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A/16132/GS/MRPKS/15 /Arty-12 (Msl)

03 Feb 2022

**DIRECTORATE GENERAL OF ARTILLERY**  
**ARTY-12**

**MINUTES OF MTG ON PRE EOI QUERIES FOR MRPKS**  
**HELD ON 24 JAN 2022**

1. Ref Eoi of MRPKS uploaded on MoD site on 17 Dec 2021.
2. Response to queries raised by the vendors on Eoi of MRPKS is forwarded herewith for publishing in IA website.



(Prashant Kr Singh)  
Col  
Col Arty-12 (Msl)

**Encls:** As above.

**ADG Strat Comn**

**Mod (DDP), Plg Officer (MS), Room No 175, B Block**

**Copy to:-**

**ADG/ ADB (Make PMU)**

**DGCD/ CD (AoN & Cat)**

**DIRECTORATE GENERAL OF ARTILLERY**  
**ARTY-12(MSL)**

**MINUTES OF MTG ON PRE EoI QUERIES FOR**  
**MRPKS HELD ON 24 JAN 2022**

1. Ref Eol of MRPKS uploaded on MoD site on 17 Dec 2021.
2. A collegiate was org at Dte Gen of Arty, Arty-12 on 24 Jan 2022 under the Chairmanship of Maj Gen Deepak Obhrai VSM, ADG Arty (A). The fwg members of PFT attended the mtg:-
  - (a) Brig Manish Pande - Brig Arty (Ops)
  - (b) Col Arun Kalia - Col Arty-12 (Msl)
  - (c) Lt Col Joravar Singh - GSO-1, CD-5
  - (d) Mr Ramratan Singh Pal - DGQA (R & S)
  - (e) Mr Pramod Kumar Sharma- IFA (Capital) Army
3. Reps from the fwg vendors attended the collegiate:-
  - (a) Cdr Shiv Kumar (Retd) - Bharat Forge Ltd
  - (b) Brig Sanjeev Mehra (Retd) - TATA Adv Sys Ltd  
Mr Nikunj Kaklotar
  - (c) Mr Jaivir Sangwan (M.D) - Microplast  
Mr Sanjeev Dhiman
  - (d) Wg Cdr MP Balachandar (Retd) - Avision System
  - (e) Mr Anil Bhanu - Alpha Design Technologies Ltd
  - (f) Col Ramit Arora (Retd) - Economic Explosives Ltd
  - (g) Col R Gandhi (Retd) - L & T Defence
  - (h) Cdr Ramesh Madhava (Retd) - Tunga Aerospace  
Mr Ganeshram Nandaku
4. The summary of queries alongwith replies is attached as Appendix.
5. For info and necessary action please.



**Encls.** As above.

(Prashant Kr Singh)  
Col  
Col Arty-12 (Msl)

**PRE EOI QUERIES: MRPKS AS ON 24 JAN 2022**

Ser No	Eoi Reference	Query	Remarks
<b>TATA Advanced Systems Ltd</b>			
1.	Page No 6 Point No 16a (Prototype development phase)	Kindly clarify whether these are fwd observer strn or fwd control strn? If fwd observer strn then kindly confirm the required specifications for the same.	Forward observation stations are forward control stations which can take over/ hand over control of munitions. They are required to be man pack with hand held device and have range upto 5 Km.
2.	Page No 6 Point No 16 c & d (Comprehensive maint contract, Warranty)	Point (c) states that CMC will be required for 5 years and point (d) states that warranty is required for 2 years. Kindly confirm that the reqd CMC of 5 years is post the warranty period of 2 years.	Confirmed.
3.	Page No 7 Point No 18 (Only a small quantity is being procured initially. The entire order will be given to the successful L1 vendor)	We understand that current reqmt of 120 Loitering munitions is a small order and further there will be larger orders. Will further order be given to the same L1 vendor or will there be a fresh RFP for all tech qualified vendors	No commitment can be made at this stage. Further procurement will be based on the exploitation of the provided equipment.
4.	Page No 13 Point No 20(b) (Accuracy-5 meters CEP)	For demonstrating static target accuracy of 5m CEP during FET, what would be the expected target-A 2D wall, A slant wall, A room, etc.	For HEPF targets, a small room. For anti-armour, derelict tanks.
5.	Page No 13 Point No 20 (d) (Warhead weight Greater than equal to 8 Kgs)	Kindly confirm the warhead weight is gross weight of the warheads that incl all casing and all sub sys incl electronics, etc.	Confirmed.



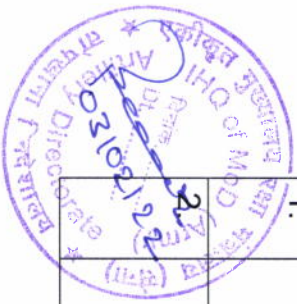
Ser No	Eol Reference	Query	Remarks
6.	Page No 13, Point No 20 (e) (Warhead type-Anti Armour)	(a) Confirm that anti-armour warhead is expected to defeat ERA panel equipped tanks? (b) Are HEPF and Anti-armour warhead expected to be interchangeable before flight, based on targets envisaged?	(a) Yes. It is expected to defeat ERA. Min penetration required is 700mm. (b) No.
7.	Page No 13 Point No 20 (f) Endurance- The munitions should have a minimum endurance of 2 hours)	Please confirm that endurance of 2 hours is at Mean Sea Level with operational altitude of 1000 meters AGL.	Endurance of 2 hours is at all altitudes and operational altitude is 1000 meters AGL.
8.	Page No 13, Point No 20 m (i) (ac) (Allocation of munition to Forward Control Stations)	(a) Is control station expected to receive feed and control them even after allocation them to the forward control stations? (b) Are the forward control stations expected to control multiple LM's simultaneously?	(a) Yes. Feed should be received by the Control Station. However, control will be exercised by the Control Station on the Loitering Munition only after taking back control of the Loitering Munition. (b) Yes.
9.	Page No 14, Point No 20 (n) (ECCM Capability : The system should have inbuilt ECCM capability to prevent any interference or spoofing)	Does ECCM capability refers only in the context of radio data link?	Yes.
10.	Page No 14, Point No 20 (o) (Communication)	What is the preferred frequency band for datalink?	2 to 4 GHz. Exact freq will be obtained from DG Sigs & info to DAS.
11.	Page No 14, Point No 20 (p) (Homing)	What is the expected CEP for a moving target.	5m CEP. As per Para 20 (b) of PSQR.
12.	Page No 14, Point No 20 (p) (Homing)	Is the Payload EO/IR a dual payload configuration (both EO & IR to fly at same time) or single payload at a time.	As per Para 20 (j) of PSQR. The Loitering Munitions should be able to transmit imagery both during day and night. There should be no need to change the EO payload when the Loitering Munitions is transiting from day to night or vice-versa.



Ser No	EOI Reference	Query	Remarks
13.	Para 16, Point No 29 (All weather capability)	All weather conditions expected are as per the conditions mentioned in Point 27-Terrian and climatic conditions. Kindly confirm.	Confirmed.
14.	Appx C page No 26, ser No 10(i) (ii)(iii)(iv) (Credit score for enhanced performance parameters (EPP))	A percentage of score is provided against each parameter. Kindly confirm how will they be adjusted for complying OEM's.	These are the Enhanced Performance Parameters. For credit score, refer to Para 14 (c) of Chapter II of DAP 2020.
15.	General	The EOI asks for a Launcher. Are other means of launch like CTOL also acceptable.	Refer to Para 21 of PSQR.
16.	General	What is the expected propulsion typed?	Not specified.
<b>M/s Alternative Senses Pvt Ltd</b>			
1.		Kindly let us know if a consortium will be permitted as the project will entail expertise from more than one company.	As per Para 20, Chapter-I and Annex IV to Appx A Chapter-I of DAP 2020.
<b>Microplast</b>			
1.	Point 20 (e)	<ul style="list-style-type: none"> <li>• Detls about the warhead.</li> <li>• Type of fuse to be used.</li> <li>• Guidance system requirement. Launch Characteristics for the end user</li> </ul>	Two types of Warhead HEPF and Anti armour. Anti armour warhead to have a min penetration of 700mm. Fuze is of two types- On impact and Air Burst. Refer Para 20 (j), 20 (l), Para 24 & Para 25 of PSQR.
<b>Economic Explosives Ltd</b>			
1.	Point No 20 (e) (Warhead types)	For anti-armor role and anti-personal role whether two different warheads are reqd or both the functionality in a single warhead. Performance parameter of warhead to be specified.	Not specified. Can be different or same warhead. Anti armour warhead to have a min penetration of 700mm.
2.	Point No 20 (f) (Endurance)	Minimum 2hrs at MSL or at high altitude? Please specify	At all altitudes.



Ser No	EoI Reference	Query	Remarks
3.	Point No 20 (h) (Fuze activation)	Air Burst Height of burst with accuracy to be specified	Ht of Air burst to be specified by vendor so as to have max effect on tgt.
4.	Point No 20 (l) (Abort, Re-attack, Re-use)	<ul style="list-style-type: none"> <li>Abort distance short of the target during dive, please specify if reqd.</li> <li>No of times to be re-used to be specified.</li> </ul>	(a) Abort distance to be specified by vendor. Should be as late as possible. (b) To be given out by vendor. Max no of times preferred.
5.	Point No 20 (m) (i) (ad) (Target selection)	Is it Manual or Automated target selection?	Tgt selection by opr. Once target selected, thereafter automated.
6.	Point No 20 (m) (ii) (Forward control stations) Point No 20 (n) (ECCM capability) Point No 21 (Launcher Veh)	Min range for fwd control stn to be specified.  ECCM feature to be specified  Description/ Details of the launcher vehicle to be specified. How many munitions to be carried on vehicle?	ECCM specifications will be clarified and provided to DAS. <u>Launcher Veh.</u> (a) As per Para 21. (b) Not specified. Vendor to propose the best configuration based upon his design.
	Point No 21 (Launcher configuration)	Tube launch, Catapult or cassette launch to be specified	<u>Launcher Configuration.</u> (a) As per Para 21. (b) Not specified. Vendor to R&D.
	Point No 28 (c) (Shelf life)	Life without battery? Battery replacement cycle to be specified	Shelf life 15yrs. As per Para 28 of PSQR.
<b>KADET Defence System</b>			
1.		Is the loitering munition required to have the capability of returning to launch location and being recovered with a parachute to be re used again?	Yes. Launch location or a pre-selected loc.
2.		Is the loitering munition required to have any particular type of propulsion system. Alternatively, would any propulsion system (electric, gasoline, jet) be acceptable which would be able to meet the requirements of endurance, launch altitude and loiter altitude?	No. Propulsion system is not specified.



Ser No	Eol Reference	Query	Remarks
<b>Tunga Aerospace Industries (P) Ltd</b>			
1.	Part III, Para 22	The EOI mentions Make II, Buy Indian (IDDm). However, Part III, Para 22, also mentions foreign collaboration. Will there be any preference give to a DA that develops this MRPKS without any foreign collaboration? Or will just be L1?	Provision of DAP 2020 for Make-II procedure. IC content and IPR has been laid down.
2.	Para III, Para 22 and Appendix B, Page 18 Ser No (a)	We are grateful that, this EOI is under Make II, Buy Indian (IDDm). Advanced military product of this specification, requires technology and manufacturing capability, spanning a wide spectrum. At the current stage of Indian industry maturity, it may not be possible for anyone company (especially, Start-up) to have the all the required capability. We feel, it will be more helpful to permit a collaborative consortium of Indian Companies, to participate in this, Appendix B, mentions about joint venture it will be helpful, to clear indicate a provision for a collaborative consortium. Please clarify.	Please refer to Para 6 of Chapter 3 and Para 20 of Chapter-1 of of DAP 2020.
3.	Appx A, Sr 20 (d)	We have no expertise in warhead development. The EOI doesn't clarify which agency would provide the 8kg warhead design, dimensions & integration. Will this be the responsibility of the DA or would IA provide the warhead?	Resp of DA.
4.	Appx A Sr No 20 (m) (i) (ab) & (ac)	Allocation of Munition to Forward Observation Station-Is it envisaged that the Master MRPKS System (in the launcher vehicle) should have the ability to " designate" a loitering munitions to a Forward Control Station?	Yes.
5.	Para 7 (b)	Does the Master MRPKS system need to have the capability to interface with a maximum of three Forward Observation Stations/ Munitions? This assumption is based upon the configuration indicated in the Procurement Phase.	Yes. Refer Para 20(m) of PSQR.
6.	Appx B, Serial 2 (e)	Can it be confirmed that an Average Turnover of INR 11.064 Cr is a qualification criteria for the EOI respondents? In case of a consortium, how would this criterion be evaluated? We are a DP/IT/DGCA/DRDO recognized Start-up with an authorized capital of Rs 15 Cr.	Please refer to Annexure IV to Appx A Chapter II of DAP 2020.
7.	Par I, Para6, Page 2 & Appx C, Page 19 Ser No 1	The 50% minimum indigenous content on cost basis of the total contract value'- does this total value include the 05 years Comprehensive Maintenance Contract value?	Please refer Appx B to Chapter I of DAP 2020.
8.	Part II, Page 6, Para 14 also Page7, Para 17 (a) (i)	Please provide clarity on the likely timeline for the freezing of the Technical Specifications. We feel that it is important to freeze the Technical Specification, at the time (To + 16 weeks) of issue of the Project Sanction Order.	Provision of DAP 2020 will be followed for the same.



Sr No	EoI Reference	Query	Remarks
9.	Part II, Page 6, Para 16 & Appx A, Page 13, Para 20(i) and Page 14, Para 20 (o)(i) and Para 21	Please clarify, that only launcher is within the scope of deliverable, and NOT the launch vehicle.	Refer Para 21 of PSQR.
10.	Appx C, page 19 Ser No 6	Please consider relaxing the need for 3 years manufacturing facility, for Start-ups.	Provisions as per DAP 2020.
<b>L&amp;T Defence</b>			
1.		<p>(a) It is understood by Reuse capability that loitering munitions is required to be recovered for re-use again. How many times is each loitering munitions required to be reusable?</p> <p>(b) Please confirm that the maximum required service ceiling would be 5000 m?</p> <p>(c) Is it is feasible to increase the development time/reduce the quantity required in the Prototype Development Phase.</p>	<p>(a) Not specified. To be provided by vendor.</p> <p>(b) Yes. Launch altitude of 4000m or more and loiter altitude of min 1000m.</p> <p>(c) No.</p>

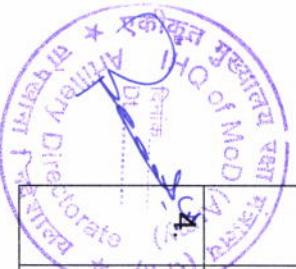




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1.	Alpha-Design Technologies Pvt Ltd Para 7	<p><b>Quantity.</b> PI confirm whether the following qty are reqd:-</p> <table border="1" data-bbox="446 672 1197 1624"> <thead> <tr> <th>Ser No</th> <th>Eqpt</th> <th>Qty</th> <th>Queries from ADTL</th> </tr> </thead> <tbody> <tr> <td colspan="4"><b>Prototype Development Phase</b></td> </tr> <tr> <td>(i)</td> <td>Launcher</td> <td>01</td> <td rowspan="3">Will provision of Ground Control Station suffice for Forward Observation Station (FOS), or is there any other functionality/ equipment required?</td> </tr> <tr> <td>(iii)</td> <td>Forward Station</td> <td>02</td> </tr> <tr> <td>(iii)</td> <td>Loitering Munitions</td> <td>06</td> </tr> <tr> <td colspan="4"><b>(b) Procurement phase</b></td> </tr> <tr> <td>(i)</td> <td>Launcher</td> <td>10</td> <td rowspan="4"></td> </tr> <tr> <td>(ii)</td> <td>Forward Station</td> <td>30</td> </tr> <tr> <td>(iii)</td> <td>Loitering Munitions</td> <td>120</td> </tr> <tr> <td>(iv)</td> <td>Comprehensive Maintenance Contract</td> <td>05 Years</td> </tr> </tbody> </table>	Ser No	Eqpt	Qty	Queries from ADTL	<b>Prototype Development Phase</b>				(i)	Launcher	01	Will provision of Ground Control Station suffice for Forward Observation Station (FOS), or is there any other functionality/ equipment required?	(iii)	Forward Station	02	(iii)	Loitering Munitions	06	<b>(b) Procurement phase</b>				(i)	Launcher	10		(ii)	Forward Station	30	(iii)	Loitering Munitions	120	(iv)	Comprehensive Maintenance Contract	05 Years	Confirmed. PI refer to Para 7 of Eol.
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2.	Par 12, sub-Para (c)				Conducted on 24 Jan 2022.									
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4.	Para 12, sub-Para (k)	Solicitation of Commercial offer			As per Provisions of DAP confirmed the characteristics of Prototype, kindly elaborate the difference between the UTRR and Field Evaluation Trials									



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<b>Alpha-Eisec Technologies Pvt Ltd</b>			
5.	Para 14	Please confirm if desirable parameters will confirm to Enhanced Performance Parameters upon finalisation of GSQR (freezing to Technical Specifications)	Enhanced for credit score, refer to Para 14 (c) of Chapter-II of DAP 2020.
6.	Appendix Para 15 (d)	A and B Vehicle concentrations targets and dynamic targets.	Acceptable?
7.	Appendix Para 20 (n)	ECCM Capability	Is there any specific ECCM Standard to be compiled by the system
8.	Appendix Para 26 (a)	-	What are the safety features desired to safe guard the crew handling the munition when recovering warhead. Should it conform to MIL-STD-1316

