Appx 'A'

ACCEPTANC TEST PROCEDURE FOR

300mm SMERCH 9M55K, 9M55F, 9M55S, 9M528 Rocket Projectiles

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THIS IS A DRAFT ATP AND NOT TO BE CONSIDERED AS FINAL, THE ATP WILL BE FINALISED MUTUALLY BETWEEN DGQA AND VENDOR

This ATP is provisional and the same will be mutually finalized by the Indenting authority and Supplier.

INPUTS TO THE TECH SPECIFICATION
300 mm 9M55K ROCKET PROJECTILE

(This Technical Specification is prepared based on available data. The same to be finalised by User/ Procurement agency)

Sr No	Parameters	Details
1	Main Components of Rocket Projectile	(i)Electronic preset timer (EPT) (ii) Correction System Unit (iii) Cluster Warhead (iv) Propulsion Section
2	Purpose	To be used against concentration of enemy personnel and soft skinned material.
3	**Technical Characteristics**	
	(a)Calibre	300 mm
	(b)Range of fire	20 to 70 km
	(c) Weight of RP	798 kg
	(d)Length of RP	7600 mm
	(e)Temp Range FOR Combat Employment	from -50^{0}C to +50^{0}C
	(f)Weight of Warhead	243 kg
	(g)No of Submuntions	72 Nos
	(h) Weight of single submunition	1.75 kg
	(j) Dia of submunition	69 mm
	(k)Length of submuntion	263 mm
	(l)Weight of submuntion explosive charge	0.32 kg
	(m)Number of preformed fragments in a submunition weighing 4.5 g weighing 0.75 g	 96 Nos 360 Nos
	(n) Fuze Mechanism	Direct action impact fuze
	(p)Submuntion self destruction time	110 sec
	(j) Consistency	≤ 0.51 % of Range & ≤ 0.51 % of Line
	(k) Accuracy	1.4 % of Fired Range
	(j)Packing	02 RPS packed in one Steel Container.

Final decision to be taken by User / Procurement agency

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INPUTS TO THE TECH SPECIFICATION
300 mm 9M55K ROCKET PROJECTILE

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4	**GENERAL REQUIREMENTS**	
	(a)Shelf Life	The Supplier shall stipulate that the shelf life of amn is not less than 10 years from the date of manufacture under the storage condition as mentioned below: (A)Storage Temp minimum : -50^0C (B) Storage Temp maximum : $+50^0$C The Suppler should provide details of Shelf Life Assessment done at their end / basis for shelf life assessment including chemical composition and electronic parts. The OEM should give the methodology along with the procedure for extension of shelf life, once the shelf life expired.
	(b) Packing and Marking	(i) Suitable packing arrangements should be provided for transportation and storage without causing any damage to ammunition. (ii) The inner and outer packages should be marked with following: (a) Nomenclature of store (b) Lot No & Qty of Box (c) Filling Details (d) UN Hazard Div & Compatibility Group (e) Gross Weight & Net Explosive Content (NEC) (f) Mfg monogram, Year of Mfg & Contract No (g) Size of Pkg Container. The Suppler should provide details of Shelf Life Assessment done at their end / basis for shelf life assessment including chemical composition and electronic parts. The OEM should give the methodology along with the procedure for extension of shelf life, once the shelf life expired

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INPUTS TO THE TECH SPECIFICATION
300 mm 9M55F ROCKET PROJECTILE

Sr	Parameters	Details
1	Main Components of Rocket Projectile	(i)Electronic preset timer (EPT) (ii) Correction System Unit (iii) HE Fragmentation separable warhead (iv) Propulsion Section
2	Purpose	To be used against the enemy personnel, soft skinned and lightly armoured material, destruction of command post, communication centres and military industrial structure objects.
3	Technical Characteristics	
	(a)Calibre	300 mm
	(b)Range of fire	25 to 70 km
	(c)Weight of RP	813 kg
	(d)Length of RP	7600 mm
	(e)Temp Range FOR Combat Empolyment	from -50^0C to $+50^0$C
	(f)Weight of Warhead	258 kg
	(g)Weight of Explosive Charge	95 kg
	(h)No / weight of Submuntions	1100 /50 pcs /g
	(j) Consistency	$\leq$ 0.51 % of Range & $\leq$ 0.51 % of Line
	(k) Accuracy	1.4 % of Fired Range
	(j)Packing	02 RPS packed in one Steel Container.
4	**General Requirements**:	
	(a)Shelf Life	The Supplier shall stipulate that the shelf life of amn is not less than 10 years from the date of manufacture under the storage condition as mentioned below: (A)Storage Temp minimum : -50^0C (B) Storage Temp maximum : $+50^0$C The Suppler should provide details of Shelf Life Asssesment done at their end / basis for shelf life assessmnet including chemical componsition and ***electronic parts***. The OEM should give the methodology along with the procedure for extension of shelf life, once the shelf life expired.

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INPUTS TO THE TECH SPECIFICATION
300 mm 9M55F ROCKET PROJECTILE

(This Technical Specification is prepared based on available data. The same to be finalised by User/ Procurement agency)

	(b)Packing and marking	(i) Suitable packing arrangements should be provided for transportation and storage without causing any damage to ammunition. (ii) The inner and outer packages should be marked with following: (a) Nomenclature of store (b) Lot No & Qty of Box (c) Filling Details (d) UN Hazard Div & Compatibility Group (e) Gross Weight & Net Explosive Content (NEC) (f) Mfg monogram, Year of Mfg & Contract No (g) Size of Pkg Container. The Suppler should provide details of Shelf Life Assessment done at their end / basis for shelf life assessment including chemical composition and electronic parts. The OEM should give the methodology along with the procedure for extension of shelf life, once the shelf life expired

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INPUTS TO THE TECH SPECIFICATION
300 mm 9M55S ROCKET PROJECTILE

Sr	Parameters	Details
1	Main Components of Rocket Projectile	(i)Electronic preset timer (EPT) (ii) Correction System Unit (iii) Warhead (iv) Propulsion Section
2	Purpose	To be used against the enemy personnel in the open and sheltered in the open-type fortifications or soft skinned and lightly armoured material.
3	**Technical Characteristics**:	
	(a)Calibre	300 mm
	(b)Range of fire	25 to 70 km
	(c)Weight of RP	813 kg
	(d)Length of RP	7600 mm
	(e)Temp Range FOR Combat Empolyment	from -50^0C to $+50^0$C
	(f)Weight of Warhead	258 kg
	(g)Weight of Explosive Charge	100 kg
	(h)Diameter of thermal field with the tem exceeding 1000^0C	25 m
	(j) Consistency	$\leq$ 0.51 % of Range & $\leq$ 0.51 % of Line
	(k) Accuracy	1.4 % of Fired Range
	(j)Packing	02 RPS packed in one Steel Container.
4	**General Requirements**	
	(a) Shelf Life	The Supplier shall stipulate that the shelf life of amn is not less than 10 years from the date of manufacture under the storage condition as mentioned below: (A)Storage Temp minimum : -50^0C (B) Storage Temp maximum : $+50^0$C The Suppler should provide details of Shelf Life Assessment done at their end / basis for shelf life assessment including chemical composition and electronic parts. The OEM should give the methodology along with the procedure for extension of shelf life, once the shelf life expired.

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INPUTS TO THE TECH SPECIFICATION
300 mm 9M55S ROCKET PROJECTILE

(This Technical Specification is prepared based on available data. The same to be finalised by User/ Procurement agency)

	(b) Packing and Marking	(i) Suitable packing arrangements should be provided for transportation and storage without causing any damage to ammunition. (ii) The inner and outer packages should be marked with following: (a) Nomenclature of store (b) Lot No & Qty of Box (c) Filling Details (d) UN Hazard Div & Compatibility Group (e) Gross Weight & Net Explosive Content (NEC) (f) Mfg monogram, Year of Mfg & Contract No (g) Size of Pkg Container. The Suppler should provide details of Shelf Life Assessment done at their end / basis for shelf life assessment including chemical composition and electronic parts. The OEM should give the methodology along with the procedure for extension of shelf life, once the shelf life expired

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INPUTS TO THE TECH SPECIFICATION
300 mm 9M528 ROCKET PROJECTILE

(This Technical Specification is prepared based on available data. The same to be finalised by User/ Procurement agency)

Sr	Parameters	Details
1	Main Components of Rocket Projectile	(i)Electronic preset timer (EPT) (ii) Correction System Unit (iii) HE Fragmentation separable warhead (iv) Propulsion Section
2	Purpose	To be used against the enemy personnel ,soft skinned and lightly armoured material, destruction of command post, communication centres and military industrial structure objects.
3	**Technical Characteristics:**	
	(a)Calibre	300 mm
	(b) Range of fire	25 to 90 km
	(c) Weight of RP	820 kg
	(d)Length of RP	7600 mm
	(e)Temp Range FOR Combat Empolyment	from -50^0C to $+50^0$C
	(f) Weight of Warhead	243kg
	(g) Weight of Explosive Charge	95kg
	(h)No of submuntions	800
	(j) Consistency	$\leq$ 0.51 % of Range & $\leq$ 0.51 % of Line
	(k) Accuracy	1.4 % of Fired Range
	(j)Packing	02 RPS packed in one Steel Container.
4	**General Requirements**	
	(a)Shelf Life	The Supplier shall stipulate that the shelf life of amn is not less than 10 years from the date of manufacture under the storage condition as mentioned below: (a)Storage Temp minimum : -50^0C (c) Storage Temp maximum : $+50^0$C The Suppler should provide details of Shelf Life Asssesment done at their end / basis for shelf life assessmnet including chemical composition and electronic parts. The OEM should give the methodology along with the procedure for extension of shelf life, once the shelf life expired.

Final decision to be taken by User / Procurement agency

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INPUTS TO THE TECH SPECIFICATION
300 mm 9M528 ROCKET PROJECTILE

	(b)Packing and Marking	(i) Suitable packing arrangements should be provided for transportation and storage without causing any damage to ammunition. (ii) The inner and outer packages should be marked with following: (a) Nomenclature of store (b) Lot No & Qty of Box (c) Filling Details (d) UN Hazard Div & Compatibility Group (e) Gross Weight & Net Explosive Content (NEC) (f) Mfg monogram, Year of Mfg & Contract No (g) Size of Pkg Container. The Suppler should provide details of Shelf Life Assessment done at their end / basis for shelf life assessment including chemical composition and electronic parts. The OEM should give the methodology along with the procedure for extension of Shelf Life, once the Shelf Life expired

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ACCEPTANCE TEST PROCEDURE

2 Introduction

a) This document describes the procedure and sentencing for acceptance of the 300mm 9M55K, 9M55F, 9M528 & 9M55S Rocket projectile

b) Any additional information with regards to GS parameters or provided by the User to be included before finalizing ATP.

c) The Lot size of the amn will be varying according to the lot size being followed at Vendor's premises /Country. The sampling plan will be decided in accordance with lot size as per IS 2500 / MIL Std 105E / DEF 131A

d) The samples for acceptance inspection will be drawn at random from each lot.

e) Details of Visual and Dimensional inspection are given in Appendix "A" and Details of Dynamic Testing are given in Appendix "B".

f) In case of non-conformance of any lot during acceptance inspection, rework/rectification will not be permitted and fresh lot should be offered. The Lot shall be of recent vintage and homogeneity of the lot to be certified by the Vendor.

g) Each production lot of consignment of the RPs of each type shall be subjected to the Inspection.

h) The inspection of store shall be carried out at Suppliers premises. However, the stores may be re-inspected by conducting all tests / part of tests at customer's premises for acceptance of lot. The same is discretion of customer.

3 Scope

The scope of this ATP is to establish the compliance of following stores with the technical documentation requirements.

3.1 **Store:**

(A) 300 mm 9M55K ROCKET PROJECTILE
(B) 300 mm 9M55S ROCKET PROJECTILE
(C) 300 mm 9M55F ROCKET PROJECTILE
(D) 300 mm 9M528 ROCKET PROJECTILE

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4 Documentation

The Supplier will submit following documents to PDI Team for each consignment of RPs on arrival:

(a) Packing List along with details of components used in each lot.

(b) Quality Conformance Certificate (QCC)

(c) Supplier shall provide Acceptance Test Certificate along with test results / lab reports of different components / sub Assy / Assy / various input material used for manufacture of the store and calibration certificates of individual gauges used for testing for records during the PDI.

(d) Tests reports of Static & Dynamic test conducted by Firm on the lot.

(e) Certificate of Conformance (CoC) for Environmental Tests **along with Test reports.**

(f) X-ray films for applicable stores.

(g) Certificate of Conformance (CoC) for all surface coated / treated components along with test Certificates

(h) Shipping Documentation

(j) Instruction Manual

(k) Firing Tables, including the Mountain Firing Tables (with the first batch)

Note: All the above stated documents are required to be submitted in English language only.

(m) Results of the RPs test firing in accordance with the Table given below:

5. Methodology of Inspection

(a) The lot offered for inspection shall be homogeneous.

(b) On completion of manufacturing and packing one lot of rounds, the acceptance shall be performed in three stages viz. Visual and Dimensional inspection, Static tests and Dynamic Proof.

(c) The samples shall be selected at random and it should be ensured that all possible combinations/ variables in the lot are selected for dynamic evaluation.

(d) The lot is accepted if the inspection / tests results comply with ATP / Specification requirements.

(e) On completion of manufacturing and packing of one lot of Rockets, the acceptance shall be performed in three stages viz Visual and Dimensional Inspection, Static Test and Dynamic Proof.

(f) PDI Team will carry out QA of consignment as follows:

Visual Inspection of Packages RKT

(i) No of Packages in Lot : - To be provided by OEM

(ii) Sample Size : As per IS 2500

(iii) AQL : Critical -0%, Major -1 %, Minor – 4.0%

(iv) Acceptance Criteria : **As per IS 2500**

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6. **Packing, Visual & Dimensional Inspection**:

Sr No	Characteristics and Parameters to be Checked:	Values of the Parameters	Volume of checking	Checking Method
1	2	3	4	5
(a)	Availability and Checking of shipping documentation for its completeness.		For a batch of the RPs	Visual inspection (As per standards followed in Suppliers Country)
(b)	Presence of Correct and proper marking on the RP and the Electronic Preset Timer (EPT) package.		As per IS 2500, (General Level 1, Single Sampling Plan)	Visual inspection (As per Technical documents provided by Supplier)
(c)	Quality of the RP and EPT packing.			Visual inspection (As per packing drawings provided by Supplier)
(d)	The appearance, lack of the coating damages.			Visual inspection
(e)	Length of RP without EPT	7400^{+1}_{-14}		Using the standardized means of measurement
(f)	Mass of RPs in Kg	--		Defined by weighting of the component parts of RP while assembling.
	RP 9M55K	798±3 kg		
	RP 9M55F	813±3kg		
	RP 9M55S	813±3kg		
	RP 9M528	820±3kg		
(g)	Run-out of the Correction System Unit (CSU) cylindrical surface at the distance of 7 max mm from beginning of the cone surface(mm)	4.5 mm max		Using the Dial Indicator

Contd...P/12.

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(h)	Quality and correctness of applying of the marking and seals onto the RPs		As per IS 2500, (General Level 1, Single Sampling Plan)	Visual inspection
(i)	Accuracy of the RP assembling (Sequence of Assy of EPT, CSU, Warhead & Propulsion Section)			Visual inspection

6.1 Description of Defect, classification and Acceptance Quality level:

S No	Description of Defects	Defect (Major / Critical)	AQL
(a)	Incorrect Markings on Packages	Major	1%
	Quality of marking on the RP and the Electronic Preset Timer (EPT) package.		
	Quality of the RP and EPT packing.		
	The appearance, Lack of the coating damages.		
	Accuracy of the RP assembling		
(b)	Length of RP without EPT	Critical	0%
(c)	Mass of RPs	Critical	
(d)	Run-out more than specified	Critical	
(e)	Quality and correctness of applying of the marking and seals onto the RPs	Minor	4%

6.2 **STATIC TEST**: Shop Floor Test

(a)	The CSU and EPT operational capability	Light indication on the 9V932-1 CME panel	Standard DEF 131A/IS 2500, (General Level 1, Single Sampling Plan)	Visual Insp (Use of the 9V932-1 CME from the Set of 9F819 Special Arsenal Equipment)

6.2.1 Shop floor Test Acceptance Criteria:

Sl No	Description of Defects	Defect (Major / Critical)	Remark
(a)	The CSU and EPT operational capability	Major	In case of the EPT or CSU failure during the PDI & JRI, EPT or CSU shall be replaced with new one & the 100% Insp of EPT or CSU shall be conducted in presence of Supplier.

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7 **Dynamic Firing**

7.1 ***Preparation of Dynamic Proof Samples for SMERCH RP 9M55F, RP 9M55S &RP 9M528***

7.2 In order to carry out the Acceptance Trials during the Pre-dispatch Inspection (PDI) ***4 RPs (02for first proof & 02 for Reproof if required)*** shall be sampled from each ***lot*** of the RPs. ***The SUPPLIER shall submit to the CUSTOMER a certificate conforming that there was no gap in production of the special Equipment in the last five years from the date of signing of Contract.***

7.3 The sampled RPs shall be subjected to the re-inspections as per Para 6 above as applicable. The CUSTOMER's inspectors will carry out the inspections making use of the SUPPLIER's equipment.

7.4 ***Preparation of Dynamic Proof Samples for SMERCH RP 9M55K***: After the inspections, in compliance with the Design Documentation / Technical Documents provided by the Suppliers, the 9M55K RP warhead shall be replaced for the warhead fitted with Inert Sub munitions for carrying out firing tests during the Pre-dispatch Inspection. ***Inert Sub munitions used for assembly with warhead should be of the same batch as the live warhead assembled with Rocket Projectile.***

In order to carry out the Joint Receipt Inspection of **9M55K RPs** in the Customer's country 04 ***(including 02 RPs for Re-proof if required)*** Rockets of 9M55K shall be delivered in composition with the consignment, these RPs shall be fitted with warhead with inert submunitions to carry out firing test during the Joint Receipt Inspection (in compliance with the Design Documentation). ***Inert warhead and sub munition number / marking details shall be provided by the SUPPLIER to the PDI Team members for identification during JRI and Check Proof in India.***

An additional marking shall be applied on 9M55K RPs just near the warhead designation 9N139.00.000 (or 9H139.00.000):

7.4.1 The word (TEST)

7.4.2 Sequential numbers interval of the sub munitions fitted into the warhead.

7.4.2 Distinctive red strip.

7.5 After the re-inspections the sampled RPs and EPTs shall be delivered to the Test Range to carry out the firing tests.

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7.6 Handling of the RPs shall be carried out in compliance with the requirements of the Instruction Manual, as well as the Safety Precautions valid at the assembling plant and the Test Range.

7.7 In case of the EPT or CSU failure during the Pre-dispatch inspection, EPT or CSU shall be replaced with new one and the 100% inspection of EPT or CSU shall be conducted. ***Reason for the failure of EPT and CSU to be identified by the SUPPLIER and intimated to CUSTOMER for information.***

7.8 During PDI of each production lot of each consignment, photographic & videography coverage of PDI activities and Proof shall be provided by the SUPPLIER and soft copy of same on CD shall be given to PDI Team.

7.9 The type of tests to be carried out during JRI / Check Proof in India will be same as that of Table at Para 8&9 (as applicable).

7.10 The Check Proof (CP) {part of JRI} will be conducted as per Infrastructure, Facilities, Conditions, Testing / Measurement Methodology, Equipment, Targets, Jigs and Fixtures, Reference Tables, Service Weapons etc available in Indian Proof Ranges and Testing Laboratories. Specialist of Supplier has to participate during JRI at consignee depot as well as during Check Proof firing at firing range. **In case of absence of supplier during JRI / Check Proof Firing, it will be binding on SUPPLIER to accept the test results thereof.**

7.11 DGQA reserves the right to check all lots or reduce / combine lots into groups for Acceptance and also reduce / not check any of the Parameters (part of Visual, Gauging, Static, Fitment / Integration and Dynamic firing / Tests) due to any reasons / constraints. There will however be no addition or change in Acceptance Criteria.

8 **Firing Tests Conditions and Procedure.**

8.1 The 9A52-2 Launch Vehicle (LV) to be inspected and prepared for firing in compliance with the LV Instruction Manual. Firing from the 9A52 LV is allowed.

8.2 Firing tests shall be conducted based on full preparation of the initial firing data through firing for the ***range 80% of max range***. Calculation of the fire-mission settings and the flying mission data shall be carried out making use of the Test Range forces and facilities in presence of the Customer's and **Suppliers specialists in PDI as well as JRI**.

8.3 In preparation of the initial firing data the following parameters shall be defined:

8.3.1 Coordinates and absolute altitudes of the aiming points and the firing position.

8.3.2 Grid bearing angle to the aiming point.

8.3.3 Longitudinal and Lateral components of the ballistic wind on the powered and non-powered trajectory leg.

8.3.4 Air temperature ballistic deviation.

8.3.5 Ground air pressure.

8.3.6 Ballistic deviation in the primary rocket motor and the thruster propellant charges temperature.

8.4 The firing tests should not be conducted under the conditions, as follows:

8.4.2 Hail, Rain, Snowfall, Fog and Low nebulosity, which may affect the external ballistic characterization;

8.4.3 Powered trajectory leg ballistic wind velocity exceeding 10 m/s;

8.4.4 Non-powered trajectory leg ballistic wind velocity exceeding 20 m/s.

8.5 Launches shall be conducted over the cabin at the ambient temperature.

8.6 The acceptance tests of 2 (Two) RPs shall be conducted through the single-shot fire at the rate of fire allowing carrying out of the external trajectory measurements, making use of the test range equipment, as well as exercising control over the launch vehicle laying. Firing shall be conducted from the launching tubes Nos. 5 and 6 at the same angle of elevation. For all that, launching tubes Nos. 7, 8, 9, 10, 11, 12 shall be loaded with the full-scale

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dummy RPs. After each RP launch the elevation and the angle of train settings shall be checked, in case of error, the settings shall be reset.

8.7 During the RPs single-shot launches the following parameters should be defined:

8.7.1 Current values of the center of mass coordinates on the non-powered trajectory leg up to the warhead separation point (opening).

8.7.2Current values of the RP flight time and velocity up to the moment of the warhead separation (opening).

8.7.3 Coordinates of the warheads (sub-munitions) impact points.

8.7.4 The warheads (sub munitions) impact points shall be taken in presence of PDI team and results of calculated coordinates in the starting system shall be presented to the CUSTOMER's inspectors.

9. Firing Tests Assessment.

9.1 RPs firing tests results should be considered positive in case:

9.1.1 RPs standard lift-off from the launching tubes has taken place after applying the electric impulse to the RP propulsion section electric squib.

9.1.2 There was no breakup of the RPs on the trajectory.

9.1.3 The 9M55F, 9M55S, 9M528 RPs warheads separation and ***Complete detonation on ground*** has taken place.

9.1.4 The 9M55K RP warhead opening, ejection of the launch tubes with the sub munitions, and a subsequent ejection of the sub munitions from the launch tubes has taken place. Presence of the non-ejected sub munitions in the launch tubes of the 9M55K RPs warheads caused by collision of the launch tube with the RP component parts shall not be considered a reason for the rejection. ***Recovery of minimum number of inert sub munitions from each RP should not be less than 50 sub-munition (out of 72 Nos).*** Failure to operate of no more than 4% of the fuzes in the found sub munitions is also allowed. ***Checking of functioning of the recovered inert sub-munition be undertaken in presence of PDI Team Members. Inspection parameters to be checked on for the recovered sub munitions to be clearly specified in the ATP.***

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9.2 Characteristics of the consistency of fire correspond to the values, as follows: $B_д \le 0{,}51\%X$; $B_б \le 0{,}51\%X$. *In case the characteristics obtained exceed the aforementioned values, then the elementary footprint area should be calculated:* $S_{эл} = \pi \times B_д \times B_б$ *. It should not exceed 0, 009 % X², where:*

$B_д$, $B_б$ – probable errors of the warheads (sub munitions) impact (detonation) points coordinates relative to the mean impact point in range and direction;

X – range, for which fire is delivered.

9.3 Characteristics of the fire accuracy correspond to the value, as follows:

$\Delta X_0 = \sqrt{\Delta X \times \Delta Z} \le 1{,}4\%X$,

where:

$\Delta X = X_{ЦГ} - X_C$, $\Delta Z = Z_{ЦГ}$ *– deviation of the RPs mean impact point ($X_{ЦГ}$, $Z_{ЦГ}$) relative to the aiming point (X_C).*

Range at which Firing Tests are to be carried out must be specified by SUPPLIER in the ATP.

9.4 Sentencing Authority : Users Authorised Rep i.e. DGQA.

9.5 In case of the negative result of the Acceptance Trials the re-trials of the RPs shall be carried out in the same volume. Since the fired RPs represent the complete consignment hence i**n case of failure of re-trial, whole consignment of the Rocket Projectile to be sentenced rejected and back loaded to Supplier Country and back loading cost to be borne by the supplier. Fresh Proof or Additional Trial for the rejected lot / consignment will not be considered.**

9.6 SUPPLIER shall clearly specify the defects which can be categorised as negative results and which merit reproof. Defect classification list (DCL) and its Acceptance Qulaity level (AQL) should be specifed and incorporated in ATP.

9.7 In case of negative results, detailed Defect Analysis to be carried out by the SUPPLIER and report to be provided to CUSTOMER for information.

9.8 If Misfire (i.e No lift off of RP) takes place due to faulty launcher tube, in that case the same RP to be fired from another launcher tube.

9.9 In case of critical defect (hazardous to safety of crew / own troops), no reproof should be undertaken. The results of the re-trials shall be final for the produced batch of this type of the RPs. ***The lot will be sentenced Rejected.***

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10 Inspection Methods

10.1. Checking of the RPs liftoff from the launching tubes shall be carried out visually.

10.2 No breakup of the RPs on the trajectory shall be checked by their flight tracking making use of the radars and visually by finding the RPs' component parts impact points.

10.3. Control over the warhead separation (opening), ejection of the canisters, ejection of the sub munitions out of the canisters, parachute system deployment shall be carried out making use of the radars and visually by finding of the RP component parts impact points on the terrain.

10.4 Control over the warheads and sub munitions detonation shall be exercised Visually, based on the search of their impact (detonation) points on the terrain.

10.5 Coordinates of the impact points shall be determined in compliance with the Test Range techniques. ***Co-ordinates of Launch point and fall of shot to be noted in front of customers rep.***

10.6 Coordinates of the mean impact point shall be determined based on the empirical values of the impact points' rectangular coordinates by the formula:

$$X_{ЦГ} = \sum_{i=1}^{n} \frac{X_i}{n}; \qquad Z_{ЦГ} = \sum_{i=1}^{n} \frac{Z_i}{n};$$

where:

X_i, Z_i – Rectangular coordinates of the impact points of warheads (sub munitions)

n – Number of the impact points.

10.7 Probable errors relative to the mean impact point shall be calculated by the formula:

$$B_д = 0.6745\sqrt{\frac{\sum_{i=1}^{m} \Delta X_i^2}{m-1}};$$

$$B_б = 0.6745\sqrt{\frac{\sum_{i=1}^{m} \Delta Z_i^2}{m-1}};$$

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where:

ΔX_i, ΔZ_i deviations of the impact points' coordinates of warheads (submunitions) relative to the mean impact point in range and direction;

m – evidenced number of the impact points.

<u>Note</u> – Detailed calculations for each test to be provided by the SUPPLIER for information of CUSTOMER.

11 Safety Requirements

During preparation and carrying out of the trials it is necessary to observe the requirements of the valid at the Test Range safety rules for handling the explosives and powders, as well as the requirements of the Technical Description and Operating Manual on the RPs under the trials.

11 Reports

12.1 The Acceptance Trials Report shall be drawn up within 3 days after having carried them out.

12.2 The Report shall contain the data, as follows:

12.2.1 Place, date and time of the trials.

12.2. 2 Calculated deflection and elevation of the Launch Vehicle ramp.

12.2.3 Calculated values of the flying mission data.

12.2.4 Values of the external ballistics measurements up to the separation point (including trajectory graphs).

12.2.5 Meteorological conditions of firing.

12.2.6 Coordinates of the RPs' aiming points and mean impact point in the launch coordinate system.

12.2.7 Characteristics of the accuracy and consistency of fire.

13 The Pre-Dispatch Inspection Certificate to be signed by the representatives of the CUSTOMER and the SUPPLIER.

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