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26  
07 Jaistha 1431  
June 2024

06.06.0000.215.49.24/Std

**RE-EVALUATION OF THE SPECIFICATION OF RADIO SET HIGH FREQUENCY (HF) MEDIUM RANGE (VEHICLE & BASE STATION VERSION), VERY HIGH FREQUENCY (VHF) MEDIUM RANGE (VEHICLE & BASE STATION VERSION) AND VERY HIGH FREQUENCY (VHF) MANPACK**

References:


- A. Army Headquarters, General Staff Branch, Signal Directorate letter number 23.01.901.032.03.099.01.20.03.24 dated 20 March 2024 (Not to all).
- B. Army Headquarters, General Staff Branch, Signal Directorate letter number 23.01.901.032.03.099.01.28.04.24 dated 28 April 2024 (Not to all).
- B. Army Headquarters, General Staff Branch, Signal Directorate letter number 23.01.901.032.03.099.01.02.06.24 dated 02 June 2024 (Not to all).

1. In light of above references, a technical specification of Radio Set High Frequency (HF) Medium Range (Vehicle & Base Station Version), Very High Frequency (VHF) Medium Range (Vehicle & Base Station Version) and Very High Frequency (VHF) Manpack is attached with this letter. Interested authorized vendors/firms/local agents of the manufacturers are requested to submit your offer for above mentioned Radio Set High Frequency (HF) Medium Range (Vehicle & Base Station Version), Very High Frequency (VHF) Medium Range (Vehicle & Base Station Version) and Very High Frequency (VHF) Manpack directly to Army Headquarters, General Staff Branch, Signal Directorate with intimation to this office **by 30 June 2024** fulfilling the requirements mentioned below:

- b. Offer as per technical specification.
- b. Letter of authorization by Manufacturer/Principal mentioning that the said company will be the local vendor/agent for offered model.
- c. Manuals (Original Printed by Manufacture) and CD.
- d. Catalogue (Original Printed by Manufacture) and CD.
- e. Catalogue of Spare Parts (Original Printed by Manufacture) and CD.
- f. Brochure (Original Printed by Manufacture) and CD.
- g. Enlistment Certificate of Directorate General Defence Purchase and BTRC.
- h. Valid Certificate from Original Equipment Manufacturer (OEM) as authorized agent.
- j. Certification from manufacturer on permission to export the said system to Bangladesh Army.

2. All the documents are to be submitted on Manufacture's/Principal's official pad including official stamp with signed by proper authority.

3. Forwarded for your information and necessary action please.

  
RAIHAN RAHMAN  
Major  
For Director General

Enclosure:

1. Technical Specification-24 (Twenty Four) Pages Only.

Distribution:

External:

Information:

Army Headquarters, General Staff Branch (Coordination)

Army Headquarters, General Staff Branch, Weapon Equipment & Statistics Directorate

Army Headquarters, General Staff Branch, Signal Directorate

Action:

All Concerned Supplier/Firm

Internal:

IT Section (For uploading to website)

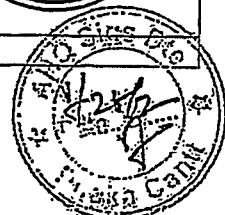
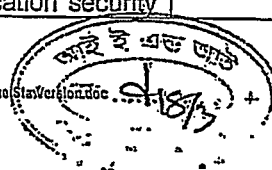
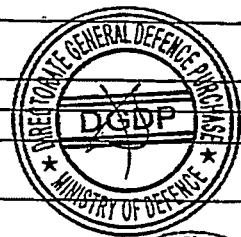
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**ANNEX A TO**  
**DGDP LETTER NO 06.06.0000.215.49.24/Std**  
**DATED: 09 JUNE 2024**

**GENERAL SPECIFICATION OF RADIO SET HIGH FREQUENCY MEDIUM RANGE  
 (BASE STATION VERSION) (MILITARY VERSION)**

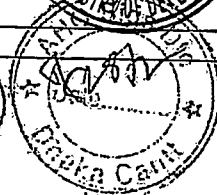
Ser	Fact/Description	Technical Specification	To be filled up by principal/ manufacturer
(a)	(b)	(c)	(d)
<b>PART 1: GENERAL SPECIFICATION</b>			
1.	Nomenclature	Radio Set HF (Medium Range) (Vehicle and Base Station Version) (Military Version)	
2.	Type of Radio	Military version (Base Station Version) Software Defined Radio	
3.	Brand Name/ Make	To be mentioned	
4.	Model	To be mentioned	
5.	Country of Origin	Group A and B countries	
6.	Country of Manufacture	Group A and B countries	
7.	Country of Assembly	Group A and B countries	
8.	Year of Manufacture	Not before the calendar year of the contract	
9.	Name of Manufacturer with complete address (Addresses, Telephone, Fax, Email & Website)	Details to be mentioned	
10.	Name of Principal with complete address (Addresses, Telephone, Fax, Email & Website)	Details to be mentioned	
11.	Name of Local Agent with complete address (Addresses, Telephone, Fax, Email & Website)	Details to be mentioned	
12.	Port of Shipment	Must be from the country of Manufacturing/Assembly. Trans-shipment not allowed	
13.	Color	Metallic Bronze (MB) Green	
<b>PART 2: TECHNICAL SPECIFICATION</b>			
14.	Frequency Range	1.6 MHz-30 MHz. Below 1.6 MHz and above 30 MHz are allowed	
15.	Frequency Band	HF	
16.	Channel Bandwidth	To be mentioned	
17.	Channel Spacing	To be mentioned	
18.	Number of Preset Memory Channel	Minimum 50. Specific memory channel is to be mentioned	
19.	Number of Total Working Channel	To be mentioned	
<b>Tactical Communication Range</b>			
20.	Static	All Over Bangladesh	
	On the Move (Base to Vehicle)	Minimum 20 km both in Urban & Hilly Area	
21.	Antenna Type	Broad band antenna is preferable. Details of all types of antennas to be mentioned	
22.	Antenna Tuning Unit (ATU)	To be mentioned	
23.	<b>Communication Security</b>		
	a. Encryption	AES 256 or higher mode encryption must be available. Details to be mentioned	
	b. Frequency Hopping	Minimum 100 hops per minute. Details to be mentioned	
	c. Other Types of Security	Any other types of communication security	



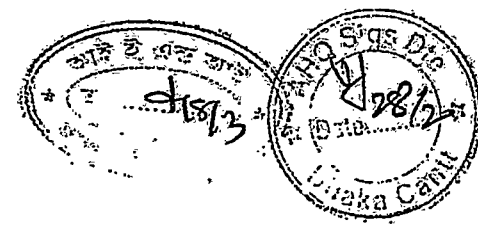
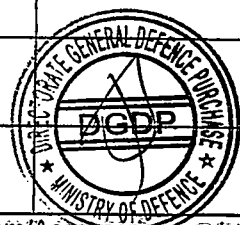
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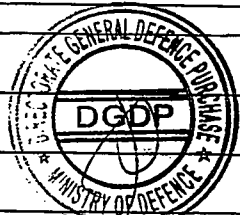
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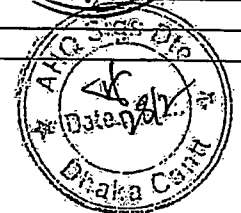
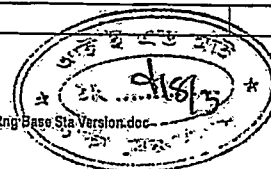
Ser	Fact/Description	Technical Specification	To be filled up by principal/ manufacturer
(a)	(b)	(c)	(d)
	(Optional)	(if available) are to be mentioned	
24.	Dimension (W x D x H) (Without Antenna)	To be mentioned. Picture is to be provided	
25.	Weight of the Radio set (Complete at Functional Condition)	To be mentioned	
26.	Power Supply System	a. Must be operated from both AC (220 VAC $\pm$ 20% at 50 Hz) and DC rechargeable and replaceable battery. Detail of brand, model, country of manufacture and battery rating are to be mentioned	
		b. The battery charger should have charging facility from AC power 220 VAC $\pm$ 20% at 50 Hz $\pm$ 20%. Charging from solar charger at ambient light (optional)	
27.	<b>Transceiver</b>		
	a. RF Power Output	(1) Min: 25 W or below (2) Max: 100 W or above (3). Radio set must qualify in both the above parameters.	
	b. Power Modes	Scalable Power Output modes are to be available. Details to be mentioned	
	c. Modulation Type	All modulation types are to be specified with required technical data	
	d. RF Input Impedance	To be mentioned	
	e. Receiver Sensitivity	To be mentioned	
	f. AF Output	Details to be mentioned	
	g. Squelch Type	Details to be mentioned	
	h. Types of Waveforms	Details to be mentioned	
28.	<b>Programming Software (Tools kit, Laptop etc)</b>		
	a. Programing Kit along with Software (Perpetual License)	To be provided	
	b. Tool Kit/Fill Gun	To be provided (if available)	
	c. Requirement of Laptop (Optional)	To be mentioned (if required)	
29.	<b>Mandatory Features</b>		
	a. Automatic Link Establishment (ALE)	Available (3G ALE or above)	
	b. Data Communication	Minimum 100 kbps. Details to be mentioned	
	c. Built in Test (BITE)	To be available	
	d. Instant messaging Facility	To be mentioned	
	e. GPS Facility	To be available	
	f. SDR Facility	To be available and details to be provided	
	g. CNR Facility	To be available	
	h. Remote Control Facility	Minimum 100 meter (wired/wireless)	
30.	<b>Optional Features</b>		
	a. IP Interfacing facility with Field Exchange	To be available and details to be mentioned	
	b. Battle management	Support BMS (Battlefield Management System) or similar standards	
31.	<b>Operating/ Storage Condition</b>		
	a. Operating Temperature	-10 <sup>o</sup> C to + 55 <sup>o</sup> C	
	b. Storage Temperature	-20 <sup>o</sup> C to + 60 <sup>o</sup> C	
	c. Humidity Permissible Condition for Operation	Maximum 95%	
	d. Operation during Fog, Rain	To be possible	



Ser	Fact/Description	Technical Specification	To be filled up by principal/ manufacturer		
(a)	(b)	(c)	(d)		
	and Snow				
32.	<b>Environmental Standards</b>				
	a. Rain/Splash Proof	Military Standard 810 F or higher			
	b. Dust Proof				
	c. Vibration Proof				
	d. Temperature Proof		As per operating and storage Temperature.		
33.	<b>List of Standard Accessories</b>	(Details to be mentioned) Following Item/Accessories are to be offered as standard:			
<b>Bill of Quantity/Material (BOQ /BOM) of Standard Items</b>					
Ser	Eqpt Name/ Nomenclature	Part No	Qty	Country of Manufacture	Rmks
a.	Transceiver (Including ALE, BITE, ATU and Instant Messaging Facility etc)				
b.	Radio Earthing				
c.	Handset				
d.	Antenna (Two different Antenna to be given as Standard Item) complete with accessories				
e.	Antenna Mast (One Antenna Mast to be given in Standard item) complete with accessories				
f.	<b>Power Supply System</b>				
	(1) AC Power Supply Complete with cables				
	(2) DC Power Supply Complete with cables				
	(3) Sealed Rechargeable Maintenance Free Battery (minimum 120 AH) (02 Nos) with charging facility (Battery charger), Acceptable from local source				
g.	Programming Kit along with Software (Perpetual License and to be offered in 10:1 ratio)				
h.	GPS Facility with Accessories				
j.	Data Communication facility with Accessories (Data Transfer Cable or similar, To be offered in 10:1 ratio)				
k.	Tool Kit/Fill Gun (if available) with accessories (To be offered in 10:1 ratio)				
l.	Carrying Bag (To be offered as per requirement)				
m.	Required cables, connectors and associated accessories				
34.	<b>List of Optional Accessories</b>	(Details to be mentioned) Following Item/Accessories are to be offered as optional:			

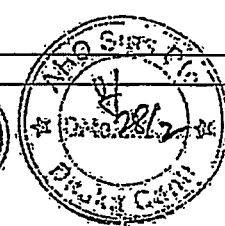
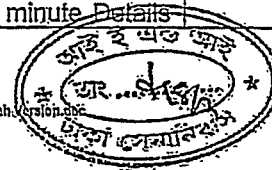


Ser	Fact/Description	Technical Specification	To be filled up by principal/ manufacturer
(a)	(b)	(c)	(d)
<b>Bill of Quantity/Material (BOQ/BOM) of Optional Items</b>			
Ser	Eqpt Name/Nomenclature	Part No	Qty
	Country of Manufacture		Rmks
a.	Handset		
b.	Radio Earthing		
c.	Programming Software		
d.	Data Communication facility with Accessories (Data Transfer Cable or similar to be offered)		
e.	Laptop (To be offered in 10:1 ratio)		
f.	BMS (Battlefield Management System or similar)		
g.	Carrying Bag/ Transportation Case/Transit Case		
h.	Interface cable with Field Exchange		
i.	Any others to be mentioned		
35.	Warranty	2 (Two) Years	
36.	After Sales Service	5 (Five) Years	
37.	Model Validity	Minimum 8 (Eight) years from signing of contract	
38.	Any other	If any item not specifically mentioned above but required technically for full range of operation, the supplier should specify and quote such item(s) in their offer	
<b>PART-3 : TRAINING REQUIREMENT</b>			
39.	User Training	To be provided (As per requirement of Signals & EME Directorate)	
40.	Operations, Repair and Maintenance Training	To be provided (As per requirement of Signals & EME Directorate)	
41.	Inventory Management Training	To be provided (As per requirement of Ordnance Directorate)	
42.	Publication on Training	To be provided	
<b>PART-4 : REPAIR AND MAINTENANCE REQUIREMENT LESS LIST OF SPARES</b>			
43.	<b>Books &amp; Publication</b>		
a.	Owners/ Operations manual in English (Book Type) including CD/DVD	To be provided (As per requirement of Signals & EME Directorate)	
b.	Workshop/Repair manual incl detail schematic and circuit diagram in English (Book Type) including CD/DVD	To be provided (As per requirement of Signals & EME Directorate)	
c.	100% Updated master spare parts catalogue in English (Book Type) including CD/DVD	To be provided (As per requirement of Signals & EME Directorate)	
d.	Complete and updated master spare parts price catalogue / list in English (Book Type) including CD/DVD	To be provided (As per requirement of Signals & EME Directorate)	
<b>PART-5 : LIST OF SPARES</b>			
44.	List of standard spare parts, tools and accessories	To be provided (As per requirement of Signals & EME Directorate)	
<b>PART-6 TOOL LIST FOR DIFFERENT LEVEL OF MAINTENANCE</b>			
45.	a. Analyzer, Measuring Testing/Fault finding and Diagnostic set	To be provided (As per requirement of Signals & EME Directorate)	
	b. Special Service Tools (SST)	To be provided (As per requirement of Signals & EME Directorate)	
	c. Special Service Materials (SSM)	To be provided (As per requirement of Signals & EME Directorate)	
<b>PART-7: FINANCIAL SPECIFICATION</b>			
46.	Financial Implication/ Specifications	To be mentioned	



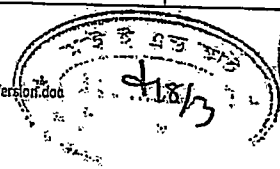
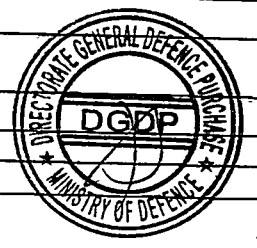
**GENERAL SPECIFICATION OF RADIO SET HIGH FREQUENCY MEDIUM RANGE  
(VEHICLE VERSION) (MILITARY VERSION)**

Ser	Fact/Description	Technical Specification	To be filled up by Principal/Manufacturer
(a)	(b)	(c)	(d)
<b>PART 1: GENERAL SPECIFICATION</b>			
1.	Nomenclature	Radio Set HF (Medium Range) (Vehicle and Base Station Version) (Military Version)	
2.	Type of Radio	Military Version (Vehicle Version) Software Defined Radio	
3.	Brand Name/ Make	To be mentioned	
4.	Model	To be mentioned	
5.	Country of Origin	Group A and B countries	
6.	Country of Manufacture	Group A and B countries	
7.	Country of Assembly	Group A and B countries	
8.	Year of Manufacture	Not before the calendar year of the contract	
9.	Name of Manufacturer with complete address (Addresses, Telephone, Fax, Email & Website)	Details to be mentioned	
10.	Name of Principal with complete address (Addresses, Telephone, Fax, Email & Website)	Details to be mentioned	
11.	Name of Local Agent with complete address (Addresses, Telephone, Fax, Email & Website)	Details to be mentioned	
12.	Port of Shipment	Must be from the country of Manufacturing/Assembly. Trans-shipment not allowed	
13.	Color	Metallic Bronze (MB) Green	
<b>PART 2: TECHNICAL SPECIFICATION</b>			
14.	Frequency Range	1.6 MHz-30 MHz. Below 1.6 MHz and above 30 MHz are allowed	
15.	Frequency Band	HF	
16.	Channel Bandwidth	To be mentioned	
17.	Channel Spacing	To be mentioned	
18.	Number of Preset Memory Channel	Minimum 50. Specific memory channel is to be mentioned	
19.	Number of Total Working Channel	To be mentioned	
20.	<b>Technical Communication Range</b>		
	Static (Vehicle to Vehicle)	Minimum 80 KM	
	On the Move (Vehicle to Vehicle)	Minimum 15 KM both in urban area and hilly area	
	Vehicle to Base	Minimum 100 KM	
21.	Antenna Type	Vehicular Broad band antenna is preferable. Details of all types of antennas to be mentioned	
22.	Antenna Tuning Unit (ATU)	To be mentioned	
23.	<b>Communication Security</b>		
	a. Encryption	AES 256 or higher mode encryption must be available. Details to be mentioned	
	b. Frequency Hopping	Minimum 100 hops per minute. Details	



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Sr	Fact/Description	Technical Specification	To be filled up by Principal/ Manufacturer
(a)	(b)	(c)	(d)
	c. Other Types of Security (Optional)	to be mentioned Any other types of communication security (if available) are to be mentioned	
24.	Dimension (W x D x H) (Without Antenna)	To be mentioned. Picture is to be provided	
25.	Weight of the Radio set (Complete at Functional Condition)	To be mentioned	
26.	Power Supply System	a. Must be operated from 12/24 Volt DC battery (preferably from vehicle power source)	
		b. DC rechargeable and replaceable battery may be proposed. Detail of brand, model, country of manufacture and battery rating are to be mentioned	
		c. The battery should have charging facility from vehicle system (preferable)	
27.	<b>Transceiver</b>		
	a. RF Power Output	(1) Min: 25 W or below (2) Max: 100 W or above (3) Radio set must qualify in both the above parameters	
	b. Power Modes	Scalable Power Output modes are to be available. Details to be mentioned	
	c. Modulation Type	To be available (Details to be mentioned)	
	d. RF Input Impedance	To be mentioned	
	e. Receiver Sensitivity	To be mentioned	
	f. AF Output	Details to be mentioned	
	g. Squelch Type	Details to be mentioned	
	h. Types of Waveforms	Details to be mentioned	
28.	<b>Programming Software (Tools kit, Laptop etc)</b>		
	a. Programing Kit along with Software (Perpetual License)	To be provided	
	b. Tool Kit/Fill Gun	To be provided (if available)	
	c. Requirement of Laptop (Optional)	To be mentioned (if required)	
29.	<b>Mandatory Features</b>		
	a. Automatic Link Establishment (ALE)	Available (3G ALE or above)	
	b. Data Communication	Minimum 100 Kbps. Details to be mentioned	
	c. Built in Test (BITE)	To be available	
	d. Instant messaging Facility	To be mentioned	
	e. GPS Facility	To be available	
	f. SDR Facility	To be available and details to be mentioned	
	g. CNR Facility	To be available	
30.	<b>Optional Features</b>		
	a. Remote Control Facility	Minimum 100 meter (wired/ wireless)	
	b. IP interfacing facility with Field Exchange	To be available and details to be mentioned	
	c. Battle management	Support BMS (Battlefield Management System) or similar standards	



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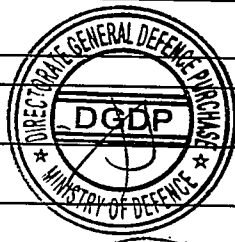
Ser	Fact/Description	Technical Specification	To be filled up by Principal/ Manufacturer
(a)	(b)	(c)	(d)
31.	<b>Operating/ Storage Condition</b>		
	a. Operating Temperature	- 10 <sup>o</sup> C to + 55 <sup>o</sup> C	
	b. Storage Temperature	- 20 <sup>o</sup> C to + 60 <sup>o</sup> C	
	c. Humidity Permissible Condition for Operation	Maximum 95%	
	d. Operation during Fog, Rain and Snow	To be possible	
	e. Earthing for communication vehicle/Tank/APC/ Armored Vehicle etc (whenever applicable)		
32.	<b>Environmental Standards</b>		
	a. Rain/Splash Proof	Military Standard 810 F or higher	
	b. Dust Proof		
	c. Vibration Proof		
	d. Temperature Proof	As per operating and storage Temperature	
33.	<b>List of Standard Accessories</b>	(Details to be mentioned) Following Item/Accessories are to be offered as standard:	
<b>Bill of Quantity/Material (BOQ /BOM) of Standard Items</b>			
Ser	Eqpt Name/ Nomenclature		
a.	Transceiver (Including ALE, BITE, SDR Features, PA, ATU and Instant Messaging Facility etc)		
b.	Radio Earthing		
c.	Handset		
d.	Antenna (Two different Antenna to be given as Standard Item) complete with accessories		
e.	Vehicle mounting kit (for radio and antenna) with all accessories		
f.	<b>Power Supply System</b>		
	(1) DC Power Supply Complete with all necessary cables		
	(2) Sealed Rechargeable Maintenance Free Battery (Minimum 120 AH) (02 Nos) acceptable from local source		
g.	Programming Kit along with Software (Perpetual License and to be offered in 10:1 ratio)		
h.	GPS Facility with Accessories		
j.	Data Communication facility with Accessories (Data Transfer Cable or similar)		
k.	Tool Kit/Fill Gun (if available) with accessories (To be offered in 10:1 ratio)		
l.	Carrying Bag/ Transportation Case/Transit Case (To be offered as per requirement)		
m.	Required cables, connectors and associated accessories		



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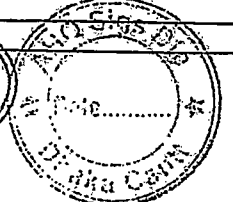
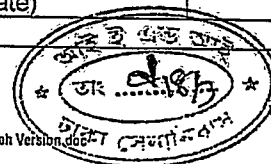


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Ser	Fact/Description	Technical Specification	To be filled up by Principal/ Manufacturer
(a)	(b)	(c)	(d)
34.	<b>List of Optional Accessories</b>	(Details to be mentioned) Following Item/Accessories are to be offered as optional:	
<b>Bill of Quantity/Material (BOQ /BOM) of Optional Items</b>			
	Ser	Eqpt Name/Nomenclature	
	a.	Handset	
	b.	Radio Earthing	
	c.	Programming Software	
	d.	Data Communication facility with Accessories (Data Transfer Cable or similar to be offered)	
	e.	Laptop (To be offered in 10:1 ratio)	
	f.	BMS (Battlefield Management System or similar)	
	g.	Carrying Bag/ Transportation Case/Transit Case	
	h.	Interface cable with Field Exchange	
	j.	Any other to be mentioned	
35.	Warranty	2 (Two) Years	
36.	After Sales Service	5 (Five) Years	
37.	Model Validity	Minimum 8 (Eight) years from signing of contract	
38.	Any other	If any item not specifically mentioned above but required technically for full range of operation, the bidder should specify and quote such item(s) in their offer. In case of failure to specify and quote, the bidder must provide such items free of cost	
<b>PART-3 : TRAINING REQUIREMENT</b>			
39.	User Training	To be provided (As per requirement of Signals & EME Directorate)	
40.	Operations, Repair and Maintenance Training	To be provided (As per requirement of Signals & EME Directorate)	
41.	Inventory Management Training	To be provided (As per requirement of Ordnance Directorate)	
42.	Publication on Training	To be provided	
<b>PART-4 : REPAIR AND MAINTENANCE REQUIREMENT LESS LIST OF SPARES</b>			
43.	<b>Books &amp; Publication</b>		
	a. Owners / Operations manual in English (Book Type) including CD/DVD	To be provided (As per requirement of Signals & EME Directorate)	
	b. Workshop/Repair manual incl detail schematic and circuit diagram in English. (Book Type) including CD/DVD	To be provided (As per requirement of Signals & EME Directorate)	
	c. 100% Updated master spare parts catalogue in English (Book Type) including CD/DVD	To be provided (As per requirement of Signals & EME Directorate)	
	d. Complete and updated master spare parts price catalogue / list in English (Book Type) including CD/DVD	To be provided (As per requirement of Signals & EME Directorate)	
44.	List of standard spare parts, tools and accessories	To be provided (As per requirement of Signals & EME Directorate)	
<b>PART-6 TOOL LIST FOR DIFFERENT LEVEL OF MAINTENANCE</b>			
45.	a. Analyzer, Measuring Testing/Fault finding and Diagnostic set	To be provided (As per requirement of Signals & EME Directorate)	
	b. Special Service Tools (SST)	To be provided (As per requirement of Signals & EME Directorate)	
	c. Special Service Materials (SSM)	To be provided (As per requirement of Signals & EME Directorate)	
<b>PART-7: FINANCIAL SPECIFICATION</b>			

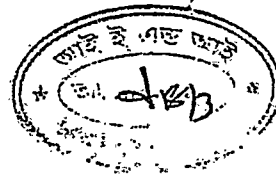
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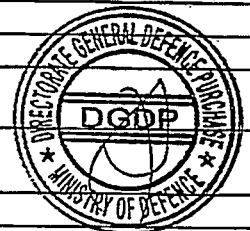
Ser	Fact/Description	Technical Specification	To be filled up by Principal/Manufacturer
(a)	(b)	(c)	(d)
46.	Financial Implication/ Specifications	To be mentioned	



B-5  
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**GENERAL SPECIFICATION OF RADIO SET VHF MEDIUM RANGE  
 (BASE STATION VERSION)**

Ser	Fact/Description	Technical Specification	To be filled up by principal/manufacture
(a)	(b)	(c)	(d)
<b>PART 1: GENERAL SPECIFICATION</b>			
1.	Nomenclature	Radio Set VHF Medium Range (Vehicle and Base Station Version) (Military Version)	
2.	Type of Radio	Military version (Base Station Version) Software Defined Radio	
3.	Brand Name/make	To be mentioned	
4.	Model	To be mentioned	
5.	Country of Origin	Group A and B countries	
6.	Country of Manufacture	Group A and B countries	
7.	Country of Assembly	Group A and B countries	
8.	Year of Manufacture	Not before the calendar year of the contract	
9.	Name of Manufacturer with complete address (Addresses, Telephone, Fax, Email & Website)	Details to be mentioned	
10.	Name of Principal with complete address (Addresses, Telephone, Fax, Email & Website)	Details to be mentioned	
11.	Name of Local Agent with complete address (Addresses, Telephone, Fax, Email & Website)	Details to be mentioned	
12.	Port of Shipment	Must be from the country of Manufacturing/Assembly. Trans-shipment not allowed	
13.	Color	Metallic Bronze (MB) Green	
<b>PART 2: TECHNICAL SPECIFICATION</b>			
14.	Frequency Range	30 MHz ↔ 88 MHz. Above 88 MHz is also allowed. Multiple band preferable	
15.	Frequency Band	VHF	
16.	Channel Bandwidth	To be mentioned	
17.	Channel Spacing	To be mentioned	
18.	Number of Preset Memory Channel	Minimum 25. Specific memory channel is to be mentioned	
19.	Number of Total Working Channel	To be mentioned	
20.	Communication Range (tactical communication)		
	Base Station Version	Plain    Urban Area    Hilly Area	
	Minimum Range	25k        20km        12km	



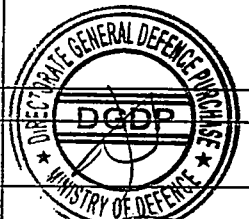
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Ser	Fact/Description	Technical Specification	To be filled up by principal/manufacturer
(a)	(b)	(c)	(d)
21.	Antenna Type	Antenna complete with accessories details to be mentioned with various types of antenna	
22.	Antenna Mast	Antenna Mast (height and segment) complete with accessories details to be mentioned	
23.	<b>Communication Security</b>		
	a. Encryption	AES 256 or higher mode encryption must be available. Details to be mentioned	
	b. Frequency Hopping	Minimum 100 hops per minute. Details to be mentioned	
	c. Other Types of Security	Any other types of communication security (if available) are to be mentioned	
24.	Dimension (W x D x H) (Without Antenna)	To be mentioned. Picture is to be provided	
25.	Weight of the Radio set (At Functional Condition)	To be mentioned	
26.	Power Supply System	a. Must be operated from both AC (220 VAC $\pm$ 20% at 50 Hz) and DC rechargeable and replaceable battery. Detail of brand, model, country of manufacture and battery rating are to be mentioned b. The battery charger should have charging facility from AC power 220 VAC $\pm$ 20% at 50 Hz. Charging from solar charger at ambient light (optional)	
27.	<b>Transceiver</b>		
	a. RF Power Output	1. Minimum 5 Watt or below. 2. Maximum 40 Watt or above. 3. The set must qualify in both the above parameters.	
	b. Power Modes	Scalable Power Output modes are to be available. Details to be mentioned	
	c. Modulation Type	All modulation types are to be specified with required technical data	
	d. RF Input Impedance	To be mentioned	
	e. Receiver Sensitivity	To be mentioned	
	f. AF Output	Details to be mentioned	
	g. Squelch Type	Details to be mentioned	
	h. Types of Waveforms	Details to be mentioned	
28.	<b>Programming Software (Tools kit, Laptop etc)</b>		
	a. Programing Kit along with Software (Perpetual License)	To be provided	
	b. Tool Kit/Fill Gun	To be provided (if available)	
	c. Requirement of Laptop (Optional)	To be mentioned (if required)	



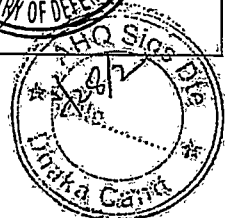
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Ser	Fact/Description	Technical Specification	To be filled up by principal/manufacturer		
(a)	(b)	(c)	(d)		
29.	<b>Mandatory Features</b>				
	a. Auto Re-broadcast/ data relaying/ retransmission facility	To be possible. Details to be mentioned			
	b. Data Communication	Minimum 100 kbps. Details to be mentioned			
	c. Built in Test (BITE)	To be available			
	d. Instant messaging Facility	To be mentioned			
	e. GPS Facility	To be available			
	f. CNR Facility	To be available			
30.	<b>Optional Features</b>				
	a. Remote Control Facility	Minimum 100 Meter (wired/ wireless)			
	b. Battle management System	Support BMS (Battlefield Management System or Similar)			
	c. Mobile Adhoc Network (MANET) facility	To be available.			
31.	<b>Operating/ Storage Condition</b>				
	a. Operating Temperature	-10 <sup>o</sup> C to +55 <sup>o</sup> C			
	b. Storage Temperature	-20 <sup>o</sup> C to +60 <sup>o</sup> C			
	c. Humidity Permissible Condition for Operation	Maximum 95%			
	d. Operation during Fog, Rain and Snow	To be possible			
32.	<b>Environmental Standards</b>				
	a. Splash/Rain Proof	Military Standard 810 F or higher			
	b. Dust Proof				
	c. Vibration Proof				
	d. Temperature Proof	As per operating and storage temperature			
33.	<b>List of Standard Accessories</b> (Price to be quoted separately item wise)	Following Item/Accessories are to be offered as standard:			
<b>Bill of Quantity/Material (BOQ /BOM) of Standard Items</b>					
Ser	Eqpt Name/ Nomenclature	Part No	Qty	Country of Manufacture	Rmks
a.	Transceiver (Including BITE, Instant Messaging facilities etc)				
b.	Handset				
c.	One Antenna complete with all accessories (To be offered as standard item)				
d.	One Mast complete with all accessories (To be offered as standard item)				
e.	<b>Power Supply System</b>				
	(1) AC Power Supply complete with cables				
	(2) DC Power Supply complete with cables				



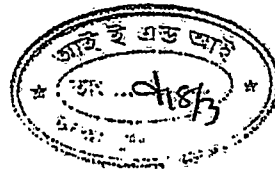
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Ser	Fact/Description	Technical Specification	To be filled up by principal/manufacture		
(a)	(b)	(c)	(d)		
	(3) Sealed Rechargeable Maintenance Free Battery (Minimum 120 AH) (02 Nos), with charging facility. Acceptable from local source				
f.	Programming Kit along with Software (Perpetual License and to be offered in 10:1 ratio)				
g.	GPS Facility with Accessories				
h.	Auto Re-broadcasting/ Data relaying/ Retransmission facility with accessories (To be offered in 5:1 ratio for without wave form)				
j.	Data Communication facility with Accessories (Data Transfer Cable or similar), To be offered in 10:1 ratio				
k.	Tool Kit/Fill Gun (if available) with accessories (To be offered in 10:1 ratio)				
l.	Required cables, connectors and associated accessories				
m.	Carrying Case/Storage Case				
34.	<b>List of Optional Accessories</b> (Price to be quoted separately item wise)	Following item/Accessories are to be offered as optional:			
<b>Bill of Quantity/Material (BOQ /BOM) of Standard Items</b>					
Ser	Eqpt Name/ Nomenclature	Part No	Qty	Country of Manufacture	Rmks
a.	Handset				
b.	Programme Software				
c.	Data Communication facility with Accessories (Data Transfer Cable or similar)				
d.	Laptop (To be offered in 10:1 ratio)				
e.	BMS (Battlefield Management System)				
f.	Carrying Case/Storage Case				
g.	Any others to be mentioned				
35.	Warranty	2 (Two) Years			
36.	After Sales Service	5 (Five) Years			
37.	Model Validity	Minimum 8 (Eight) years from signing of contract			
38.	Any other	If any item not specifically mentioned above but required technically for full range of operation, the bidder should specify and quote such item(s) in their offer. In case of failure to specify and quote, the bidder must provide such items free of cost			



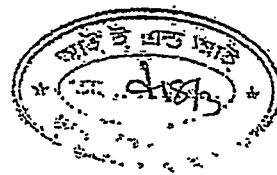
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Ser	Fact/Description	Technical Specification	To be filled up by principal/manufacturer
(a)	(b)	(c)	(d)
<b>PART-3 : TRAINING REQUIREMENT</b>			
39.	User Training	To be provided (As per requirement of Signals & EME Directorate)	
40.	Operations, Repair and Maintenance Training	To be provided (As per requirement of Signals & EME Directorate)	
41.	Inventory Management Training	To be provided (As per requirement of Ordnance Directorate)	
42.	Publication on Training	To be provided	
<b>PART-4 : REPAIR AND MAINTENANCE REQUIREMENT LESS LIST OF SPARES</b>			
43.	<b>Books &amp; Publication</b>		
	a. Owners/Operations manual in English (Book Type) including CD/DVD)	To be provided (As per requirement of Signals & EME Directorate)	
	b. Workshop/Repair manual incl detail schematic and circuit diagram in English (Book Type) including CD/DVD	To be provided (As per requirement of Signals & EME Directorate)	
	c. 100% Updated master spare parts catalogue in English (Book Type) including CD/DVD)	To be provided (As per requirement of Signals & EME Directorate)	
	d. Complete and updated master spare parts price catalogue / list in English (Book Type) including CD/DVD)	To be provided (As per requirement of Signals & EME Directorate)	
<b>PART-5 : LIST OF SPARES</b>			
44.	List of standard spare parts, tools and accessories	To be provided (As per requirement of Signals & EME Directorate)	
<b>PART-6 TOOL LIST FOR DIFFERENT LEVEL OF MAINTENANCE</b>			
45.	a. Analyzer, Measuring Testing/Fault finding and Diagnostic set	To be provided (As per requirement of Signals & EME Directorate)	
	b. Special Service Tools (SST)	To be provided (As per requirement of Signals & EME Directorate)	
	c. Special Service Materials (SSM)	To be provided (As per requirement of Signals & EME Directorate)	
<b>PART-7: FINANCIAL SPECIFICATION</b>			
46.	Financial Implication/ Specifications	To be mentioned	



**GENERAL SPECIFICATION OF RADIO SET VHF MEDIUM RANGE  
 (VEHICLE VERSION)**

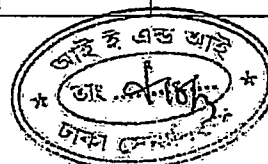
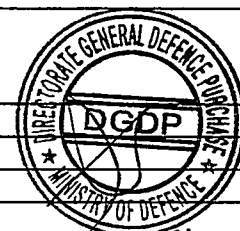
Ser	Fact	Technical Specification	To be filled up by principal/ manufacturer
(a)	(b)	(c)	(d)
<b>PART 1: GENERAL SPECIFICATION</b>			
1.	Nomenclature	Radio Set VHF (Medium Range) (Vehicle and Base Station Version) (Military Version)	
2.	Type of Radio	Military Version (Vehicle Version) Software Defined Radio	
3.	Brand Name/make	To be mentioned	
4.	Model	To be mentioned	
5.	Country of Origin	Group A and B countries	
6.	Country of Manufacture	Group A and B countries	
7.	Country of Assembly	Group A and B countries	
8.	Year of Manufacture	Not before the calendar year of the contract	
9.	Name of Manufacturer with complete address (Addresses, Telephone, Fax, Email & Website)	Details to be mentioned	
10.	Name of Principal with complete address (Addresses, Telephone, Fax, Email & Website)	Details to be mentioned	
11.	Name of Local Agent with complete address (Addresses, Telephone, Fax, Email & Website)	Details to be mentioned	
12.	Port of Shipment	Must be from the country of Manufacturing/Assembly. Trans- shipment not allowed	
13.	Color	Metallic Bronze (MB) Green	
<b>PART 2: TECHNICAL SPECIFICATION</b>			
14.	Frequency Range	30 MHz - 88 MHz. Above 88 MHz is also allowed. Multiple band preferable	
15.	Frequency Band	VHF	
16.	Channel Bandwidth	To be mentioned	
17.	Channel Spacing	To be mentioned	
18.	Number of Preset Memory Channel	Minimum 25. Specific memory channels to be mentioned	
19.	Number of Total Working Channel	To be mentioned	



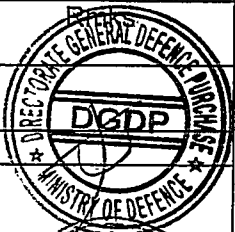


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Ser	Fact	Technical Specification	To be filled up by principal/ manufacturer
(a)	(b)	(c)	(d)
20.	<b>Communication Range (tactical communication)</b>		
	Vehicle on Move	Plain Land      Urban Area      Hilly Area	
	Minimum Range	10 km      08 km      06 km	
	Vehicle on Static	Plain Land      Urban Area      Hilly	
	Minimum Range	15 km      12 km      08 km	
21.	Antenna Type	Details of vehicle antenna type to be mentioned. Various types of antenna may be proposed	
22.	<b>Communication Security</b>		
	a. Encryption	AES 256 or higher mode encryption must be available. Details to be mentioned	
	b. Frequency Hopping	Minimum 100 hops per minute. Details to be mentioned	
	c. Other Types of Security	Any other types of communication security (if available) are to be mentioned	
23.	Dimension (W x D x H) (Without Antenna)	To be mentioned. Picture is to be provided	
24.	Weight of the Radio set (At Functional Condition)	To be mentioned	
25.	Power Supply System	a. To be operated from 12/24V vehicle power source (preferable)	
		b. DC rechargeable and replaceable battery may be proposed. Detail of brand, model, country of manufacture and battery rating are to be mentioned	
		c. The battery should have charging facility from vehicle system (preferable)	
26.	<b>Transceiver</b>		
	a. RF Power Output	1. Minimum 5 Watt or below 2. Maximum 40 Watt or above 3. The set must qualify in both the above parameters	
	b. Power Modes	Scalable Power Output modes are to be available. Details to be mentioned	
	c. Modulation Type	All modulation types are to be specified with required technical data	
	d. RF Input Impedance	To be mentioned	
	e. Receiver Sensitivity	To be mentioned	
	f. AF Output	Details to be mentioned	
	g. Squelch Type	Details to be mentioned	
	h. Types of Waveforms	Details to be mentioned	

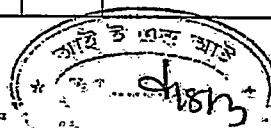


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Ser	Fact	Technical Specification	To be filled up by principal/ manufacturer		
(a)	(b)	(c)	(d)		
27.	<b>Programming Software (Tools kit, Laptop etc)</b>				
	a. Programing Kit along with Software (Perpetual License)	To be provided			
	b. Tool Kit/Fill Gun	To be provided (if available)			
	c. Requirement of Laptop, PDA, Android Devices etc (Optional)	To be mentioned in optional item			
28.	<b>Mandatory Features</b>				
	a. Auto Re-broadcast/data relaying/ retransmission facility	To be possible. Details to be mentioned			
	b. Data Communication	Minimum 100 kbps. Details to be mentioned			
	c. Built in Test (BITE)	To be available			
	d. Instant messaging Facility	To be mentioned			
	e. GPS Facility	To be available			
	f. CNR Facility	To be available			
29.	<b>Optional Features</b>				
	a. Remote control facility (Optional)	Minimum 10 meter (wired/ wireless)			
	b. Battle Management System	Support BMS (Battlefield Management System or similar)			
	c. Mobile Adhoc Network (MANET) facility	To be available			
30.	<b>Operating/ Storage Condition</b>				
	a. Operating Temperature	-10° C to +55° C			
	b. Storage Temperature	-20° C to +60° C			
	c. Humidity Permissible Condition for Operation	Maximum 95%			
	d. Operation during Fog, Rain and Snow	To be possible			
31.	<b>Environmental Standards</b>				
	a. Shock/Drop Proof	Military Standard 810 F or higher			
	b. Splash Proof				
	c. Dust Proof				
	d. Vibration Proof				
	e. Earthling for Communication Vehicle/ Tank/APC/ Armored Vehicle etc (whenever applicable)				
	f. Temperature Proof	As per operating and storage temperature			
32.	<b>List of Standard Accessories (Price to be quoted separately item wise)</b>	Following Item/Accessories are to be offered as standard:			
<b>Bill of Quantity/Material (BOQ /BOM) of Standard Items</b>					
Ser	Eqpt Name/ Nomenclature	Part No	Qty	Country of Manufacture	
a.	Transceiver (Including BITE, Instant Messaging facilities etc)				
b.	Handset				
c.	One Antenna complete with all accessories (To be offered as Standard item)				

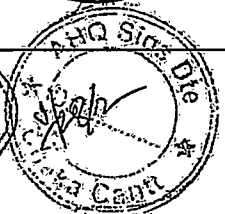
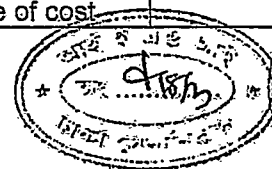
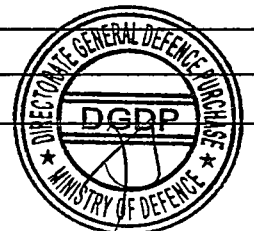
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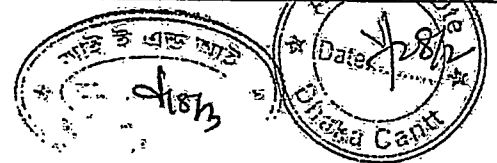
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Ser	Fact	Technical Specification	To be filled up by principal/ manufacturer			
(a)	(b)	(c)	(d)			
	d.	<b>Power Supply System</b> (1) DC Power Supply complete with cables  (2) Sealed Rechargeable Maintenance Free Battery (Minimum 120 AH) (02 Nos) with charging facility. Acceptable from local source				
	e.	Programming Kit along with Software (Perpetual License and to be offered in 10:1 ratio)				
	f.	GPS Facility with Accessories				
	g.	Auto Re-broadcasting/ Data relaying/ Retransmission facility with accessories (To be offered in 5:1 ratio for without wave form)				
	h.	Data Communication facility with Accessories (Data Transfer Cable or similar, To be offered in 10:1 ratio)				
	j.	Tool Kit/Fill Gun (if available) with accessories (To be offered in 10:1 ratio)				
	k.	Required cables, connectors and associated accessories				
	l.	Installation of radio in Military Vehicle				
	m.	Carrying Case/Transportation Case/ Transit Case/Storage Case				
	33.	<b>List of Optional Accessories</b> (Price to be quoted separately item wise)	Following Item/Accessories are to be offered as optional:	Details given below the technical specification		
<b>Bill of Quantity/Material (BOQ /BOM) of Standard Items</b>						
Ser	Eqpt Name/ Nomenclature	Part No	Qty	Country of Manufacture	Rmks	
a.	Handset					
b.	Programme Software					
c.	Data Communication facility with Accessories (Data Transfer Cable or any item)					
d.	Laptop (To be offered in 10:1 ratio)					
e.	BMS (Battlefield Management System or similar)					
f.	Carrying Case/Transportation Case/ Transit Case/Storage Case					
g.	Any others to be mentioned					
34.	Warranty	2 (Two) Years				
35.	After Sales Service	5 (Five) Years				
36.	Model Validity	Minimum 8 (Eight) years from signing of contract				
37.	Any other	If any item not specifically mentioned above but required technically for full range of operation, the bidder should specify and quote such item(s) in their offer. In case of failure to specify and quote, the bidder must provide such items free of cost.				



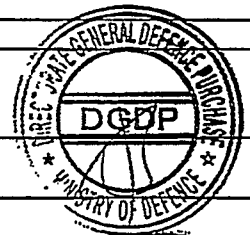
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Ser	Fact	Technical Specification	To be filled up by principal/ manufacturer
(a)	(b)	(c)	(d)
<b>PART-3 : TRAINING REQUIREMENT</b>			
38.	User Training	To be provided (As per requirement of Signals & EME Directorate)	
39.	Operations, Repair and Maintenance Training	To be provided (As per requirement of Signals & EME Directorate)	
40.	Inventory Management Training	To be provided (As per requirement of Ordnance Directorate)	
41.	Publication on training	To be provided	
<b>PART-4 : REPAIR AND MAINTENANCE REQUIREMENT LESS LIST OF SPARES</b>			
42.	<b>Books &amp; Publication</b>		
	a. Owners / Operations manual in English (Book Type) including CD/DVD)	To be provided (As per requirement of Signals & EME Directorate)	
	b. Workshop/Repair manual incl detail schematic and circuit diagram in English (Book Type) including CD/DVD	To be provided (As per requirement of Signals & EME Directorate)	
	c. 100% Updated master spare parts catalogue in English (Book Type) including CD/DVD)	To be provided (As per requirement of Signals & EME Directorate)	
	d. Complete and updated master spare parts price catalogue / list in English (Book Type) including CD/DVD)	To be provided (As per requirement of Signals & EME Directorate)	
<b>PART-5 : LIST OF SPARES</b>			
43.	List of standard spare parts, tools and accessories	To be provided (As per requirement of Signals & EME Directorate)	
<b>PART-6 TOOL LIST FOR DIFFERENT LEVEL OF MAINTENANCE</b>			
44.	a. Analyzer, Measuring Testing/Fault finding and Diagnostic set	To be provided (As per requirement of Signals & EME Directorate)	
	b. Special Service Tools (SST)	To be provided (As per requirement of Signals & EME Directorate)	
	c. Special Service Materials (SSM)	To be provided (As per requirement of Signals & EME Directorate)	
<b>PART-7: FINANCIAL SPECIFICATION</b>			
45.	Financial Implication/ Specifications	To be mentioned	



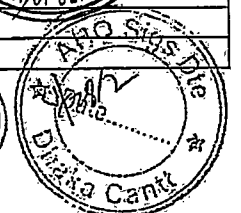
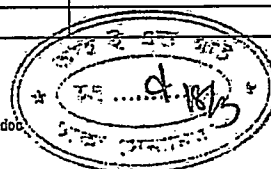
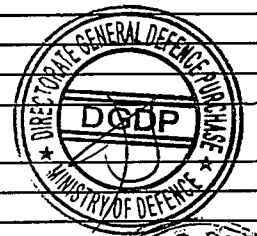
**GENERAL SPECIFICATION OF RADIO SET VHF MANPACK (MILITARY VERSION)**

Ser	Fact/Description	Tech Spec	To be filled up by Principal/Manufacturer
(a)	(b)	(c)	(d)
<b>PART - 1 : GENERAL SPECIFICATION</b>			
1.	Nomenclature	Radio Set VHF (Manpack) (Military Version)	
2.	Type of Radio	Military Version Software Defined Radio	
3.	Brand Name/Make	To be mentioned	
4.	Model	To be mentioned	
5.	Country of Origin	Group A and B countries	
6.	Country of Manufacture	Group A and B countries	
7.	Country of Assembly	Group A and B countries	
8.	Year of Manufacture	Not before the calendar year of the contract	
9.	Name of Manufacture with complete address (Addresses, Telephone, Fax, Email & Website)	Details to be mentioned	
10.	Name of Principal with complete address (Addresses, Telephone, Fax, Email & Website)	Details to be mentioned	
11.	Name of Local Agent with complete address (Addresses, Telephone, Fax, Email & Website)	Details to be mentioned	
12.	Port of Shipment	Must be from the country of Manufacturing/ Assembly. Trans-shipment not allowed	
13.	Colour	Metallic Bronze (MB) Green	
<b>PART - 2 : TECH SPEC</b>			
14.	Frequency Range	30 MHz – 88 MHz. Above 88 MHz is also allowed	
15.	Frequency Band	VHF	
16.	Channel Bandwidth	To be mentioned	
17.	Channel Spacing	To be mentioned	
18.	Number of Preset Memory Channel	Minimum 25. Specific memory channel is to be mentioned	
19.	Number of Total Working Channel	To be mentioned	
<b>Communication Range (Manpack Tactical Communication)</b>			
20.		Plain Land	Urban Area
			Hilly Area
	Minimum Range	08 km	06 km
21.	Antenna Type	Details to be mentioned with various types of antenna	
22.	<b>Communication Security</b>		
	a. Encryption	AES 256 or higher mode encryption must be available. Details to be mentioned	
	b. Frequency Hopping	Minimum 100 hops per minute. Details to be mentioned	
	c. Other Types of Security	Any other types of communication security (if available) are to be mentioned	

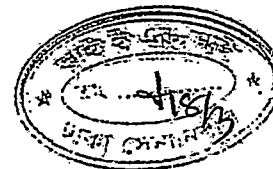


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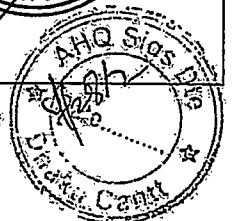
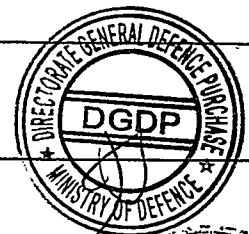
Ser	Fact/Description	Tech Spec	To be filled up by Principal/Manufacturer
(a)	(b)	(c)	(d)
23.	Dimension (W x D x H) a. Without antenna b. With antenna	To be mentioned. Picture is to be provided	
24.	Weight of the Radio set (At Functional Condition)	Maximum 8 kg with all accessories in operational condition. Details to be mentioned	
25.	Power Supply System	a. Must be operated from DC rechargeable and replaceable battery. Detail of brand, model, country of manufacture and battery rating are to be mentioned	
		b. The battery charger should have charging facility from AC power 220 VAC ± 20% at 50 Hz. Charging from solar charger at ambient light (optional)	
		c. 01 Set additional rechargeable battery to be provided	
26.	Battery-life/Operating Hours	≥ 8 hours of continuous operation (at high power and full duplex voice, RX: TX 9:1)	
27.	<b>Transceiver</b>		
	a. RF Power Output	Minimum 10 watt	
	b. Power Modes	Scalable Power Output modes are to be available. Details to be mentioned	
	c. Modulation Type	All modulation types are to be specified with required technical data	
	d. RF Input Impedance	To be mentioned	
	e. Receiver Sensitivity	To be mentioned	
	f. AF Output	Details to be mentioned	
	g. Squelch Type	Details to be mentioned	
	h. Types of Waveforms	Details to be mentioned	
28.	<b>Programming Software (Tools kit, Laptop etc)</b>		
	a. Programing Kit along with Software (Perpetual License)	To be provided	
	b. Tool Kit/Fill Gun	To be provided (if available)	
	c. Requirement of Laptop, PDA, Android Devices etc. (Optional)	To be mentioned (if required)	
29.	<b>Mandatory Features</b>		
	a. Auto Re-broadcasting/ data relaying / retransmission facility	To be possible. Details to be mentioned. Each set in a radio network must be capable of providing auto rebroadcasting/ retransmission and data relaying facility independently	
	b. Data Communication	Minimum 100 kbps. Details to be mentioned	
	c. Built.in Test (BITE)	To be available	
	d. Instant Messaging Facility	To be mentioned	
	e. GPS Facility	To be available	
	f. CNR Facility	To be available	
30.	<b>Optional Features</b>		
	Battle Management System	Support BMS (Battlefield Management System or similar)	
31.	<b>Operating/Storage Condition</b>		
	a. Operating Temperature	-10° C to +55° C	
	b. Storage Temperature	-20° C to +60° C	
	c. Humidity Permissible	Maximum 95%	



Ser	Fact/Description	Tech Spec	To be filled up by Principal/Manufacturer		
(a)	(b)	(c)	(d)		
	Condition for Operation				
	d. Operation during Fog, Rain and Snow	To be possible			
32.	<b>Environmental Standards</b>				
	a. Shock/Drop Proof	Military Standard 810 F or higher			
	b. Water/Immersion Proof				
	c. Dust Proof				
	d. Vibration Proof				
	e. Temperature Proof	As per operating and storage temperature			
33.	<b>List of Standard Accessories</b> (Price to be quoted separately Item wise)		Following Item/ Accessories are to be offered as standard		
<b>Bill of Quantity/Material (BOQ/BOM) of Standard Items</b>					
Ser	Eqpt Name/ Nomenclature	Part No	Qty	Country of Manufacture	Rmks
a.	Transceiver (including BITE, Instant Messaging Facility etc)				
b.	Handset				
c.	Two Antennas complete with all accessories (To be offered as Standard Item)				
d.	Rechargeable/ Rechargeable Battery 02 Sets x Battery offered as Standard Item (01x Fitted with Radio & 01x Extra)				
e.	Charger (Battery Charger including Accessories)				
f.	Manpack Carrying Bag/Harness				
g.	Programming Kit along with Software (Perpetual License and to be offered in 10:1 ratio)				
h.	GPS facility with Accessories				
j.	Auto Re- broadcasting/ Data relaying/ Retransmission for each Radio Set				
k.	Data Communication facility with Accessories (Data Transfer Cable or similar, To be offered in 10:1 ratio)				
l.	Tool Kit/Fill Gun (if available) with accessories (To be offered in 10:1 ratio)				
m.	Carrying Case/ Transportation Case/ Transit Case/Storage Case				



Ser (a)	Fact/Description (b)	Tech Spec (c)	To be filled up by Principal/ Manufacturer (d)		
34.	<b>List of Optional Accessories</b> (Price to be quoted separately Item wise)	Following Item/ Accessories are to be offered as standard			
<b>Bill of Quantity/Material (BOQ/BOM) of Optional Items</b>					
Ser	Eqpt Name/ Nomenclature	Part No	Qty	Country of Manufacture	Rmks
a.	Handset				
b.	Manpack Carrying Bag/Harness				
c.	Programme Software				
d.	Data Communication facility with Accessories				
e.	Rechargeable Battery				
f.	Laptop (To be offered in 10:1 ratio)				
g.	BMS (Battlefield Management System or similar)				
h.	Carrying Case/ Transportation Case/ Transit Case/Storage Case				
j.	Any others to be mentioned				
35.	Warranty	2 (Two) Years			
36.	After Sales Service	5 (Five) Years			
37.	Model Validity	Minimum 8 (Eight) years from signing of contract			
38.	Any other	If any item not specifically mentioned above but required technically for full range of operation, the bidder should specify and quote such item(s) in their offer. In case of failure to specify and quote, the bidder must provide such items free of cost.			
<b>PART - 3: TRAINING REQUIREMENT</b>					
39.	User Training	To be provided (As per requirement of Signals & EME Directorate)			
40.	Operations, Repair and Maintenance Training	To be provided (As per requirement of Signals & EME Directorate)			
41.	Inventory Management Training	To be provided (As per requirement of Ordnance Directorate)			
42.	Publication on Training	To be provided			
<b>PART - 4: REPAIR AND MAINTENANCE REQUIREMENT LESS LIST OF SPARES</b>					
43.	<b>Books &amp; Publication</b>				
a.	Owners/Operations manual in English (Book Type) including CD/DVD)	To be provided (As per requirement of Signals & EME Directorate)			
b.	Workshop/Repair manual incl detail schematic and circuit diagram in English (Book Type) including CD/DVD)	To be provided (As per requirement of Signals & EME Directorate)			
c.	100% Updated master spare parts catalogue in English (Book Type) including CD/DVD)	To be provided (As per requirement of Signals & EME Directorate)			
d.	Complete and updated master spare parts price catalogue / list in English (Book Type) including CD/DVD)	To be provided (As per requirement of Signals & EME Directorate)			





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Ser	Part/Description	Tech Spec	To be filled up by Principal/ Manufacturer
(a)	(b)	(c)	(d)
<b>PART - 5: LIST OF SPARES</b>			
44.	List of standard spare parts, tools and accessories	To be provided (As per requirement of Signals & EME Directorate)	
<b>PART - 6: TOOL LIST FOR DIFFERENT LEVEL OF MAINTENANCE</b>			
45.	a. Analyser, Measuring Testing/ Fault finding and Diagnostic set	To be provided (As per requirement of Signals & EME Directorate)	
	b. Special Service Tools (SST)	To be provided (As per requirement of Signals & EME Directorate)	
	c. Special Service Materials (SSM)	To be provided (As per requirement of Signals & EME Directorate)	
<b>PART - 7: FINANCIAL SPECIFICATION</b>			
46.	Financial implication/ Specification	To be mentioned	



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