QRs OF ROVER VEHICLE

S. No.	Technical Specifications	Compliance
1	**Vehicle Chassis : Optional, Can be either provided by the end user or by the bidder. Chassis to be specified.**	
1.01	BS-IV	
1.02	Wheelbase : 3200mm +/- 10%	
1.03	Width : 1800mm +/- 10%	
1.04	Length : Less than 5500mm	
1.05	Ground Clearance : 200mm or more	
1.06	Turning Radius : 6500mm or less	
1.07	Front Disc Brakes	
1.08	Payload : 900 Kgs or more	
1.09	Anti-roll bars	
1.1	Power Steering	
1.11	16" Wheels	
2	**Operators Section and Interiors for 1 operator**	
2.01	Operator section should be custom designed and built for 1 operator in the load body section of the vehicle chassis with a custom built super structure	
2.02	All communication facilities should be accessible from this section for the operator	
2.03	All controls and functions should be accessible for the operator from this area	
2.04	It should house a custom designed rugged operator console for mounting of communication console	
2.05	It should have comfortable chair for the operator position	
2.06	The operator section should be well lit and ergonomically designed	
2.07	Detailed design should be submitted for approval before the fabrication work. User can recommend changes for the vendor to accept feasibility.	
2.08	Interior should be equipped with an air-conditioning which shall be powered through the mains and vehicle engine	
2.09	All interior should be done with high grade material like Corian or similar, for a ergonomic finish	
2.1	Operator Section shall house the following facilities	
2.11	- Communication Console	
2.12	- Chair	

CRPF ITBP BSF SSB

DCPW NSG NSG NSG

S. No.	Technical Specifications	Compliance
2.13	- Air-Conditioning (Only supported on mains power)	
2.14	- Lighting	
2.15	- Provision for Comm. Controls	
3	**Vehicle Based 16U or better Rack with Shock and Isolation Mounts**	
3.01	Rack of 16U size, or better, and suitable for vehicle mount should be provisioned	
3.02	Rack should be made for easy access and maintenance	
3.03	Rack should have Isolation and shock mounts mounted appropriately	
4	**Rack Mounted Vehicle Grade Voice Communication Switch**	
4.01	The quoted communication switch should already be in use in a vehicle based command control infrastructure and should be proven to run in a vehicle based environment	
4.02	The Communication Switch should be capable of receiving all voice calls from the radios directly on the console and integrating different radio nets.	
4.03	System Capacity The digital console dispatch system shall be capable of supporting as many as 30 non-blocking ports, consisting of up to 4 operator positions, with the remaining ports available for external interfacing. The system shall be scalable to support a few operator positions operating in a fixed or mobile environment and accessing a small number of communications resources to 16 positions operating in an integrated dispatch or call-taking environment and accessing multiple resources	
4.04	System Architecture The console dispatch system shall employ an end-to-end digital architecture from the resource interfaces to the operator workstations that is capable of integrating in a single switch all radio and telephone voice communications.	

CRPF ITBP BSF SSB

DCPW NSG NSG NSG

S. No.	Technical Specifications	Compliance
4.05	Dispatch workstation and User Interface Dispatch workstations shall consist of an 12" Touch monitor based operator control unit to manage all audio and data communications between the operator position and the switching equipment. Each workstation shall be equipped with a touch panel based display, keyboard, mouse or trackball, external or embedded speakers, and associated input and control devices like headsets, microphones, foot-switch.	
4.06	Radio Interface Support The system shall support various trunking and wireless interfaces including 4 wire E&M, EIA Tone Remote Control, Mototrbo , Nexedge, MPT, TETRA, iDEN.	
4.07	Signalling Protocols The system shall support various signalling protocols including tone remote control, DTMF, SELCAL and VOX detect.	
4.08	Telephony Protocols The system shall support various telephony protocols including 2-wire POTS and PSTN/PABX and GSM Modems	
4.09	Instant Recall Recorder Each dispatch workstation shall be equipped with hardware and/or software-based instant recall recorders (IRR). A software-based IRR shall be a Windows application capable of recording all operator audio in standard WAV file format and offering immediate playback and short-term storage of operator audio communications. It shall be possible to store audio WAV files on the workstation PC, network server, and/or on a network storage device (e.g., CD-RW). The ability to play back a call shall not be limited by the availability of the network or a system-wide recording device.	
4.1	Dispatch Console User Interface The console dispatch system shall include a Windows-based user interface (UI) application that gives operators access to and control of system resources and functions. The UI application shall run on a workstation PC and shall be configurable to provide the specific functionality needed for an operator to perform his/her duties.	

CRPF ITBP BSF SSB

DCPW NSG NSG NSG

S.No.	Technical Specifications	Compliance
4.11	Dispatch Console User Interface The UI shall present the various line and function controls using icons representing traditional screen-based buttons whose appearance can be configured according to location on the screen, size, color, labeling (font style and color), and image (bitmap). In addition, operators shall be able to access multiple screens presenting different line and function controls simply by clicking on tabs that, when selected, present new resource views. The appearance (color, font, three dimensional effects) of buttons will change as required to indicate the state of the line or function to the operator (e.g., selected line, activity on a channel, etc.).	
4.12	Dispatch Console User Interface The UI shall include embedded windows that allow operators to access and display intranet and/or internet HTML pages and to navigate Web-based resources, subject to administrative control.	
4.13	Channels Should be capable of connecting 4 radio nets simultaneously and interface 04 analog ports (FXO/FXS ports) for interoperability, with radio sets. Alternately, it should also support GSM/CDMA interface of 2 ports or more.	
4.14	System Diagnostics & Reporting The console dispatch system shall provide the means to monitor system diagnostics via the configuration software. In addition, LEDs shall supply diagnostic information.	
4.15	Configuration Software Configuration software shall be provided that runs on a Windows-based PC that can be interfaced to the electronics directly. The software shall be used to configure the system and to monitor the status of system alarms.	
4.16	RoIP Gateway should have following features	
	Should transports Voice, PTT, COR and Data for up to two radio circuits.	
	Should Handles Tone Remote Control (TRC) and Local/E&M radio circuits.	
	Remote PTT operation controlled by VOX or COR	
	Should be compatible with many IP-based RTP voice recorders.	
	Should be configurable via web browser, including all audio levels.	
	Should support device payload of 1kbps during idle and 104kkbps active using G.711 per channel	
	Packet loss should be less than 0.1%, packet delay should be less than 400ms.	
	Should support network connection of 10-Base-T Ethernet using RJ45	
	Vocoder support G.711, GSM and G.726	

CRPF ITBP BSF SSB

DCPW NSG NSG NSG

S.No.	Technical Specifications	Compliance
5	**Voice Communication Switch Accessories**	
5.01	Voice Communication Switch shall be equipped with the following accessories	
5.02	- 12" Touch Screen Operator Console	
5.03	- Foot PTT	
5.04	- Isolation Headphones and Mic	
6	**Vehicle Mounted Mast**	
6.01	Electro-mechanical mast operated through a push button / switch	
6.02	Erected Height : 4M from the vehicle floor	
6.03	Retracted Height : 1.5 meter or less	
6.04	Operational Wind speed : 80Kmph	
6.05	Deployment Wind speed : 40Kmph	
6.06	Type of Mast : Pneumatic with compressor	
6.07	Weight of Mast : Less than 50Kg	
6.08	Support : Self	
6.09	Rotation : Stationary	
6.1	Mount : Vehicle Mount	
6.11	Head Load : Min 35Kg	
7	**UPS of required capacity**	
7.01	Minimum 3 KVA UPS	
7.02	Single Phase In Single Phase Out	
7.03	LCD Panel Information	
7.04	Rating : 3KVA	
7.05	Peak Effeciency : > 80%	
7.06	SMF batteries with deep discharge technology	
7.07	Powers 3 KVA UPS for up to 60 minutes	
7.08	Fully-sealed construction	
8	**SMF Battery Bank for 1 hour back-up**	
8.01	12 Volt Batteries of requisite capacity to provide one hour battery back-up	
9	**PA System and LED Bar**	
9.01	The vehicle shall be fitted with a Top Bar Light in red and blue colour.	
9.02	The bar light shall be tested and certified by Automotive Research Association of India (ARAI) for the following parameters	
	(a) LED Durability test: As per AIS:012 annex M, where in the bar light will be operated for 2000 hrs at a gap of 15 min every 24 hours without any failure.	
	(b) IP Test: For dust and water as per IS 13947 part-1-1993 of appendix C.	
	(c) Siren Durability Test: Hi-Low mode for 4 hours where maximum stress is put on the siren.	

CRPF ITBP BSF SSB

DCPW NSG NSG NSG

S.No.	Technical Specifications	Compliance
9.03	Weight: less than 15 kgs	
9.04	Input voltage : 12v with 10% variation	
9.05	Base: sheet metal MS	
9.06	Dome: Unbreakable, when mounted, polycarbonate upper and one red and one blue lower.	
9.07	Speaker grill: stainless steel	
9.08	Speaker: 2pcs, 60watts unit horn concealed under the speaker grill fully waterproof.	
9.09	LED Modules : LED square module with built in reflector & lens	
9.1	Mounting: special clamps for body hugging fitment on the vehicle roof.	
9.11	Shape: sleek aerodynamic designed with rounded edge for minimum wind drag.	
9.12	A 24Vdc output shall be available to supply power to external relays, so no external power supply shall be required for that purpose.	
9.13	A LED VU-meter shall allow for monitoring of the master output.	
9.14	The maximum/rated output power of the internal booster shall be 150 W / 300 W. max mains inrush current shall be 8A @ 230 VAC / 16A @ 115 VAC.	
9.15	The frequency response shall be 60 Hz – 18 kHz (+1/-3 dB, @ -10 dB ref. rated output.	
9.16	The distortion shall not exceed 1% at the rated output, 1 kHz	
9.17	The system shall comply to the following standards: a. EVAC compliance acc. to IEC 60849 b. EMC emission acc. to EN 55103-1 c. EMC immunity acc. to EN 55103-2 d. Safety acc. to EN 60065.	

Insp/T Jitendra Kumar, CRPF

Insp/Tech 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)

Approved / ~~not approved~~

DG NSG

Technical Specifications : DG Rover Vehicle		Trial Directives
S. No.	**Technical Specifications**	
1	**Vehicle Chassis : Optional, Can be either provided by the end user or by the bidder. Chassis to be specified.**	Vehicle Data sheet to be provided
1.01	BS-IV	
1.02	Wheelbase : 3200mm +/- 10%	
1.03	Width : 1800mm +/- 10%	
1.04	Length : Less than 5500mm	
1.05	Ground Clearance : 200mm or more	
1.06	Turning Radius : 6500mm or less	
1.07	Front Disc Brakes	
1.08	Payload : 900 Kgs or more	
1.09	Anti-roll bars	
1.1	Power Steering	
1.11	16" Wheels	
2	**Operators Section and Interiors for 1 operator**	
2.01	Operator section should be custom designed and built for 1 operator in the load body section of the vehicle chassis with a custom built super structure	Design to be provided
2.02	All communication facilities should be accessible from this section for the operator	Design to be provided
2.03	All controls and functions should be accessible for the operator from this area	Design to be provided
2.04	It should house a custom designed rugged operator console for mounting of communication console	Design to be provided
2.05	It should have comfortable chair for the operator position	Design to be provided
2.06	The operator section should be well lit and ergonomically designed	Design to be provided
2.07	Detailed design should be submitted for approval before the fabrication work. User can recommend changes for the vendor to accept feasibility.	Design to be provided
2.08	Interior should be equipped with an air-conditioning which shall be powered through the mains and vehicle engine	Design to be provided
2.09	All interior should be done with high grade material like Corian or similar, for a ergonomic finish	Bidder undertaking to be provided
2.1	Operator Section shall house the following facilities	Layout should be provided
2.11	- Communication Console	
2.12	- Chair	
2.13	- Air-Conditioning (Only supported on mains power)	
2.14	- Lighting	
2.15	- Provision for Comm. Controls	

CRPF ITBP BSF SSB

DCPW NSG NSG NSG

S.No	Technical Specifications : DG Rover Vehicle	Trial Directives
3	**Vehicle Based 16U or better Rack with Shock and Isolation Mounts**	
3.01	Rack of 16U size, or better, and suitable for vehicle mount should be provisioned	Design to be provided
3.02	Rack should be made for easy access and maintenance	Design to be provided
3.03	Rack should have Isolation and shock mounts mounted appropriately	Design to be provided
4	**Rack Mounted Vehicle Grade Voice Communication Switch**	
4.01	The quoted communication switch should already be in use in a vehicle based command control infrastructure and should be proven to run in a vehicle based environment	Order copies of vehicle with communication switch to be provided
4.02	The Communication Switch should be capable of receiving all voice calls from the radios directly on the console and integrating different radio nets.	To be physically demonstrated and checked
4.03	System Capacity The digital console dispatch system shall be capable of supporting as many as 30 non-blocking ports, consisting of up to 4 operator positions, with the remaining ports available for external interfacing. The system shall be scalable to support a few operator positions operating in a fixed or mobile environment and accessing a small number of communications resources to 16 positions operating in an integrated dispatch or call-taking environment and accessing multiple resources	OEM Undertaking to be provided
4.04	System Architecture The console dispatch system shall employ an end-to-end digital architecture from the resource interfaces to the operator workstations that is capable of integrating in a single switch all radio and telephone voice communications.	OEM Undertaking to be provided
4.05	Dispatch workstation and User Interface Dispatch workstations shall consist of an 12" Touch monitor based operator control unit to manage all audio and data communications between the operator position and the switching equipment. Each workstation shall be equipped with a touch panel based display, keyboard, mouse or trackball, external or embedded speakers, and associated input and control devices like headsets, microphones, foot-switch.	To be physically demonstrated and checked
4.06	Radio Interface Support The system shall support various trunking and wireless interfaces including 4 wire E&M, EIA Tone Remote Control, Mototrbo , Nexedge, MPT, TETRA, iDEN.	OEM Undertaking to be provided

CRPF ITBP BSF SSB

DCPW NSG NSG NSG

S.No	Technical Specifications : DG Rover Vehicle	Trial Directives
4.07	Signalling Protocols The system shall support various signalling protocols including tone remote control, DTMF, SELCAL and VOX detect.	OEM Undertaking to be provided
4.08	Telephony Protocols The system shall support various telephony protocols including 2-wire POTS and PSTN/PABX and GSM Modems	OEM Undertaking to be provided
4.09	Instant Recall Recorder Each dispatch workstation shall be equipped with hardware and/or software-based instant recall recorders (IRR). A software-based IRR shall be a Windows application capable of recording all operator audio in standard WAV file format and offering immediate playback and short-term storage of operator audio communications. It shall be possible to store audio WAV files on the workstation PC, network server, and/or on a network storage device (e.g., CD-RW). The ability to play back a call shall not be limited by the availability of the network or a system-wide recording device.	To be physically demonstrated and checked
4.1	Dispatch Console User Interface The console dispatch system shall include a Windows-based user interface (UI) application that gives operators access to and control of system resources and functions. The UI application shall run on a workstation PC and shall be configurable to provide the specific functionality needed for an operator to perform his/her duties.	To be physically demonstrated and checked
4.11	Dispatch Console User Interface The UI shall present the various line and function controls using icons representing traditional screen-based buttons whose appearance can be configured according to location on the screen, size, color, labeling (font style and color), and image (bitmap). In addition, operators shall be able to access multiple screens presenting different line and function controls simply by clicking on tabs that, when selected, present new resource views. The appearance (color, font, three dimensional effects) of buttons will change as required to indicate the state of the line or function to the operator (e.g., selected line, activity on a channel, etc.).	To be physically demonstrated and checked
4.12	Dispatch Console User Interface The UI shall include embedded windows that allow operators to access and display intranet and/or internet HTML pages and to navigate Web-based resources, subject to administrative control.	To be physically demonstrated and checked

CRPF ITBP BSF SSB

DCPW NSG NSG NSG

S.No	Technical Specifications : DG Rover Vehicle	Trial Directives
4.13	Channels Should be capable of connecting 4 radio nets simultaneously and interface 04 analog ports (FXO/FXS ports) for interoperability, with radio sets. Alternately, it should also support GSM/CDMA interface of 2 ports or more.	To be physically demonstrated and checked
4.14	System Diagnostics & Reporting The console dispatch system shall provide the means to monitor system diagnostics via the configuration software. In addition, LEDs shall supply diagnostic information.	To be physically demonstrated and checked
4.15	Configuration Software Configuration software shall be provided that runs on a Windows-based PC that can be interfaced to the electronics directly. The software shall be used to configure the system and to monitor the status of system alarms.	To be physically demonstrated and checked
4.16	RoIP Gateway should have following features	
	Should transports Voice, PTT, COR and Data for up to two radio circuits.	OEM Undertaking to be provided
	Should Handles Tone Remote Control (TRC) and Local/E&M radio circuits.	OEM Undertaking to be provided
	Remote PTT operation controlled by VOX or COR	OEM Undertaking to be provided
	Should be compatible with many IP-based RTP voice recorders.	OEM Undertaking to be provided
	Should be configurable via web browser, including all audio levels.	OEM Undertaking to be provided
	Should support device payload of 1kbps during idle and 104kkbps active using G.711 per channel	OEM Undertaking to be provided
	Packet loss should be less than 0.1%, packet delay should be less than 400ms.	OEM Undertaking to be provided
	Should support network connection of 10-Base-T Ethernet using RJ45	OEM Undertaking to be provided
	Vocoder support G.711, GSM and G.726	OEM Undertaking to be provided
5	**Voice Communication Switch Accessories**	
5.01	Voice Communication Switch shall be equipped with the following accessories	
5.02	- 12" Touch Screen Operator Console	
5.03	- Foot PTT	
5.04	- Isolation Headphones and Mic	
6	**Vehicle Mounted Mast**	
6.01	Electro-mechanical mast operated through a push button / switch	Design to be provided

CRPF ITBP BSF SSB

DCPW NSG NSG NSG

S.No	Technical Specifications : DG Rover Vehicle	Trial Directives
6.02	Erected Height : 4M from the vehicle floor	Design to be provided
6.03	Retracted Height : 1.5 meter or less	Design to be provided
6.04	Operational Wind speed : 80Kmph	Bidder undertaking to be provided
6.05	Deployment Wind speed : 40Kmph	Bidder undertaking to be provided
6.06	Type of Mast : Pneumatic with compressor	Design to be provided
6.07	Weight of Mast : Less than 50Kg	Bidder undertaking to be provided
6.08	Support : Self	Bidder undertaking to be provided
6.09	Rotation : Stationary	Bidder undertaking to be provided
6.1	Mount : Vehicle Mount	Design to be provided
6.11	Head Load : Min 35Kg	Bidder undertaking to be provided
7	**UPS of required capacity**	
7.01	Minimum 3 KVA UPS	OEM Datasheet / Certificate to be provided
7.02	Single Phase In Single Phase Out	OEM Datasheet / Certificate to be provided
7.03	LCD Panel Information	OEM Datasheet / Certificate to be provided
7.04	Rating : 3KVA	OEM Datasheet / Certificate to be provided
7.05	Peak Effeciency : > 80%	OEM Datasheet / Certificate to be provided
7.06	SMF batteries with deep discharge technology	OEM Datasheet / Certificate to be provided

CRPF ITBP BSF SSB

DCPW NSG NSG NSG

S.No	Technical Specifications : DG Rover Vehicle	Trial Directives
7.07	Powers 3 KVA UPS for up to 60 minutes	OEM Datasheet / Certificate and load calculations to be provided
7.08	Fully-sealed construction	OEM Datasheet / Certificate to be provided
8	**SMF Battery Bank for 1 hour back-up**	
8.01	12 Volt Batteries of requisite capacity to provide one hour battery back-up	Capacity to be specified
9	**PA System and LED Bar**	
9.01	The vehicle shall be fitted with a Top Bar Light in red and blue colour.	To be physically demonstrated and checked
9.02	The bar light shall be tested and certified by Automotive Research Association of India (ARAI) for the following parameters	Certificate to be provided
	(a) LED Durability test: As per AIS:012 annex M, where in the bar light will be operated for 2000 hrs at a gap of 15 min every 24 hours without any failure.	OEM Datasheet / Certificate to be provided
	(b) IP Test: For dust and water as per IS 13947 part-1-1993 of appendix C.	OEM Datasheet / Certificate to be provided
	(c) Siren Durability Test: Hi-Low mode for 4 hours where maximum stress is put on the siren.	OEM Datasheet / Certificate to be provided
9.03	Weight: less than 15 kgs	To be physically demonstrated and checked
9.04	Input voltage : 12v with 10% variation	OEM Datasheet / Certificate to be provided
9.05	Base: sheet metal MS	OEM Datasheet / Certificate to be provided
9.06	Dome: Unbreakable, when mounted, polycarbonate upper and one red and one blue lower.	OEM Datasheet / Certificate to be provided
9.07	Speaker grill: stainless steel	To be physically demonstrated and checked
9.08	Speaker: 2pcs, 60watts unit horn concealed under the speaker grill fully waterproof.	OEM Datasheet / Certificate to be provided

CRPF ITBP BSF SSB

DCPW NSG NSG NSG

S.No	Technical Specifications : DG Rover Vehicle	Trial Directives
9.09	LED Modules : LED square module with built in reflector & lens	To be physically demonstrated and checked
9.1	Mounting: special clamps for body hugging fitment on the vehicle roof.	To be physically demonstrated and checked
9.11	Shape: sleek aerodynamic designed with rounded edge for minimum wind drag.	To be physically demonstrated and checked
9.12	A 24Vdc output shall be available to supply power to external relays, so no external power supply shall be required for that purpose.	To be physically demonstrated and checked
9.13	A LED VU-meter shall allow for monitoring of the master output.	To be physically demonstrated and checked
9.14	The maximum/rated output power of the internal booster shall be 150 W / 300 W. max mains inrush current shall be 8A @ 230 VAC / 16A @ 115 VAC.	OEM Datasheet / Certificate to be provided
9.15	The frequency response shall be 60 Hz – 18 kHz (+1/-3 dB, @ -10 dB ref. rated output.	OEM Datasheet / Certificate to be provided
9.16	The distortion shall not exceed 1% at the rated output, 1 kHz	OEM Datasheet / Certificate to be provided
9.17	The system shall comply to the following standards: a. EVAC compliance acc. to IEC 60849 b. EMC emission acc. to EN 55103-1 c. EMC immunity acc. to EN 55103-2 d. Safety acc. to EN 60065.	OEM Datasheet / Certificate to be provided

Insp/T Jitendra Kumar, CRPF

Insp/Tech 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~~

DG NSG