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Directorate General of Mechanised Forces
General Staff Branch
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DHQ, Post Office New Delhi-110011

A/36471/Simfire/GS/AC-5

19 Jul 2013

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REQUEST FOR INFORMATION FOR SIMFIRE FOR TANKS AND ICVs

1. There is a proposal to acquire SIMFIRE for tank T-90/T-72 and BMP I/II in the near future. Tactical training in the Mechanised Forces is conducted with realistic depiction of battle field scenarios and resultant manoeuvres/ counter manoeuvres being carried out by participating units/ sub units. In such circumstances, though all efforts are made to paint realistic tactical situations, but the outcome is left to the judgment of umpires/ control organization set up for the conduct of the exercise/ training. This, leads to a lot of subjectivity in the entire process of imparting realistic training. Furthermore, to draw out correct tactical lessons it is imperative that the effectiveness of the own / opponents fire is seen by the crew operating on the A vehicles. Therefore, in order to obviate the above mentioned drawback in our present tactical training and enable a two sided live firing exercise, it is intended to induct Simfire equipment into service.

2. The basic requirements of the product are as follows :-

(a) **Training Requirement**.

(i) The SIMFIRE should be capable of being used in both 'Gunnery' and 'Combat' mode.

(ii) It should be able to engage both stationary and moving targets.

(iii) It should be able to engage the targets at all ranges of various ammunition fired by T-90/T-72 & BMP I/II.

(iv) It should enable crew to use the tank/ICV fire control system for firing to enable live training.

(v) It should have features for ammunition management.

(vi) It should decapitates the tank i.e. the hit on the target tank should be seen by the crew firing it & the target tank should be switched off if hit.

(vii) It should allow crew to perform basis gunnery drills on the tank.

(viii) It should use minimum connecting wiring.

(ix) It should preferably be strapped on the tank and be capable of installation in the minimum possible time by the tank crew itself with minimum training.

(x) There should be a feature for performance evaluation during and at the end of the training session.

(b) **Technical Requirement**.

(i) The laser used should be eye safe.

(ii) It should follow the trajectory / time of flight required by a particular ammunition at a particular range.

(iii) Should be capable of giving the loc of hit on the tank.

(iv) Capable of giving loc of own & enemy / target tank as part of performance evaluation.

(v) Should have an endurance of at least 12 hours in a cycle of 24 hours with at least 08 hours without any break.

(vi) Should confirm to JSS55555 specifications.

(vii) Should be capable of functioning with the tank battery itself.

(viii) Should have a BITE facility.

3. A questionnaire giving specific inputs required for the above is enclosed as Appendix A, B & C.

4. You are requested to forward your response by 19 Aug 2013.

Colonel
Director Training
Mechanised Forces (AC-5)
for Director General Mechanised Forces

Appendix A
(Refer to Para 3 of Directorate General Mechanised Forces Letter No A/36471/Simfire/GS/AC-5 dated 19 Jul 13)

REQUEST FOR INFORMATION FOR SIMFIRE FOR TANKS AND ICVs

1. Directorate General of Mechanised Forces plans to procure SIMFIRE equipment in near future for training of Mechanised forces. You are requested to provide details of equipment manufactured by your company as per the questionnaire given below:-

(a) **Training Parameter**

Q 1. **Modes of Training.**

(i) Is the SIMFIRE equipment being offered capable of being used both in 'Gunnery' and 'Combat' mode?

(ii What is the Single Shot Kill Probability (SSKP) at different ranges on different types of target?

(iii) What is the trajectory accuracy simulated?

Q 2. **Realism in Training.** Is the SIMFIRE capable of simulating the following aspects of gunnery :-

(i) Correct ballistic trajectory (from the time the round is fired till it hits the target) for all types of ammunition being fired (both main and secondary armament) from tanks and ICVs.

(ii) Lead angle and super elevation during firing from both a stationary and moving weapon platform.

(iii) Engagement of stationary and moving targets.

(iv) What are the effective ranges of each type of simulated ammunition?

(v) What is the effect on the target?

(vi) Is the round to round ammunition dispersion based upon firing table data?

(vii) What are the firing rates?

(viii) What features of ammunition management (quantity, available ammunition types and time for reloading) are available?

(ix) Does the SIMFIRE provide full Fire Control System interface to enable the vehicle crew to train using normal engagement techniques?

Q 3. **Installation on Vehicle.**

(i) Are the brackets used to mount the various components of the SIMFIRE system on 'A' vehicle of light weight (preferably aluminum alloy) and able to withstand mechanical stress and vibrations during cross country move?

(ii) Are the brackets provided with Quick Lock System, adequate rubber pads and facilitate easy mounting and dismounting by the crew?

(iii) Is diagrammatic display of the installation included in the User Manual to facilitate quick assimilation?

Q 4. **Performance Evaluation.** What all features are available for performance evaluation?

Q 5. **Data Storage.** Give details of the following :-

(i) Quantum of data that can be stored.

(ii Modalities for storage of data.

(iii) Features for After Action Review (AAR).

Q 6. **Weapon Loading and Unloading.**

(i) Is the main gun ammunition loading performed using the vehicles loaders panel?

(ii) Can loading and unloading drills be performed as in actual tank without any additional drills for Simfire?

(iii) Is the weapon system inhibited from firing when the ammunition is depleted to zero?

(iv) Is the ammunition not loaded when the main gun arm/ safe switch is set to arm?

(v) Is the coaxial machine gun capable of repeated fire?

(b) **Technical Parameters.**

Q7. **Transreceiver Unit.**

(i) Is it mounted inside the gun barrel or parallel to it?

(ii) **Technical Specifications.**

(aa) What is the engagement range limit? Is it akin to the operational range of the simulated weapons?

(ab) What is the type of laser used and its wavelength? Is it eye safe ?

(ac) Is the alignment range same/ higher than that of the weapon being simulated?

(ad) Is the Transreceiver capable of providing range accuracy ? If yes then please specify ?

(ae) What is the engagement accuracy?

(af) What is the power requirement and source? Does it have the capability to function on low power including power save modes?

Q 8. **Simulation of Ammunition Management System.** Is the SIMFIRE capable of simulating the procedures used for ammunition management in the vehicle for the main gun via the control panel?

Q 9. **Weapon Effect Indicator.**

(i) Is the Weapon Effect Indicator externally mounted?

(ii) Does the SIMFIRE system provide for an audio - visual display when the 'A' vehicle is hit/ destroyed and clearly visible to all outside as well as inside the vehicle?

(iii) Are the audio - visual cues capable of being injected in the inter communication system?

Q 10. **Universal Target System (UTS).** Does the UTS provide the following features :-

(i) Capable of detecting a direct attack covering 360^0 ?

(ii) Is the detection system capable of evaluating the size of the target at various ranges, type of ammunition being fired and the tactical defensive position of the target?

(iii) After evaluation of the target as mentioned above, is the UTS capable of classifying the target effects as 'No hit', 'K' kill, 'M' kill and 'W' kill?

(iv) Can the position of the vehicle be ascertained with accuracy i.e. ±5 m through an inbuilt GPS and stored in WGS 84 format?

(v) Is the GPS synchronized time also provided by the SIMFIRE even when the vehicle power is switched off?

Q 11. **Modular Interface.**

(i) Is the interface between Fire Control Computer (FCC), Gunner's Main Sight (GMS) and SIMFIRE and between SIMFIRE and User modular in design?

(ii) What is the mode of communication between the modules i.e. wireless or with cables ?

(iii) If with cables then do the electrical impulses produced by the cables degrade the performance of the existing communication system?

(iv) Does the interface on 'A' vehicle require any modifications and do the cables foul with any existing cables or hinder performance of any activities of the crew?

(v) Can the modules be fitted & removed easily without any permanent fixtures or changes / modifications on the vehicle?

Q 12. **Tracer, Burst, Obscuration, Simulation (TBOS).**

(i) Does the system allow the gunner to adjust his aim in relation to the observed fall of shot and burst on ground/ target, akin to firing with live ammunition (fire correction)?

(ii) Is the tracer burn emitted by the projectile simulated as a glowing dot in the gunner's sight?

(iii) Can the fire effects be depicted in the gunner's and commander's eye sight?

(iv) State the TBOS features (if any) that can be individually programmed for ammunition?

(v) **Optional Capability.** Does the SIMFIRE have the capability to integrate TBOS (tracer and burst visual effects) simulation into thermal sights and into video monitors of the weapon system?

Q 13. **Control Station.** What are the features of control system?

Q 14. **Umpire Gun.** What are the features of control system?

Q 15. **Endurance.** Can the SIMFIRE work for 12 hours in a cycle of 24 hours and 8 hours without a break?

Q 16. **Environment Specifications.**

(i) Do the environment specifications of SIMFIRE system i.e. vibration, shock, rain, sand and dust conform to JSS55555 norms?

(ii) Is it capable of working efficiently under the following conditions :-

(aa) **Temperature Range.** - **Minus 15^0 C to Plus 50^0 C (Operation) Minus 20^0 C to Plus 55^0 C (Storage).**

(ab) **Humidity.** **- RH : 95% at (Plus) 40^0 C.**

(ac) **Rain, Sand and Dust.** **- Dust proof and water tight against sprayed water and immersion.**

Q 17. **Power Supply.** Is the SIMFIRE capable of functioning from the vehicle battery?

Q 18. **Test Facility.**

(i) Does the SIMFIRE system include a Built In Test (BIT) function?

(ii) Are the BITs executed automatically at start up and in the background when the SIMFIRE system is running?

(iii) Does it facilitate the crew/ maintenance team in early rectification of defects?

(iv) Can a manual BIT be performed by the operator using the test menu on the Control Panel?

Q 19. **Standardization.** Do all components of SIMFIRE system conform to Joint Service Specifications (JSS) and wherever no specifications are laid down, Bureau of Indian Standards (BIS)?

Q 20. **Safety.** Does the SIMFIRE system adhere to the following safety aspects :-

(i) Are all laser transmitters certified as class I Unconditionally laser Eye Safe in accordance with ; IEC 60825 - 1 : 2007?

(ii) Are all modules adequately marked with labels?

(iii) Is the glass - fibre being used? If yes, than does the design ensure that it does not touch exposed skin?

(iv) If the system is not wireless then are the cables so placed that they do not become a slip hazard to the crew?

(v) Are the components of the system so integrated into the application that they cause minimal interference for the crew and the operation of the vehicle?

(v) Are the surfaces, corners and edges of components well rounded or beveled ensuring safe use?

(vi) Are electrical integration to vehicles and weapons adequately buffered to minimize faults and maximize safety?

(vii) Is the system fully electrically safe?

(viii) Are warning and caution labels used and prominently displayed wherever necessary?

(ix) Are warnings and cautions clearly indicated in relevant User Manuals also?

Q 21. **Maintainability.** Does the SIMFIRE system alongwith all its components have a high Mean Time Between Failures (MTBF) of 750 hours and Mean Time To Repair (MTTR) not exceeding 24 hours?

(c) **Misc Parameters**.

Q 22. **Propriety Rights.** Is the vendor ready to transfer all propriety rights pertaining to all hardware and software developed or customized for SIMFIRE system to Indian Army till the time that the equipment is in service with the Indian Army?

Q 23. **Life.** What is the stated in - service life of the SIMFIRE system?

Q 24. **Warranty.** What is the warranty period of the SIMFIRE system being provided?

Q 25. **Annual Maintenance Contract (AMC).** Is the vendor capable of providing AMC after the termination of warranty period?

Q 26. **Product Support.** Can the vendor provide a lifetime product support for the SIMFIRE system and its components?

Q 27. **Cost.** What is the approximate cost of the various components of the SIMFIRE system (inclusive of all taxes etc) to include the following :-

(i) SIMFIRE system with all its accessories.

(ii) Control Station.

(iii) Umpire Gun for indication of target by exercise controller.

(iv) Training of personnel.

(iv) AMC for a period of five years.

(iv) Lifetime product support.

2. **Any other aspect not covered in the above Questionnaire can also be highlighted.**

Appendix B
(Refer to Para 3 of Directorate General Mechanised Forces Letter No A/36471/Simfire/GS/AC-5 dated 19 Jul 13)

INFORMATION PERFORMA
(INDIAN VENDORS)

1. **Name of the Vendor/Company/Firm.**

_____

_____

(Company profile, in brief, to be attached)

2. **Type (Tick the relevant category).**

Original Equipment Manufacturer (OEM) Yes/No

Authorised Vendor of foreign Firm Yes/No (attach details, if yes)

Other (give specific details)

_____

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3. **Contact Details.**

Postal Address:_____

_____

City _____ State : _____

Pin Code _____ Tele : _____

Fax: _____URL/Web Site : _____

4. **Local Branch/Liaison Office in Delhi (if any).**

Name & Address : _____

_____

City : _____ Province : _____

Pin Code _____ Tele : _____ Fax _____

5. **Financial Details.**

(a) Category of Industry(Large/Medium/small scale) :_____

(b) Annual Turn over : _____(in INR)

(c) Number of employees in firm : _____

(d) Details of manufacturing infrastructure : _____

_____

(e) Earlier contracts with Indian Ministry of Defence/Government agencies:-

Agency	Contract Number	Equipment	Quantity	Cost

6. **Certification by Quality Assurance Organization.**

Name of Agency	Certificate	Applicable from (Date & Year)	Valid till (date & Year)

7. **Details of Registration.**

Agency	Registration No	Validity (Date)	Equipment
DGS&D			
DGQA/DGAQA			
OFB			
DRDO			
Any other Government Agency			

8. **Membership of FICCI/ASSOCHAM/CH or other Industrial Associations.**

Name of organistion	Membership Number

9. **Equipment / Product Profile (to be submitted for each product separately).**

(a) Name of Product : _____

(Should be given category wise for e.g. all products under might vision devices to be mentioned together)

(b) Description (attach technical literature) : _____

(c) Whether OEM or Integrator :

_____

(d) Name and address of Foreign collaborator(if any) : _____

(e) Industrial Licence Number : _____

(f) Indigenous component of the product (in percentage) :_____

(g) Status (in Service/Design development state) : _____

(h) Production capacity per annum : _____

(j) Countries/agencies where equipment supplied earlier(give details of quantity Supplied : _____

10. Any other relevant information :

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Appendix C
(Refer to Para 3 of Directorate General Mechanised Forces Letter No A/36471/Simfire/GS/AC-5 dated 19 Jul 13)

INFORMATION PERFORMA (FOREIGN VENDORS)

1. **Name of the Vendor/Company/Firm.**

_____

_____

(Company profile, in brief, to be attached)

2. **Type (Tick the relevant category).**

Original Equipment Manufacturer (OEM) Yes/No

Government sponsored Export Agency Yes/No (Details of registration to be provided)

Authorised Vendor of OEM Yes/No (attach details, if yes)

Other (give specific details) _____

_____

_____

3. **Contact Details.**

Postal Address:_____

_____

_____

City : _____ Province : _____

Country : _____ Pin/Zip Code : _____

Tele : _____ Fax : _____

URL/Web Site : _____

4. **Local Branch/Liaison Office/Authorized Representatives, in India (if any).**

Name & Address : _____

_____

City : _____ Province : _____

Pin Code _____ Tele : _____ Fax : _____

5. **Financial Details.**

(a) Annual Turn over : _____USD.

(b) Number of employees in firm : _____

(c) Details of manufacturing infrastructure available _____

(d) Earlier contracts with Indian Ministry of Defence/Government agencies:-

Agency	Contract Number	Equipment	Quantity	Cost

6. **Certification by Quality Assurance Organization (If applicable)**.

Name of Agency	Certification	Applicable from (Date & Year)	Valid till (date & Year)

7. **Equipment / Product Profile (to be submitted for each product separately)**.

(a) Name of Product : _____

(Should be given category wise for e.g. all products under night vision devices to be mentioned together)

(b) Description (attach technical literature) : _____

_____

(c) Whether OEM or Integrator : _____

(d) Status (in Service/Design development state) : _____

_____

(e) Production capacity per annum : _____

(f) Countries where equipment is in service : _____

(g) Whether export clearance is required from respective Government : _____

(h) Any collaboration/joint venture/co production/ authorized dealer with Indian Industry (give details) :

Name & Address : _____

_____

Tel : _____ Fax : _____

8. **Any other relevant information** : _____

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