F/No-5/1(iii)/HVDs/Trg/BSF/13/MHA/Prov-I 1556
Bharat Sarkar/Government of India
Griha Mantralaya/Ministry of Home Affairs
PM Division/Prov.I Desk

26, Man Singh Road, Jaisalmer House
New Delhi, Dated 10th August, 2015

To,

DsG: AR (through LOAR), BSF, CISF, CRPF, ITBP, SSB, NSG & BPR&D.

Subject: QRs and Trial Directive for Heavy Vehicle Driving Simulator.

Sir,

The QRs and Trial Directives in respect of Heavy Vehicle Driving Simulator as per Annexure have been accepted by the Competent Authority in MHA.

2. The CAPFs concerned will be accountable for correctness of the QRs/Trial Directives

3. Henceforth, all the CAPFs should procure the above item required by them strictly as per the laid down Technical Specifications/QRs.

Yours faithfully,

Issued 11/8/2015

Encl: as above

(Manohar N. Sukole)
Under Secretary to the Govt. of India
Tel: 23381278

Copy forwarded for necessary action to :-

SO (IT), MHA : It is requested to host the QRs and Trial Directives (soft copy attached) on the MHA website (under the page of Organizational Set up- Police Modernization Division- Qualitative Requirement under Vehicle Equipments.

(R.K. Soni)
Section Officer (Prov-I)

Copy to: DDG (Procurement), MHA.

O/C

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APPENDIX – 'A'

DIRECTOR GENERAL BORDER SECURITY FORCE

(TRAINING DIRECTORATE)

(AN IS/ISO 9001: 2008 CERTIFIED DIRECTORATE)

The Sub-group of Technical Experts on M&E items constituted by MHA vide their letter No.IV-17017/18/2011-Prov-I dated 05 Jul 2002 and UO No.IV-24011/12/2011-Prov-I dated 31 Jan, 2013 held its meeting at BSF Headquarters on 30th Aug'2013 to formulate the QRs of **" DRIVING SIMULATOR FOR HEAVY VEHICLE".**

After detailed deliberations the referred Sub-group has finalized the QRs of **"DRIVING SIMULATOR FOR HEAVY VEHICLE".**

QUALITATIVE REQUIREMENTS – DRIVING SIMULATOR FOR HEAVY VEHICLE

Srl No	Parameters	Qualitative Requirements
1.	**TECHNICAL FEATURES**	i) The system design should be Cabin type with well concealed electronic sensors and systems. ii) The motion platform should give actual feel of driving in different driving conditions based on 6 DoF motion platform. iii) There should be a control station over riding the activities of the minimum 10 driver's cabin and control the entire ongoing operations.
2.	**DRIVER'S CABIN**	Should have following fitments / controls resembling the interior of a real driver's cabin :- • Adjustable seat • Instrument cluster & dashboard • Seat belt with indicator • Ignition Switch. • Hazard Switch • Left Right and brakes indicator. • Force feedback steering wheel • Gear shifting lever (Four wheel drive and Two wheel drive mode) • Hand brake • Accelerator, clutch & brake pedals Check free play/ hardness of Steering, Clutch, Brakes & accelerator with the help of Tools.
3.	**DRIVER'S CABIN DIMENSIONS**	Driver's cabin dimensions shall be as per actual cabin. The actual requirement in terms of make and model to be specified by the user at the time of tender.
4.	**POWER SUPPLY & TEMPERATURE**	i) Single phase 180 to 240 Volts "Plug and Play" type for both system as well as motion platform. ii) Integrated power supply system with facility of back-up for minimum 30 minutes to run the complete system smoothly.

		iii) The complete system should have compatibility with suitable DC power source. iv) The system must be able to function properly within the temperature range (-) 05 to (+) 50 degree Centigrade or to be specified by the user.
5.	**ASSEMBLIES:**	Accelerator. Brake Gear System. Clutch. Steering System
6.	**VISUAL DISPLAY**	Visual projection on minimum three LED Full HD TFT (Curved) monitors (720p or better) of standard make and of size 42 inch. The screen to be placed appropriately in front of the driver to provide minimum 120 degree field of view.
7.	**COMPUTER HARDWARE**	Core i5 or better having 17 inch TFT screen for control station. The hardware system should have provision to be upgraded.
8.	**COMPUTER SOFTWARE**	**All the controls should be fully Simulated.** For example : Ignition Switch, Gears, Clutch, Accelerator, Steering wheel, Brake Handbrake, Windshield wipers Cabin rear view mirror. - Left and right rear view mirrors (should be separately adjustable for view angle) - Lighting combination switches - Head Light - Beam light - Dipper - L / R Indicators - Hazard switch - Should have the facility of load simulation. - Should have the facility of explaining following drills a) Setting of rear view mirror b) Adjustment of driver seat. c) Application of hand brake. d) Checking of gear neutral position. e) functioning of horn and lights. f) functioning of all A B C pedals. The software system shall have provision to be upgraded.
9.	**DRIVING FEATURES**	Right Hand driving Lane driving City Driving under traffic conditions - Low volume traffic - Medium volume traffic - High volume traffic Muddy road Hill Driving Convoy Driving. Highway Driving. Reduced visibility Driving. Night driving.

		Marshy Land Driving. Driving on snow. Driving in rain, fog, storm and various times of day. Driving in desert Cross country driving. Driving on border roads/ tracks Reverse/parking driving.
10.	**ROAD FEATURES**	As per actual Indian road conditions, all types of traffic/ road signs & signals be incorporated in the system.
11.	**REALISTIC AUDIO-VISUAL ENVIRONMENT**	Real time 3D audio visual environment with Interactive high definition graphics.
12.	**SOFTWARE DATABASE**	• Maneuvering area - 300 square meters (minimum) • Test track length - 10 Kms (minimum) • Town and suburbs road length - 200 Kms of road with more than 70 Cross roads (minimum) • Country road length - 30 Kms (minimum) • Small town road length - 30 Kms (minimum) • Mountain road length - 40 Kms
13.	**LEARNERS MODULE**	• Detailed training lessons on basics and advanced driving skills. • Video demonstration with special reference to safe driving under different road and traffic situations. • The system should allow the instructor to simulate emergency situation to test the instant reaction of the driver • Audio and Text Guiding aid during practice sessions (Language- As specified by the user). • User friendly drive replay mode • Assessment mode - To test the driving skill e.g. knowledge of road/traffic rules, behaviour, defensive driving and fuel efficiency test • The system should have facility to give a detailed evaluation report after each training session (including print out) • System should also have a facility of recording and replay. • Data storage facility - to be specified by the user.
14.	**TRAINING**	• The firm should provide on site of installation the training on handling / running, repair & maintenance to 15 personnel. Training modalities to be worked out in consultation with the user. • The cost on training will be borne by the firm
15.	**MISCELLANEOUS**	• User's / Technical Manual on handling/ running, repair & maintenance to be provided in the maximum commonly speaking Indian languages or as specified by the user. • Illustrated parts catalogue including exploded view of the complete system & components be also provided. • Maintenance and Repair List of Spares (MRLS) be provided. • Maintenance tools/kit be provided.

16.	**GUARANTEE/ WARRANTY/ AMC**	• Guarantee - 02 years for the complete system. • Warranty – 03 years after expiry of the guarantee period. • AMC – On expiry of the warranty period, firm should provide a comprehensive AMC including spare parts for the complete system for next 05 and subsequent years. • Response time after defect report – 48 hours. • Maximum time for repair – 10 days. • Penalty for Non-repair beyond 10 days - @ 0.2 % per week of the total cost of the complete system. • The firm to provide real time online technical support.

B N SHARMA, DIG(TRG) BSF

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(M K Sinha, DC(T&S) FHQ BSF)

(VIRENDER SINGH, DC, BSF)

(MADHAV CHATURVEDI, DC CSMT, BSF)

(SANJEEV SINGH, DC, CRPF)

(Mrs. SUGANDH SINGH, NSG)

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(R S BISHT, INSPR, CISF)

(SI(T) K S DAGAR, SIW, BSF)

(B. C. JOSHI, DC, BSF)

Dr. M. M. GOSAL
DY SP, BPRBD

APPROVED / NOT APPROVED

(SUBHASH JOSHI), IPS
DIRECTOR GENERAL
BORDER SECURITY FORCE

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TRIAL DIRECTIVE FOR DRIVING SIMULATOR FOR HEAVY VEHICLE

S/ No.	Parameters	QRs/Specification.	Procedure suggested for Trial for Board of Officers	Result expected / desired	Complied / Not complied
01.	**TECHNICAL FEATURES**	i) The system design should be Cabin type with well concealed electronic sensors and systems.	The board will check the dimensions of the cabin by measuring tape. Further the board will physically carryout visual inspection of the concealed electronic sensors and systems by referring to the operating manual and with the help of representative of the firm.	Dimension should be as per actual cabin or as per QRs. Electronic sensors and systems should be properly concealed and safely located. They should match with the details available in the operating manual.	
		ii) The motion platform should give actual feel of driving in different driving conditions based on 6 DoF motion platform.	The board will take the actual trial by operating the simulator.	Feeling of driving an actual vehicle to be perceived.	
		iii) There should be a control station over riding the activities of the minimum 10 driver's cabin and control the entire ongoing operations.	The board will check the effectiveness of control station by operating it.	Control station to be able to interfere and take over the operation.	
02.	**DRIVER'S CABIN**	Should have following fitments / controls resembling the interior of a real driver's cabin :- • Adjustable seat • Instrument cluster & dashboard • Seat belt with indicator • Ignition Switch. • Hazard Switch • Left Right and brakes indicator. • Force feedback steering wheel • Gear shifting lever (Four wheel drive and Two wheel drive mode) • Hand brake	The board will check the availability and functionality of fitments and control physically.	Fitments and control should function just like that of real vehicle.	

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		• Accelerator, clutch & brake pedals Check free play/ hardness of Steering, Clutch, Brakes & accelerator with the help of Tools.	The board will check the free play, hardness of steering, clutch, brakes and accelerator by the tools.	Free play, hardness of steering, clutch, brakes and accelerator should be as per actual vehicle.	
03.	**DRIVER'S CABIN DIMENSIONS**	Driver's cabin dimensions shall be as per actual cabin. The actual requirement in terms of make and model to be specified by the user at the time of tender.	The board will check by measuring tape, dimension of the cabin.	Dimension to match actual cabin or as per QRs.	
04.	**POWER SUPPLY & TEMPERATURE**	i) Single phase 180 to 240 Volts "Plug and Play" type for both system as well as motion platform. ii) Integrated power supply system with facility of back-up for minimum 30 minutes to run the complete system smoothly. iii) The complete system should have compatibility with suitable DC power source. iv) The system must be able to function properly within the temperature range (-) 05 to (+) 50 degree Centigrade or to be specified by the user.	The board will check physically by turning on the simulator. The board will physically check the backup by turning off the power supply for minimum 30 minutes. The board will check by running it with DC power source to be provided by the firm. The board will check the compliance certificate submitted by the OEM.	Complete simulator must turn on by pressing single switch. Backup must be as per QRs. Simulator must be functional by turning on with DC Power source. The compliance certificate must be duly signed by the OEM to ensure the operating temp ranging (-) 5 to (+) 50 degree centigrade.	
05.	**ASSEMBLIES:**	Accelerator. Brake Gear System. Clutch. Steering System	The board will check the availability or assemblies physically.	Assemblies must be available and functional.	

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06.	**VISUAL DISPLAY**	Visual projection on minimum three LED Full HD TFT (Curved) monitors (720p or better) of standard make and of size 42 inch. The screen to be placed appropriately in front of the driver to provide minimum 120 degree field of view.	The board will physically check the visual projection by turning on simulator. The screen must be checked for its placement of three LED Full HD TFT (Curved) monitors (720p or better) of standard make and of size 42 inch. The screen should be placed appropriately in front of the driver to provide minimum 120 degree field of view.	Visual projection must be clear and must be able to provide minimum 120 degree field of view and should be as per the QRs.	
07.	**COMPUTER HARDWARE**	Core i5 or better having 17 inch TFT screen for control station. The hardware system should have provision to be upgraded.	The board will check the presence of core i5 processor or better having 17" TFT screen in the system and check the provision of up gradation of hardware. The firm will also submit the certificate in this regard.	As per QRs.	
08.	**COMPUTER SOFTWARE**	**All the controls should be fully Simulated.** For example : Ignition Switch, Gears, Clutch, Accelerator, Steering wheel, Brake Handbrake, Windshield wipers Cabin rear view mirror. - Left and right rear view mirrors (should be separately adjustable for view angle) - Lighting combination switches - Head Light - Beam light - Dipper - L / R Indicators - Hazard switch - Should have the facility of load simulation. - Should have the facility of explaining following drills	The board will physically run the simulator to check the controls as per QRs.	All the controls should be simulated as per QRs.	

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		a) Setting of rear view mirror b) Adjustment of driver seat. c) Application of hand brake. d) Checking of gear neutral position. e) functioning of horn and lights. f) functioning of all A B C pedals. The software system shall have provision to be upgraded.			
09.	**DRIVING FEATURES**	Right Hand driving Lane driving City Driving under traffic conditions - Low volume traffic - Medium volume traffic - High volume traffic Muddy road Hill Driving Convoy Driving. Highway Driving. Reduced visibility Driving. Night driving. Marshy Land Driving. Driving on snow. Driving in rain, fog, storm and various times of day. Driving in desert Cross country driving. Driving on border roads/ tracks Reverse/parking driving.	The board will test the simulator by operating it under various driving features either in single or in combination as per QRs.	The simulator should provide driving features as per QRs.	
10.	**ROAD FEATURES**	As per actual Indian road conditions, all types of traffic/ road signs & signals be incorporated in the system.	The board will check the simulator by actually operating it.	The software should have road features as per QRs.	
11.	**REALISTIC AUDIO-VISUAL ENVIRONMENT**	Real time 3D audio visual environment with Interactive high definition graphics.	The board will physically operate the simulator to check the feel of audio visual environment.	Audio visual environment should be as per real environment.	

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12.	**SOFTWARE DATABASE**	• Maneuvering area - 300 square meters (minimum) • Test track length - 10 Kms (minimum) • Town and suburbs road length - 200 Kms of road with more than 70 Cross roads (minimum) • Country road length - 30 Kms (minimum) • Small town road length - 30 Kms (minimum) • Mountain road length - 40 Kms	The board will physically operate the simulator to check the software database.	Software database should be as per QRs.	
13.	**LEARNERS MODULE**	• Detailed training lessons on basics and advanced driving skills.	The board will check the training schedule and the contents of the firm.	Training schedule and contents of the firm should match with the actual requirement (requirement will be worked out before the trial of the simulator.	
		• Video demonstration with special reference to safe driving under different road and traffic situations.	The board will see the video demonstration.	As per QRs.	
		• The system should allow the instructor to simulate emergency situation to test the instant reaction of the driver.	The board will operate the system to simulate emergency situation.	Instructor should be able to easily simulate emergency situation.	
		• Audio and Text Guiding aid during practice sessions (Language- As specified by the user).	The board will operate the system to check audio and text guiding aid.	As per QRs	
		• User friendly drive replay mode	The board will check the drive replay mode.	Drive replay mode should be easily operable and understood.	

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		• Assessment mode - To test the driving skill e.g. knowledge of road/traffic rules, behaviour, defensive driving and fuel efficiency test. • The system should have facility to give a detailed evaluation report after each training session (including print out). • System should also have a facility of recording and replay. • Data storage facility - to be specified by the user.	The board will undergo the assessment mode. The board will study the evaluation report. The board will check by recording and replaying one training module. The board will physically check the data storage facility as specified by the user in tender documents.	As per QRs The evaluation report must be easily understood. As per QRs. As per tender documents.	
14.	**TRAINING**	• The firm should provide on site installation the training on handling / running, repair & maintenance to 15 personnel. Training modalities to be worked out in consultation with the user. • The cost on training will be borne by the firm.	Not applicable at the time of Trail / evaluation.		
15.	**MISCELLANEOUS**	• User's / Technical Manual on handling/ running, repair & maintenance to be provided in the maximum commonly speaking Indian languages or as specified by the user. • Illustrated parts catalogue including exploded view of the complete system & components be also provided. • Maintenance and Repair List of Spares (MRLS) be provided. • Maintenance tools/kit be provided.	Not applicable at the time of Trail / evaluation.		
16.	**GUARANTEE/ WARRANTY/ AMC**	• Guarantee - 02 years for the complete system. • Warranty – 03 years after expiry of the guarantee period. • AMC – On expiry of the warranty period, firm should provide a comprehensive AMC	Not applicable at the time of Trail / evaluation.		

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		including spare parts for the complete system for next 05 and subsequent years. • Response time after defect report -- 48 hours. • Maximum time for repair – 10 days. • Penalty for Non-repair beyond 10 days - @ 0.2 % per week of the total cost of the complete system. The firm to provide real time online technical support.			

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