GOVERNMENT OF INDIA
(Ministry of Home Affairs)
DIRECTORATE GENERAL
CENTRAL RESERVE POLICE FORCE
EAST BLOCK-7, SEC-1, R.K. PURAM, NEW DELHI-110066
(Email:- comncell@crpf.gov.in Tele/Fax:011-26107493)

No. B.V-7/2019-20-C (QRs) Dated, the 31st July'2019

To

DIG (Comn), NSG
Meharam Nagar
Palam, New Delhi-37

Subject: Regarding forwarding of approved QRs/TDs of "DG Rover Vehicle & Integration of Comn & Surveillance Equipment".

Please find enclosed QRs and TDs of "DG Rover Vehicle & Integration of Comn & Surveillance Equipments" as Annexure-A & Annexure-B respectively duly approved by the competent authority is forwarded herewith for further necessary action.

Encl: (QRs & TDs of communication equipments)

{P.R.Jha, DC (Comn)}
For DIG (Equipment)
Directorate General, CRPF

PROPOSED QRs AND TDs FOR INTEGRATION OF COMN AND SURVEILLANCE EQUIPMENT

S/No	Qualitative Requirement	Trial Directive
1.01	The proposed Command Station (CS) shall be a field deployed Command and Control unit which can be deployed in the field ion short notice.	To be physically demonstrated
1.02	The CS should consist of the following:- -One Command Station with receive and control capabilities -Field deployable transmitters as per the SoR	To be physically demonstrated
1.03	The CS should be able to take audio communication from the field deployed transmitters on one console and communicate across multiple communication media used by the force, for example UHF, VHF , HF, GSM or other.	To be physically demonstrated
1.04	The CS should be able to take video feeds on one console from multiple field deployed video transmitters in different from factors, along with field deployable hand –held receiver- cum –repeater.	To be physically demonstrated
1.05	The CS Receiver shall be a 19" rack mountable integrated enclosure, packaged in a rugged enclosure.	To be physically demonstrated
1.06	The enclosure shall be an all weather rugged enclosure with	To be physically demonstrated
1.07	All the following sub-units shall be housed in a rugged rack of size 600x800 mm of maximum 18U:	To be physically demonstrated
	Communication Switching System -1 No	
	4 Channel Video Receiver -1 No	
	Analog Base Radios(VHF/ UHF/ HF) As provided by the end user - Up-to- 4 Nos	
	3G/ 4GGSM Modem SIM Card to be provided by the end user - 2 Nos	
	COTS24 Port Unmanaged Ethernet Switch - 1 No	
	Rack mounted Video Recording provision - 1 No	
	Rack mounted Power Strip with MCB -1 Lot	
	2KVA Rack Mounted UPS -1 No	
	Rack mounted Wi Fi Router -1 No	
	Rack Mounted Rugged Laptop(as per given specifications) for Video viewing - 1 No	
	SMPS Input: 230VAC, Output :12V DC; 40 Amps - 2 Nos	
1.08	Rack should be rugged and should be able portable to be mounted on wheels	To be physically demonstrated
1.09	All field deployable transmitters and accessories provided with the CS shall be housed in all weather cases.	To be physically demonstrated
1.10	The CS should be powered by 220V AC power and have provision to connect external 12V batteries.	To be physically demonstrated
2.	**CommunicationSwitchingSystem:General**	

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S/No	Qualitative Requirement	Trial Directive
2.01	The radio-line interoperability system should interface with any combination of 2-wayradio (HF, VHF&UHF), cellular/landline, SATCOM telephones while allowing multiple simultaneous two-way conversations or conference calls between the above.	To be physically demonstrated
2.02	Should be capable of minimum of the following interfaces simultaneously: 1.4 radio nets(VHF/ UHF/HF) 2.12 analog ports(PSTN/Sat Phone /GSM interface)	To be physically demonstrated
2.03	The operator console system shall be an IP based system which utilizes an IP network as the backbone to transport radio system messages and media.	To be physically demonstrated
2.04	The fundamental architecture of the system shall allow for console system devices (e.g. console positions, interface gateways) to be placed in multiple geographic locations connected over IP.	To be physically demonstrated
2.05	Dispersed system devices shall be capable of utilizing the same feature sets if they were co-located in the equipment room. The architecture shall also allow for related, independent lay managed console systems within the radio network to communicate with one another and control radio resources at all locations.	To be physically demonstrated
2.06	**Operational Requirement**	
2.06.01	Interfacing the various 2-way radio sets in HF, VHF and UHF bands in use	To be physically demonstrated
2.06.02	The inter operability solution shall be capable of inter connecting with almost any type of radio through multitude of specially designed radio interface cable/ connectors and the appropriate IP Gateways	To be physically demonstrated
2.06.03	The IP based inter operability system shall be capable of cross-connecting any or all of the interfaced radios interfacing any type of radio to SATCOM terminals and cellular circuits.	To be physically demonstrated
2.07	**Performance Requirement**	To be physically demonstrated
2.07.01	The system should not add any type of noise in speech communication over radios. This should be done by necessary noise filtering circuits.	To be physically demonstrated
2.07.02	Audio level should be field adjustable. User should be able to increase or decrease audio gain to his satisfaction.	To be physically demonstrated
2.07.03	Speech should switch instantaneously across radios with delay of less than 200 milliseconds in the stand-alone system	OEM Certificate
2.08	**Functional Requirement- General User Interface**	

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S/No	Qualitative Requirement	Trial Directive
2.08.01	The user interface shall support the configuration of multiple work spaces for a dispatch screen. Work spaces shall allow for "on the fly" configuration by dispatch personnel such that they may add and delete resources to and from the workspace, move resources around within the work space and resize certain resources.	To be physically demonstrated
2.08.02	There shall be an option provided to a technician or system administrator level to lock each individual work space such that nothing maybe moved, added or deleted from the workspace.	To be physically demonstrated
2.08.03	In order to minimize visual distractions to the dispatcher, the user interface shall be capable of being configured such that information and indications appear only when applicable to an event.	To be physically demonstrated
2.08.04	The console software shall allow for the ability to display the dispatch center's name, logo, or other graphic icon on all screens.	To be physically demonstrated
2.09	**Functional Requirement- Radio Control**	
2.09.01	SELECT – The dispatcher shall have the ability to place a channel into the selected state via a single operation. When a radio channel is placed into the selected state, that audio is routed to the appropriate device, either the select speaker or the head set or both.	To be physically demonstrated
2.09.02	TRANSMIT – The system shall support the ability to transmit on a selected channel or channels. The user inter face shall provide visual feedback to the dispatcher that the transmission is either successful or blocked.	To be physically demonstrated
2.09.03	INSTANT TRANSMIT – The system shall allow the dispatcher to perform an instant transmit on a radio channel without the need to place the channel in to a selected state.	To be physically demonstrated
2.09.04	RECEIVE- The user interface shall provide a visual indication that there is incoming audio traffic on a radio channel. If the channel is selected, the audio is routed to the applicable device (headset or select speaker).	To be physically demonstrated
2.09.05	MONITOR & IDLE STATES-The user interface shall allow the dispatcher to place audio from a specified radio in a monitor speaker. The user interface shall also allow the dispatcher to view activity and visual indications on a radio channel on their screen without requiring the audio to be present in the selector monitor speakers	To be physically demonstrated
2.09.06	TIMESTAMP- The user interface shall display the time that an incoming or outgoing radio transmission occurs	To be physically demonstrated

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S/No	Qualitative Requirement	Trial Directive
2.09.07	PATCH- The system shall support the ability to connect two or more channels together such that the receive audio of one channel is repeated on all other channels who are members of the patch. Each radio channel that is a member of a patch shall clearly display that they are in a patch and of which patch they are a member. This indication shall be shown on all consoles displaying that channel.	To be physically demonstrated
2.09.08	PATCH- Operators/ Dispatchers shall have the ability to add and delete individual radio channels to and from an active patch. They shall also have the ability to tear down the entire patch all at once.	To be physically demonstrated
	Functional Requirement- Telephone Control	
2.10	The User Interface shall allow the Operator to perform following operations with respect to telephone interface: a) Answer & Terminate an Incoming Call b) Initiate an outgoing Call from Console c) Redial the last number d) Mute the Microphone source to the caller e) Hold an incoming all f) Call Monitor- The system shall allow a user to monitor and listen to the parties on the call but not have its microphone live as part of the call. g) Join Call- The system shall allow an operator to join an active call. h) Patch Telephone to Radio- The system shall provide the ability for a telephone call to be patched to one or more radio channels	To be physically demonstrated
2.11	**Operator Console and Management:**	
2.11.01	The system should perform as an operator manned gateway while providing inter operability over multiple radios.	To be physically demonstrated
2.11.02	The inter operability system shall have a Console system for the operator, which shall operate on a Laptop, allowing the use of USB head set for performing the dispatching functions.	To be physically demonstrated
2.11.03	The system terminal should use a user friendly GUI depicting system operation and allowing programming of features.	To be physically demonstrated
2.11.04	The console system shall provide a general indication on the dispatch console screen of the health of the IP network on which it resides and allow for a technician to access additional login formation to assist in troubleshooting IP network performance issues.	To be physically demonstrated

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S/No	Qualitative Requirement		Trial Directive
2.11.05	There shall be a centralized method of device discovery and provisioning of device IP network addresses, and all associated parameters for that device, such that it eliminates the need to access each device separately		To be physically demonstrated
2.11.06	It shall be possible to configure the console system from any whereon the network on which it resides. A technician shall not be required to physically connect to a device in order to perform configuration and maintenance tasks.		To be physically demonstrated
2.12	**Power Source**		
	Must be protected against reverse voltage.		OEM Certificate
2.13	**EMI/EMC**		
	The equipment should be able to work with various radio requirement in HF, VHF and UHF bands co-located and transmitting at higher power without any problems.		To be physically demonstrated
3.	**COFDM Video Transmitter**		
3.01	The transmitter should be compact and light weight such that it can be carried by a Soldier during operation.		To be physically demonstrated
3.02	Should in corporate suitable digital transmission technology to provide video transmission in non-line of Sight environment.		To be physically demonstrated
3.03	The transmitter should have video in ports to support either analog or IP Cameras as defined by the user		To be physically demonstrated
3.04	Rechargeable battery pack for the transmitter should offer 4 hours of endurance or better. Sparer chargeable battery pack to be provided		To be physically demonstrated
3.05	Suitable battery charger should be provided to charge the transmitter batteries through AC or DC		To be physically demonstrated
3.06	The transmitter should offer 128 bit encoding or better		OEM Certificate
3.07	The transmitter should offer MPEG-2 and MPEG-4 video compression or better		OEM Certificate
3.08	The transmitter should offer bandwidth option of 8Mhz, 6Mhz and 1.25Mhz		OEM Certificate
3.09	The transmitter should offer a latency of 1 sec or lower		OEM Certificate
3.10	The video transmitter should be available in two different configurations as below:		Required configuration as per the SoR to be demonstrated
3.10.01	Body worn 1 Watt	Man pack 4 Watt	
3.10.02	Form Factor : Body worn	Form Factor: Man pack	
3.10.03	Power Output : 1 Watt	Power Output: 4 Watt	
3.10.04	Weight : Less than 500 grams without batteries	Weight : Less than 3000 grams without batteries	

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S/No	Qualitative Requirement	Trial Directive
3.11	User can choose up-to 4 numbers of transmitter so either type as part of the solution.	To be physically demonstrated
4.	**Four Channel COFDM Video Receiver**	
4.01	The Four-Channel Receiver shall be housed in the rack box	To be physically demonstrated
4.02	The receiver system should be a diversity receiver to eliminate fade and multipath effects	To be physically demonstrated
4.03	The receiver system should have suitable antennas to receive and display four video feeds simultaneously	To be physically demonstrated
4.04	The receiver system should have provision of high gain directional antennas along with suitable cables to enhance the transmission ranges. High gain directional antennas should be supplied with the receiver.	To be physically demonstrated
4.05	The receiver should offer IP inter face for IP streaming and network connections	To be physically demonstrated
4.06	There should be a provision to power the Receiver through 220V AC	To be physically demonstrated
4.07	The receiver shall be connected to a Video Recorder for storing the Video feeds with a storage capacity of at least1 TB.	To be physically demonstrated
4.08	The receiver should be compatible with the Mini Surveillance Control Center transmitters if already in use by the force.	To be physically demonstrated
5.	**Single Channel COFDM Hand- held Video Receiver**	
5.01	The Single-Channel Hand-held Video Receiver shall be a stand-alone accessory which can be used in the field to view the videos from the video transmitters.	To be physically demonstrated
5.02	The receiver system should be a diversity receiver to eliminate fade and multipath effects.	To be physically demonstrated
5.03	The receiver system should have suitable antennas to receive and display on video feed at a time and on-board controls to switch between the video transmitters deployed.	To be physically demonstrated
5.04	The receiver should have an in-built compact integrated display of maximum 7 inches.	To be physically demonstrated
5.05	The receiver should have a video out on-board tore-stream the video feed being viewed on the screen, by connecting to any of the video transmitters	To be physically demonstrated
5.06	There should be a powered by an in-built battery which can be replaced on the field. Spare battery pack should be provided.	To be physically demonstrated
5.07	The receiver should be compatible with the Mini Surveillance Control Center transmitters if already in use by the force.	To be physically demonstrated

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S/No	Qualitative Requirement		Trial Directive
6.	**Rugged Laptop with Touch Panel Display**		
6.01	Processor	Intel Core i5-4310MvPro Processor	OEM Datasheet
		– 2.7GHz	OEM Datasheet
		– 3MBcache	OEM Datasheet
6.02	Memory	8 GB DDR3L RAM Standard	OEM Datasheet
6.03	Storage	500GB HDD Shock-mounted flex-connect hard drive with quick-release	OEM Datasheet
6.04	Display	15.6" TFT LCDFHD (1920 x1080)Sunlight readable touch sensitive display	OEM Datasheet
6.05	Audio	Intel High Definition Audio Compliant	OEM Datasheet
6.06	Speakers	Integrated Front Facing Speaker	OEM Datasheet
6.07	Volumecontrols	Convenient Keyboard Volume Controls	OEM Datasheet
6.08	Expansion Slots	Smart Card Express Card/54x1	OEM Datasheet
		Secure Digital (SD) Memory card	OEM Datasheet
6.09	Keyboard & Input	Backlit Keyboard	OEM Datasheet
		Pressure-sensitive touch pad with vertical scrolling support	OEM Datasheet
6.10	Wireless LAN	802.11a/b/g/n/ac	OEM Datasheet
6.11	Wireless WAN	Integrated 3G LTE multicarrier mobile broadband	OEM Datasheet
6.12	Security	Kensington Cable lock slot	OEM Datasheet
		Intel vPro Technology	OEM Datasheet
		Trusted platform module (TPM) security chip v.1.2	OEM Datasheet
		Smartcard reader	OEM Datasheet
6.13	Battery	9 cell Li-Ion battery pack	OEM Datasheet
6.14	BatteryLife	Approx 10 Hrs with Standard Supplied Battery	OEM Datasheet

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S/No	Qualitative Requirement		Trial Directive
6.15	Operating System	Windows 7 Professional or more	OEM Datasheet
6.16	Weight	5.2 Kgs including Handle	OEM Datasheet
6.17	Environmental certificates	MIL-810 G Certified	OEM Datasheet and Test Certificate
		MIL-461F Certifiedfor EMI/EMC	
		IP (Ingress Protection) 65	

Insp/T Jitendra Kumar, CRPF

Insp/T Jeet Singh, ITBP

Insp/Comn LP Singh, BSF

Shri Pramod Kumar, AC, SSB

Shri RK Singh, Asst Dir, DCPW

Lt Col Baljeet Singh,
2IC Comn Gp, NSG

Col Amandeep Singh Puri,
GC ESG, NSG

Shri PC Sharma,
GC Comn, NSG

Brig Girish Suri,
DIG (Comn & IT), NSG

Approved / ~~not approved~~

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