, 68 /57mm motor Rocket.</li> <li>- <u>Functioning test</u>- All caps, 30mm GHASA Ammunition, 30mm Aden, 23 mm GHASA, 68 /57mm motor Rocket.</li> <li>- <u>Recovery test</u>- 30 mm ghasa, 30mm aden, 23 mm Aden.</li> <li>- <u>Non functioning test</u>- All caps, 30 mm ghasa, 30mm aden, 23 mm aden, 68 /57mm motor Rocket.</li> <li>- <u>Sensitivity test</u>- 23 mm GHASA cap, Aden cap.</li> <li>- <u>Non-Sensitivity test</u>- 23 mm GHASA cap, Aden cap.</li> <li>- <u>Temperature conditioning test</u>- All gun ammunition.</li> <li>- <u>Safe current test</u>. All caps/primer/initiators.</li> <li>- <u>Moisture effect test</u>- All caps/primer/initiators.</li> </ul>

**DETAILS OF PROOF UNDERTAKEN BY PROOF RANGES AND AVAILABILITY OF  
INFRASTRUCTURE (ORDAQA(A). KIRKEE PUNE)**

Sl. No.	Name of Firing/ Proof Range	Names of Facilities and What is Tested
1	Proof Range, ORDAQA(A), Kirkee Pune  / Ammunition Factory Kirkee Proof range	Data acquisition system.  Environmental chamber, & test vessels.  Proof testing of Air Armaments Stores produced at AFK, OFDR and ARDE.

**DETAILS OF TEST AND PROOF FACILITIES AVAILABLE WITH DGNAI**

<b><u>Ser</u></b>	<b><u>Unit</u></b>	<b><u>Test Lab/ Proof Facility</u></b>	<b><u>Type of Testing/ Evaluation</u></b>
1.	CNAI(West), Mumbai	Explosive Test Facility (BETF1)	1. Percentage Moisture Test 2. Heat Test apparatus 3. Methyl Violet Test apparatus 4. Percentage Volatile Matter Test 5. B&J Test apparatus 6. Composition (BPC & SPC) Test 7. Vacuum Stability Test apparatus 8. Melting Point Test apparatus 9. Acidity Test apparatus 10. Set Point of TNT Test 11. Total Insoluble Matter Test 12. Various Environment & ISAT Temperature conditioning Chambers (ECRW& ISAT) 13. Shock Testing Machine
		Advanced Explosive Test Facility (AETF1)	1. Thermal Activity Monitor 2. Differential Scanning Calorimeter 3. Thermogravimetric Analyser 4. High Performance Liquid Chromatography
		Non Explosive Test Facility (NETF1)	1. Drop Point Test apparatus 2. Copper Corrosion Test 3. Ramsbottom Carbon residue apparatus 4. Abel Flash Point apparatus 5. Fractional Distillation 6. Specific Gravity at RT 7. Copper Stip corrosion test apparatus 8. Pensky Marteb's Flash Point Tester 9. Viscometer 10. % Acidity (mg of KOH/100 cc) 11. Mechanical Impurities 12. Cloud & Pour Point test apparatus 13. Automatic Gloss meter 14. Scratch Hardness & Stripping Tester 15. Dean & Stark apparatus 16. Pressure Test apparatus

			17. Flexibility & Adhesion/ Bend Test apparatus
			18. Hydrometer
			19. Smoke Point apparatus
			20. Fractional Distillation apparatus
			21. Cone Penetrometer
			22. Paint Corrosion Test Cabinet
			23. Muffle Furnace
		Rubber Test Laboratory (RTL1)	1. Comprehensive Stress Relaxation Tester
			2. Identification Testing
			3. Hardness (Shore 'A'/ Shore 'D'/ Shore 'M') Tester
			4. Tensile Strength end Elongation Break
			5. % Swelling test apparatus
			6. Compression test apparatus
			7. Adhesion to Corrosion to Metal test apparatus
			8. Specific Gravity
		Specialised Testing Equipment	1. Muzzle Velocity & Discharge Pressure equipment
			2. Crack Testing Machine
			3. 3D vision Measuring Equipment
			4. Video Boroscope
		Rocket Motor Static Firing Facility (RMSFF)	1. Symmetric Multi-Channel Data Acquisition system
			2. Data-Q Multi Channel Data Acquisition system
			3. Universal Testing Machine
			4. Universal Calibrating Machine
			5. Dead Weight Tester
			6. Various types of Closed Vessel Test hardware
			7. Various types of Vented Vessel Test hardware
			8. Various types of Ballistic Evaluation Motors
			9. Various types of Pressure Transducers
			10. Various types of Load Cells
			11. Technical Evaluation Motor for BPC of RZ-61
			12. Various types of Multimeters



			13. Multimeter
			14. Rheostat
			15. Universal Battery Discharge Console
			16. Hygrometer
			17. Thermal Battery Test Station
			18. Environmental Meter
			19. Digital Ammeter & Voltmeter
			20. Oscilloscope
		Radiographic Facility (ERF1)	1. X-Ray radiography machine & accessories/ supporting equipment
			2. Density Meter
		Calibration (including Metrology) Lab (ACML1)	1. Various types of Multimeters
			2. Universal Counter
			3. Timer Calibration Unit
			4. Various types of Decade Resistance Boxes
			5. Various types of Calibrators
			6. Various types of Megger Calibration units
			7. Various types of DC Power Sources
			8. Signal Generator
			9. AC Power Source
			10. Hydraulic Dead Weight Tester
			11. Various types of Digital Pressure Gauges
			12. Hydraulic Pressure Comparator
			13. Vacuum Comparator
			14. Spring Balance Calibration Unit
			15. Tachometer Calibrator
			16. Digital Weighing Machine
			17. Various types of Analog Pressure Gauges
2.	CNAI(East), Vizag	Explosive Testing Laboratory/ Facility (BETF2)	1. Percentage Moisture test
			2. Abel Heat Test bath/apparatus
			3. Volatile matter test bath/apparatus
			4. Propellant treatment bath/apparatus
			5. Methyl violet test bath/apparatus
			6. Bergman & Junk (B&J) test

			7. Dutch Stability test bath/apparatus
			8. Hanzen Test apparatus
			9. Vacuum stability test
			10. Digital melting point test
			11. ISAT Temperature conditioning Chambers
		Non Explosive Testing Laboratory (NETF2)	1. Bend Test apparatus
			2. Muffle furnace
			3. Gelation Time Apparatus
4. Pressure test apparatus			
5. Impact resistance Tester			
6. Bursting Strength apparatus			
7. Consistency flow cup			
8. Scratch Hardness Apparatus			
			<b>Petroleum Oil Lubricants Laboratory</b>
			1. Flash point apparatus
			2. Cone penetrometer
			3. Drop point test apparatus
			4. Smoke point apparatus
			5. Colloidal stability test apparatus
			6. Hydrometers
			7. Dean& Stark apparatus
			8. Pensky & Martin's closed cup apparatus
			9. Cloud and Pour Point apparatus
			10. Copper Strip corrosion test bath
			11. Automatic viscometer bath
			12. Karl-Fisher Titration apparatus
			13. Laser Particle Counter
			14. Refractometer Apparatus
			<b>Missile Fuels Divn.</b>
			1. Fractional Distillation
			2. Refractometer
			3. Kinematic Viscosity Bath
			4. Titration Method
		Rubber Testing Laboratory (RTL2)	1. Ageing Ovens
			2. Tensile testing machine
			3. Compression Set % apparatus
4. Shore 'A' durometer			
5. Adhesion Test Apparatus			

		Rubber Testing Laboratory (ARTL1)	1. Stress Relaxation Apparatus
		Advanced Energetic Testing Equipment (AETF2)	1. High Performance Liquid Chromatography
			2. Modulated differential scanning Calorimetry
			3. Thermo Gravimetric Analyzer (TGA)
			4. Dynamic Mechanical Analyzer (DMA)
			5. Thermal Activity Monitor(TAM – III)
			6. Fourier Transform Infrared Spectroscopy(FT-IR)
		Calibration & Metrology Labs (ACML2)	<b>Calibration Lab</b>
			1. Various types of Calibrators
			2. RF Reference Source
			3. Various types of Multimeters
			4. Signal Channel Arbitrary Function Generator
			5. Analog Signal Generator
			6. Intelligent Counter
			7. Various types of Oscilloscopes
			8. Tachometer
			9. Thermal Imager
			10. Timer Counters
			11. Temperature Calibrators
			12. Manometers
			13. Electronic Dead Weight Tester
			14. Master Pressure Gauge
			15. Master Vacuum Gauge
			16. Decade Resistance Box
			17. DC Power Supplies
			18. Programmable Electronic Load
			19. Audio Oscillator
			20. Safety Ohmmeters
			21. AV Voltage Generator
			22. Sound Level Meter
			23. Pressure Gauges
			24. Wet/ Dry Thermometer
			25. Timer Electro Mechanical Calibration Unit
			26. Hydraulic Comparison Tester



3.	CNAI(South), Aluva		<b>Metrology Lab</b>
			1. 3D Coordinate Measuring Machine
			2. Optical Emission Spectrometer
			3. Spring Testing Machine
			4. Hand Held X-Ray Fluorescent Spectrometer
			5. Video Measuring Machine
		Special Test Equipment	1. Torpedo Muzzle Velocity Measuring Equipment
			2. Spring Testing Machine
			3. Test Point Test Bench (on ty-loan)
			4. Ultrasonic Testing Machine
			5. Acoustic Emission Testing
		Explosive Chemical Test Lab (BETF3)	1. Vacuum Stability Test Bath
			2. Setting Point Apparatus
			3. Acidity Test Apparatus
			4. Abel's Heat Test Apparatus
			5. Methyl Violet Test Bath
			6. Cone & Dish Test Apparatus
			7. Bergman & Junk Test Bath
			8. Moisture Test Bath
		Non-Explosive Testing Lab (NETF3)	1. Drying Time Recorder
			2. Bend Test Apparatus
			3. Pressure Test Apparatus
			4. Viscometer
			5. Muffle Furnace
			6. Abel's Flash Point Apparatus
			7. Dean & Stark Apparatus
		Metrology Lab (ML1)	1. Brinnel Hardness Tester
			2. Universal Testing Machine (Metal)
			3. IZOD Impact Machine
			4. 3D Co-ordinate Measuring Machine
			5. Profile Projector
			6. Hot Air Ageing Oven
		Rubber Test Lab (RTL3)	1. Compression Set Apparatus
			2. Dumbbell Cutters
			3. International Rubber Hardness Degree Meter(IRHD)
			4. Universal Tensile testing machine (Rubber)

4.	CNA(OF), Pune	Calibration and Metrology lab (CML3)	1. Digital Profile Projector
			2. Spring Testing Machine
			3. Digital Vernier Calliper
			4. Cylinder/Slip/Bore Gauges
			5. Digital Micrometre
			6. Hardness Testing Machine
			7. Surface Plate
			8. Electric oven with Spray Gun
			9. Power Source Amplifier
			10. 3-Pin Micrometer
			11. Crystal Controlled oscillator
			12. Etching machine
			13. Megger
			14. Coating Thickness-meter
			15. Vickers Hardness Tester
			16. Digital Weighing machine
			17. Telescopic gauge (8-150mm)
			18. De- magnetizer
			19. Profile Projector
5.	CNA(DP), Hyderabad	Mechanical Test Lab (MTL1)	1. Impact Testing Machine
			2. Digital Universal Testing Machine
			3. Digital Hardness Testing Machine
6.	NAI(Jab), Jabalpur	Naval Explosive Radiographic Centre (ERF2)	1. Linear Accelerator Radiographic Facility
			2. Gamma ray radiography testing equipment
			3. Radiation Survey meter
			4. Area Zone monitor
			5. Video Measuring Machine
			6. Multi sensor vision Measurement System
			7. Barrel Straightness Gauge
		Metrology Lab (ML2)	1. Digital Pressure Transducer
			2. Electrical Firing Mechanism
			3. Plug Bore Gauge
			4. Radial Pressure Gauge
			5. Profile Projector
			6. Digital Hardness Tester
			7. Ballistic time measurement system
			8. Chamber gauge
7.	NAI(Goa)		1. Methyl Violet (MV) Test

		Explosive Test Lab (BETF4)	2. Volatile Matter Test
		Calibration & Metrology Lab (CML4)	3. Heat Test Bath
			4. Melting/ Boiling Point Apparatus
			5. ISAT (Intensified Standard Alternating Trials) Facility
			6. Vacuum Stability Test Bath
			7. Digital Weighing Balance
			8. Hot Air Oven
			1. Pressure/Vacuum Gauge Calibrators
			2. Portable Hardness Testing Machine
			3. Surface Plate with Height Gauge
			4. Profile Projector
			5. Various Types of Multimeter
			6. Sine Square Oscillator
			7. Safety Ohm Meter
			8. Various AC & DC Power Sources
			9. Universal Scalar Timer
			10. Decade Resistance Box
			11. Oscilloscope
			12. High Resistance Decade Mega ohm box
			13. Function Generator
			14. Various Types of Rheostat
			15. Dead Weight Tester
			16. Clamp Meter Fluke
			17. Insulation Tester
			18. Clock Humidity
			19. Comparison Test Pump
			20. Electronic Coating Thickness Gauge, TT-260
			21. Magnetic Crack Detector
			22. Stop Watch
			23. Precision Gauge Block (Slip Gauge)
			<b>Paint Test Lab</b>
			1. Flow Cup Viscometer
			2. Scratch Hardness Tester
			3. Flash Point Apparatus
			4. Salt Spray Test Apparatus

			5. Flexibility and Adhesion Test Apparatus
			6. Pressure Test Apparatus
			7. Dean & Stark Apparatus
			8. Drying Time Recorder
			9. Metal Pyknometer
			10. Glossmeter
8.	NAI(Kol)	Precision Measurement Lab (ML3)	1. 3D-CMM
			2. Rockwell Hardness Tester
			3. Wireless Articulating Video Boroscope
			4. Coating Thickness Measuring Instruments
			5. Portable Hardness Tester
			6. Ultra Sonic Flaw Detector
			7. Micro Hardness Tester
			8. Profilometer
			9. Video Measuring Machine
9.	NAI(Sunabeda)	Explosive Testing Divn. (BETF5)	1. Bergman and Junk Test
			2. Methyl Violet Test
			3. Hot Air Oven
			4. Volatile matter Test
			5. Heat Test Bath
			6. Vacuum Stability Test
10.	NAI(Kochi)	Specialised test equipment	1. Spring Testing Machine
			2. Gun Barrel Bore Gauge Measurement System
			3. Videoscope
11.	NAI(Kanpur)	Calibration & Metrology Lab (CML5)	1. Digital Ultrasonic Thickness Gauge
			2. Digital Protector
			3. Surface Coating Thickness Measuring Equipment
12.	NAI(Delhi)	Basic test equipment	1. Precision Tool Maker Microscope
13.	NAI(Trichy)	Electric/ Electronic Equipment	1. Various types of Multimeters
			2. Insulation Tester
			3. True RMS AC/DC Clamp Meter
			4. Infra-Red Thermometer
			5. Megger (Analog)
			6. Microscope with Motic dedicated Scientific Digital camera
			7. Digital IR Non-Contact Thermometer



			8. Ultrasonic Flaw Detector
			9. Digital Thickness Gauge
			10. Digital Surface Roughness Measuring Instrument
			11. Digital Coating Thickness Gauge
			12. Simple Destructive Plating Thickness Tester
		Mechanical Equipment	1. Surface Roughness Specimen
			2. Heine Semi Flex Endoscope
			3. Digital Portable Hardness Tester
14.	NAI(Trivandrum)	Basic test equipment	1. Shore Rubber hardness tester
15.	NAI Jabalpur	Long Proof Range/ Short Proof Range	1. 76 mm calibre ammn proof 2. 40 mm calibre ammn proof 3. 30 mm calibre ammn proof
16.	NPT, PXE Balasore	Ammn Proof	1. 100 mm calibre ammn proof 2. 76.2 and 76 mm calibre ammn proof 3. RGB-60 rocket proof 4. Chaff rocket proof 5. 40 mm calibre ammn proof 6. 30 mm calibre ammn proof

**BETF:** Basic Explosive Test Facility    **AETF:** Advanced Explosive Test Facility    **NETF:** Non Explosive Test Facility    **RTL:** Rubber Test Lab  
**ARTL:** Advanced RTL    **CML:** Calibration & Metrology Lab    **ACML:** Advanced Calibration & Metrology Lab    **ML:** Metrology Lab  
**MTL:** Mechanical Test Lab    **ERF:** Explosive Radiographic Facility



**METHODOLOGY OF PRICING AND PAYMENT OF PROOF TESTING CARRIED  
OUT FOR REQUISITIONING AGENCY BY  
ARMY/DGQA/DGAQA/DRDO/DPSU/PROOF/FIRING RANGES**

1. Proof Establishments under the DGQA, DGAQA, DRDO, DPSUs/ and Field Firing Ranges under Indian Army will undertake Proof Testing for Requisitioning Agency subject to the availability of spare capacity in Proof Ranges and Field Firing Ranges.
2. In order to carry out such outside work, the Proof Establishments will compile a schedule in consultation with the local CDA taking into account Cost of Barrel, Cost of Weapon, Cost of Instrument / Equipment, Cost of Materials / Targets / Stores / Power, Cost of Direct Labour, Cost of Transportation (if applicable) etc as mentioned in **Enclosure 1**.
3. The basis for calculation of cost of Proof / Testing is as under:-
  - (a) **Manpower**. Effective availability of manpower is 08 working hours per day and 22 working days in a month, totalling to 264 days in a year. The actual cost of manpower involved in Proof / testing will be worked out on hourly basis by the concerned Establishment based on the gross monthly salary of the individual. Cost of manpower to be rounded off to the next hour and in no case is to be charged for less than one hour.
  - (b) The pay and allowance of Officers, Staff / Industrial employees appropriate to the testing hours would be taken as the direct labour value: the hourly rates being computed on monthly hours of employment. (8 hrs per day, 22 working days in a month 264 working days in a year).
  - (c) The material cost viz Proof Stock Ammunition, Target material, Weapon, Equipment, Instrument, Power etc as per their actual cost. Proof Stock Components (PSCs) as per the agreed Proof Schedule to be provided by the Requisitioning Agency. Cost of PSC, if provided by DGQA, on availability, to be charged from the Proof Requisitioning Agency as per actuals.

(d) **Transportation Charges.** Movement for a particular Proof / Test within the Unit Premises Establishment Area is minimal and is generally clubbed with other daily Proof / Test activities. The cost incurred in such transportation can be considered to be subsumed in Administrative Charges. Transportation Charges are however proposed to be levied as per actual in case movement is beyond the Unit premises / Establishment Area.

(e) **Miscellaneous Charges.** Any cost of Proof / Testing which may occur and is not covered under various heads above will be charged on actual expenditure to be decided by the concerned Establishment.

(f) In case any additional expenditure is incurred due to requirement of carrying out additional Proof / Testing then the Private Firm will pay additional charges as per the expenditure actually incurred.

(g) **Administrative Charges.** 15% on the total calculated cost of Proof / Test to be charged as Administrative Charges. This will cater for all the range facilities, transportation within the Unit premises, security, infrastructure, sundry expenditures etc.

(h) **GST.** GST and other taxes as specified by the Govt from time to time shall be levied on the overall cost of Proof / Testing on the Private Firm.

(j) The recommended methodology to be adopted for levying Proof /Testing Charges is as per **Enclosure 1** as an illustration.

4. All DGQA/DGAQA/DRDO/DPSUs/PSUs Proof Ranges and Testing Establishments undertaking Proof/Testing for Private Firm shall workout costing duly vetted by Local Audit Authorities as per methodology of costing for Proof/Testing given in above.

5. **Methodology of Payment.**

(a) The Proof / Testing Establishment of DGQA /DGAQA/ DRDO/ DPSUs/ shall work out costing as per Proof Schedule / Test Schedule of the Private Firm duly vetted by Local Audit Authorities. They shall raise an invoice for Proof / Testing Charges including applicable GST/ other Taxes. The Concerned Establishment shall also intimate their GST Account Number details to the Firm (Enclosure 2).

(b) The Proof/Testing Establishment units may direct the Private Firm to pay the applicable GST directly with the GST authorities (on reverse charge basis) and attach the documentary proof of the same, while seeking the services.

(c) The Cost of Proof /Testing shall be paid by NEFT / DD to the concerned Establishment. The Establishment shall deposit the Proof/ Testing amount through MRO in Govt Treasury.

6. Charges for Proof Firing undertaken for confirmed Export Orders, iDEX Projects, Make Projects, TDF Projects and Developmental Projects by the DRDO, Services, Indian Coast Guard & DPSUs will be as per provision of Para 16 of the SOP.

7. **Audit / Review .**

(a) The methodology of levying Proof / Testing charges on Private Firm will be reviewed in every five years. Charges for proof /testing will be fixed for first year and thereafter it shall increase by 10% annually for subsequent years on the base charge.

(b) Charges levied on Private Firm will be calculated annually by the Proof Ranges and audited by Local Audit Authorities. The same will be ensured by respective organisations i.e DGQA /DGAQA/ DRDO/ DPSU.

**PROOF AND TEST CHARGES TO BE LEVIED BY DGQA / DRDO**  
**ON PRIVATE SECTOR**

**1. COST OF BARREL (for 105mm IFG)**

- (a) Cost of barrel **(A)** = Original cost
- (b) Effective EFC for proof **(B)** = Upto 1<sup>st</sup> / 2<sup>nd</sup> / 3<sup>rd</sup> / 4<sup>th</sup> Qtr (As per requirement / Proof Schedule)
- (c) Cost of one EFC **(C)** =  $\frac{\text{Cost of Barrel (A)}}{\text{Effective EFC for Proof (B)}}$
- (d) No of EFC to be fired **(D)** = To be calculated as per firing schedule of the vendor
- (e) Cost of Barrel for proof **(E)** = Cost of One EFC **(C)** x No. of EFC to be fired **(D)**

**2. Cost of Weapon**

- (a) Cost per day **(F)** =  $\frac{\text{Original cost}}{\text{Life of weapon in years} \times 365 \text{ days}}$
- (b) Total Weapon Cost **(G)** = Cost per day **(F)** x Test duration (in days)

Life of weapon if not specified then the life of weapon to be taken as 10 years.  
 Weapon once deployed will be charged for one working day.

**3. Cost of Instrument / Equipment**

- (a) Cost per day **(H)** =  $\frac{\text{Original cost}}{\text{Life of Inst / Eqpt in years} \times 365 \text{ days}}$
- (b) Total Inst / Eqpt cost **(J)** = Cost per day **(H)** x Test duration (in days)

1 day = 8 working hours

Not more than 4 hours = ½ day

More than 4 hours = 1 day

Life of Inst / Eqpt if not specified then the life of Inst / Eqpt to be taken as 10 years.

Inst / Eqpt deployed will be charged for minimum half working day.

4. **Manpower charges**

$$\text{Hourly pay of the employee (K)} = \frac{\text{Gross monthly salary}}{22 \times 8}$$

1 month = 22 working days

1 day = 08 working hours

$$\text{Total manpower cost (L)} = \text{Average Hourly pay of the employees (K)} \times \text{Test duration (in hours)}$$

Actual cost of manpower involved in each activity of the Trial Firing /Testing to be worked out by the respective Proof Range / Laboratory. If a long test of many days is undertaken, cost to be worked out for actual involvement of manpower each day.

5. Transportation Charges **(M)** = Beyond the Unit / Estt Area, to be charged as per actual.

6. Miscellaneous Charges **(N)** = Any expenditure incurred by the Proof / Test Establishment not included above.

7. Cost of Proof / Test **(O)** = **(E) + (G) + (J) + (L) + (M) + (N)**

8. Administrative Charges **(P)** = 15 % of cost of Proof / Test **(O)**.

Overall Cost Proof / Test **(Q)** = **(O) + (P)**

10. Govt Taxes **(R)** = GST / Taxes as laid down by Govt on the overall cost **(Q)**.

11. Final Cost of Proof / Test **(S)** = **(Q) + (R)**

**SAMPLE TAX INVOICE**

**Name of the Estt**

Invoice Ser no.	Invoice date:
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**DETAILS OF RECEIVER**

Proof Establishment						Letter No. dt		
GSTIN No :				State:		Date:		
Description of Goods/Services	SAC/HSN Code	Qty	Units	Rate	Total	IGST		Grand Total
						Rate in %	Amount	
Total								
Invoice value(in words)	Rupee							
	"Certified that the particulars given above are true and correct"							

**METHODOLOGY OF PRICING AND PAYMENT OF LABORATORY TESTING CARRIED OUT FOR REQUISITIONING AGENCY BY LABORATORIES UNDER ARMY/ DGQA/ DGAQA/ DRDO/ DPSUs**

1. The methodology of calculation of Lab testing charges to be levied by laboratories under various departments of MoD is enunciated in the succeeding paragraphs. Such testing work will be undertaken only when capacity/testing facilities for the work are not available in civil laboratories and will be subject to the availability of spare capacity in MoD laboratories.

2. The establishments will work out Lab Testing Charges to be levied in consultation with the Local audit authorities taking into account Manpower Cost, Material Cost, Power Cost, Machine cost, Packing and Freight charges and Departmental Overhead Cost.

3. The basis for compiling schedule of charges will be as under:-

(a) Manpower Cost. The pay and allowances of staff/ industrial labour employed, appropriate to the testing hours, would be taken as the direct labour cost. The formula for working the labour cost will be as under:-

$$(i) \text{ Hourly pay of the Employees (M)} = \frac{\text{Gross monthly salary of the employee}}{22 \times 8}$$

$$1 \text{ day} = 08 \text{ working hours}$$

$$(ii) \text{ Total manpower cost (A)} = \text{Average Hourly pay of the employees (M)} \times \text{Test duration (in hours)}$$

Actual cost of manpower involved in each activity of the Testing to be worked out by the respective Laboratory. If a long test of many days is undertaken, cost to be worked out for actual involvement of manpower each day. Other costs are compensated by Material Cost, Power Cost, Machine Cost etc.

$$(b) \text{ Material Cost (B).} = \text{As per actuals.}$$

$$(c) \text{ Power Cost (C).} = \text{As per the actuals.}$$

(d) Equipment/Machine Cost (D).

$$(i) \quad \text{Cost per Day (N)} = \frac{\text{Original cost}}{\text{Life of Equipment/Machine in Years} \times 365 \text{ days}}$$

$$(ii) \quad \text{Total Equipment/Machine Cost (D)} = \text{Cost per Day (N)} \times \text{Test duration (in days)}$$

If Life of Equipment/ Machine is not specified, then the life of Equipment/ Machine to be taken as Ten Years. Equipment/ Machine once used will be charged for one working day. Separate cost to be worked out for each Equipment/ Machine used.

$$(e) \quad \text{Cost of packing (E)} = \text{As per Actuals, if any.}$$

$$(f) \quad \text{Freight Charges (F)} = \text{Beyond the unit/Establishment area to be charged as per Actuals}$$

$$(g) \quad \text{Cost of Test (G)} = (A) + (B) + (C) + (D) + (E) + (F)$$

$$(h) \quad \text{Administrative Charges (H)} = 15\% \text{ of cost of Test (G).}$$

$$(j) \quad \text{Overall Test Cost (J)} = (G) + (H)$$

$$(K) \quad \text{Govt Taxes (K)} = \text{GST as laid down by Govt on the overall cost (J).}$$

$$(l) \quad \text{Final Cost (L)} = (J) + (K)$$

4. The Requisitioning Agency requisitioning the lab tests will be required to deposit in advance the testing charges (non-refundable) with the establishment concerned, wherever applicable. However, testing charges will be waived off in case of confirmed Export Orders, iDEX Projects, Make Projects, Technology Developmental Fund Projects, Developmental projects by the DRDO, Services, Indian Coast Guard & DPSUs. However, these charges will be payable for In-house R&D projects of DRDO & DPSUs. Consumables, as required, will be provisioned and positioned by the Requisitioning Agency.

5. **Receipt.** Receipt in respect of the above mentioned charges will be credited to the respective Account Head of the Organisation to which the Establishment/ Testing Laboratory belong to.