

COMPENDIUM
OF
EQUIPMENT

(Major Equipment procured by CPMFs from 2007 to 2010)



Bureau of Police Research & Development

New Delhi

COMPENDIUM OF EQUIPMENT (2007 - 2010)

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FOREWORD

Bureau of Police Research & Development, being a nodal agency at national level under the Ministry of Home Affairs, undertakes a large number of R&D activities to modernize police forces across the country, both in qualitative as well as quantitative terms.

BPR&D is dedicated to promote good practices and standards. The Police Forces in the country need to modernize rapidly to face the ever increasing challenges. In the process, various equipments are being procured by different forces. A need was felt to have a compilation, which can be used as a handy reference by the Police Forces to know the various equipments which have been already procured. This compendium aims to help disseminate information about these equipment. It fills in the existing vacuum and is of great value, not only for the users (State Police and CPOs) but also for the researchers and industry, who are interested to undertake further development of equipment in this field. This will also reduce the duplication of efforts and help in establishing common standards.

The scope of this exercise, however, is vast and it is not practically possible to list out all the equipments which have been procured by different forces. As a beginning, we have compiled only the major equipment purchased by the Central Para Military Forces in the last three years (2007-08, 08-09 & 09-10). This was also desired by the Honourable Union Home Minister. We will aim to widen the scope in the future compendiums.

I do hope that this compendium will help the various police forces in reducing the time for procurement and bringing about some modicum of uniformity in various equipment. I also request our learned readers to send us their valuable views/feedback regarding this compendium, which will help us in our continued striving to improve its quality for the subsequent endeavours.

I am happy to record my deep appreciation of the commendable and untiring efforts of Shri P.C. Sabarwal, Spl DG, Shri M.K Chhabra, Dir (Mod), Smt Vanita Yadav, SSO(E), Dr. N.S Pandey SSO(W), Dr. Ravi Ambast, DySP, Shri M.M Gosal, DySP and Shri Y.K Sharma, DySP, Smt. Neelam Gera, PS, Shri Aditya Mawar, Shri Amitender Singh and Ms. Sudesh, DEOs, without whose hard work and support this Compendium could not have seen the light of the day.

V.S.
10/12/10
(Vikram Srivastava)
Director General
BPR&D

MOTTO

Promoting Good Practices and Standards

Our Mission

“To promote a speedy and systematic study of police and prison problems in a changing society and bringing about rapid application of science and technology to the methods and techniques of the police in the country...”

Vision Statement

To promote excellence in police by

- Investing in Research & Developing Policies and Practices for Police and Correctional Services.
- Seeking and Securing Appropriate Technology for enhanced Performance.
- Fostering Scientific Temperament.
- Investing in Human Resource Development through Training.
- Building Police as a Professional Service for the People.
- Fostering Co-operation and Coordination among States & Central Police Organizations.
- Promoting Best Value in Policing.

Communication Equipment



Communication Equipment

1.1 600 Lines Telephone Plant

Purchased by: NSG

Year of Purchase: 2007-08

Name of Supplier:

- M/S ITL Limited, New Delhi

Names of Vendors who participated in the Tender:

- M/S ITL Limited, New Delhi

Price Rs. 59 Lakhs

Lead Time: 7 Months approx

1.2 Field Telephone Cable (JWD-1)

Purchased by: NSG

Year of Purchase: 2009-10

Name of Supplier:

- M/S IOF, Chandigarh

Names of vendors who participated in the Tender:

- M/S IOF, Chandigarh

Price Rs. 32 lakhs for 400 Kms

Lead Time: 6 Months

TECHNICAL SPECIFICATION

No	Nomenclature	Specification
A.	CHARACTERISTICS	
	1. Conductor	Composite conductor of 4 copper and 3 Galvanised high tensile wires (to give strength) of size 0.29 mm dia each.
	2. Insulation	UDPE Insulation to 2.35 mm dia
	3. Twisting	Twin twisting having 150 mm pitch
B.	PERFORMANCE	
	1. Temp Range	-40° C to 80°C
	2. Resistance of core	76 ohms/Km
	3. Test Voltage	1 KV AC
	4. Capacitance	37 pf/m
	5. Impedance	600 ohms
	6. Attenuation	1.4 db/Dm at 1.6 KHz
	7. Breaking strength	76 Kg

1.3 Digital HF Radio Set

Purchased by: BSF

Year of Purchase: 2009

Name of Supplier:

- M/S BEL, Bangalore

Names of Vendors who participated in the Tender:

- M/S BEL, Bangalore
- M/S ECIL, New Delhi
- M/S Indian Batteries, 125, Bahadurgarh, Haryana

Price Rs. 6.38 Lakhs

Lead Time : 12 Months

TECHNICAL SPECIFICATION

S. NO	TECHNICAL FEATURES	PARAMETERS
1	Digital HF Radio Set (General)	
i)	Frequency Range	1.6 MHz to 30 MHz
ii)	Frequency steps	100 Hz steps
iii)	Emission mode	LSB / USB
iv)	RF load impedance	50 Ohm nominal unbalanced
v)	Role	Static, Mobile/ Man pack
vi)	Processing	D S P
vii)	Frequency stability	Better than 1 PPM
2	TRANSMITTER	
i)	Power output	5W / 20 W Switchable
ii)	Audio input	<5m V into 300-600 Ohm
iii)	Carrier Suppression	Better than -40 dB
iv)	Antenna tuning capability	Whip / Dipole / Long Wire
v)	Spurious Emission	Better than 40dB below PEP
vi)	Harmonic Emission	Better than 40 dB below PEP
3	RECEIVER	
i)	Sensitivity (Voice /CW)	>-107dbm (1 μ Volt) for 10 dB SINAD
ii)	Audio output	>8mW into 300-600 Ohm External Handset
iii)	Squelch	Front panel adjustable/ automatic
iv)	Image / IF Rejection	Better than 60 dB
v)	AGC	Mode dependant automatically selected
4	BUILT IN OPTIONS	
i)	Data modem	Serial tone or better
ii)	Data Rates	75 to 2400 BPS or better
iii)	Encryption	Crack resistively should be minimum one week.
iv)	ALE	Either built in or integrated. As per MIL STD- 188-141 A or better
v)	Freq Hopping	>10 Hops per sec.
5	ENVIRONMENTAL	
i)	Operational Temp	-20 ⁰ C to +55 ⁰ C
ii)	Environmental Specification	As per JSS 55555 (L3/N3) or equivalent.
6	DIMENTIONS / WEIGHT	
i)	Dimension	<250 mm X 350 mm X 150 mm
ii)	Weight	< 5 Kg approx without battery

1.4 Digital VHF (Mobile/Hand Held) Radio Set

Purchased by: BSF

Year of Purchase: 2009 & 2010

Name of Supplier:

- M/S Mobile Communication Pvt. Ltd., New Delhi

Names of Vendors who participated in the Tender:

- M/S Mobile Communication Pvt. Ltd., New Delhi
- M/S Adino Telecom Ltd., New Delhi
- M/S Keltron, Travancore House, New Delhi

Price: Rs.0.60 Lakh (25W Mobile Set)
Rs.0.49 Lakh (5W Handheld)

TECHNICAL SPECIFICATION

S NO	Technical Specification	Quality Requirements
1	GENERAL	
a)	Frequency Range	136-174 MHz
b)	No of Channels	250 or Higher
c)	Channel Spacing	12.5 KHz
d)	Frequency Stability	± 2.5 PPM or better
e)	Type of Emission	Analog – FM Digital – fully APCO 25 open standard compliance which is not proprietary of a particular manufacture
f)	Type of Operation	Simplex press to talk
g)	Weight	Without external battery and aerial to be less than 3 kgs
h)	Power Source	i) DC Voltage : 12 V ± 10 %
i)		ii) AC Voltage : 230 V ± 10 %) at 50Hz ± 2 % with option for trickle charging of backup battery
j)	Protection	Protection against high VSWR

2	TRANSMITTER	
a)	RF Power Output	Programmable / Switchable upto 40 watts or higher
b)	FM Hum Noise	12.5 KHz : 35 dB or better
c)	Frequency Deviation	12.5 KHz : Maximum ± 2.5 KHz
d)	Modulation sensitivity	2-10 mV at 1 KHz mic input for ± 1 KHz standard deviation for 12.5 KHz channel and ± 3 KHz standard deviation for 25 KHz Channel
e)	Modulation distortion	Less than 5% at 1 KHz for ± 1.5 KHz (12.5 KHz channel) and ± 3 KHz (25 KHz channel) standard deviation
f)	Modulation Fidelity	+1, -3 dB or 6 dB / Octave pre-emphasis from 300-2700 Hz at 1 KHz reference
g)	Audio Distortion	Less than 3 % @1 KHz
3	RECEIVER	
a)	Sensitivity	i) Analog : 0.32 μ V for 12 dB SINAD or better
b)		ii) Digital : 0.32 μ V for 5% BER or better
c)	Squelch sensitivity	0.32 μ V or better at threshold
d)	Selectivity (Adjacent Channel)	i) Analog: 82 dB or less ii) Digital : 75 dB or less
e)	Image rejection	75 dB or better
f)	Inter modulation	75 dB or better
g)	Audio Output	2 – 8 W at 5 % distortion for frequency 300 to 3000 KHz
h)	Audio response (6 dB / Octave pre-emphasis from 300- 3000 Hz)	+1, -3 dB or 6 dB / Octave pre-emphasis from 300-3000 Hz less than 3 % at 1 KHz
4	ENVIRONMENT	
		a) Operating Temperature : -10°C to $+55^{\circ}\text{C}$
		b) Storage Temperature : -40°C to $+85^{\circ}\text{C}$
		c) Humidity 90 % at 50°C
		d) Humidity 90 % at 50°C (per MIL Standard 810E)
		e) Vendor is requested to enclose certificate certifying that Radio offered is conforming to MIL Standard 810 E
		f) Bidder to submit environment test certificate from OEM / Accredited Lab.
5	FEATURES	
		a) Selective call facility
		b) Busy channel lock out
		c) Front panel keypad with backlit LCD panel
		d) Scan with priority
		e) In-built data transfer port
		f) Remote kill / un kill should be available.
6	ACCESSORIES	
	a) Antennas	a) Whip antenna of 3 db gain with magnetic base. b) omni directional antenna with 30 Mtr RG- 217 feeder for base station.
	b) Battery and Charger	a) 12 V, 160-200 AHC sealed maintenance free (SMF) lead acid batteries for base station. b) Charger for above btys. c) All necessary programming software and hardware required for the set.

1.5 VHF Hand Held Radio Set LVP-285

Purchased by: ITBP & BSF

Year of Purchase: 2008-09 & 2009-10

Name of Supplier:

- M/S Bharat Electronics Limited
- M/S Adino Telecom Ltd., New Delhi

Names of Vendors who participated in the Tender:

- M/S Bharat Electronics Limited, Govt. of India, MOD Enterprises, 405, Industrial Area, Phase-III, Panchkula (Haryana)
- M/S Mobile Communication Pvt. Ltd., New Delhi
- M/S Elcom System Pvt. Ltd., Sas Nagar, Punjab
- M/S 3G Wireless Communication Pvt. Ltd., Bangalore
- M/S Adino Telecom Ltd., New Delhi

Price: Rs 23,800/-

Lead Time: 7 Months

TECHNICAL SPECIFICATION

(A) General

Sl.No.	Specifications	Required Specifications
1.	Frequency Range	136 to 174 MHz.
2.	Nos. of pre set Channels	16 Users programmable preset channels in two memory banks of 8 channels each.
3.	Channels spacing	12.5 KHz./25 KHz.user selectable.
4.	Type of operation	Simplex press to talk with built in mic and speaker.
5.	Type of Emission	Clear-F-3 E, Secure-25 KOF, 1 E, GMSK with 16 Kbps.data.
6.	Frequency spread	10% of centre frequency with antenna separation of 100 mtrs.
7.	Type of Antenna	Helical Antenna and Telescopic Antenna.
8.	Speaker Impedance	8 Ohm (Buuilt in).
9.	Out Put impedance/Termination	50 Ohms with aerial terminal TNC Female type.
10.	Protection	1. Reverse polarity protection at Bty. Terminal through polarized guiding mechanism 2. Protection against high VSWR. 3. Diode protection for receiver front end.
11.	Power Source	7.2 v , 1.5 AH Li-ion Bty.
12.	Secrecy	Built in high grade digital secrecy, SAG approved.
13.	Key Management	Secure Key management, procedure using fill gun loader. JCB approved.

(B) Transmitter

1.	RF Power Out Put	5W /1W (User Selectable)
2.	Spurious suppression	Better than 60 dBc
3.	Harmonic Suppression	Better than 50 dBc
4.	Frequency Deviation	5 KHz \pm 1.5 KHz at 1 KHz for 25 KHz Channel spacing
5.	Modulation Sensitivity	2 mV to 10 mV at 1 KHz Mic input for 5 KHz \pm 1.5 KHz deviation.
6.	Modulation Distortion	Less than 5%
7.	Modulation Fidelity	+1, -3 dB of 6 dB/octave pre-emphasis characteristics from 300 Hz to 2700 Hz with 1 KHz as reference.

(C) Receiver

1.	Sensitivity	0.3 μ V for 12 dB SINAD
2.	Quieting Sensitivity	0.5 μ V FOR 20 dB Quieting
3.	Digital Sensitivity (Secure Mode)	BER is 1 in 1000 (0.1 %) for RF I/P of 0.7 μ V (Internal design parameter)
4.	Adjacent Channel Selectivity	Better than 60 dB
5.	Image Rejection	Better than 60 dB
6.	Audio Out Put	500 mW (across 8 Ω at full volume)
7.	Audio Response	+1, -3dB of 6 dB/octave de- emphasis characteristics from 300 Hz to 2700 Hz with 1 KHz as reference.

(D) Environmental

1.	Operating Temperature Range	-30°C to + 55°C
2.	Storage Temperature Range	-40°C to + 70°C
3.	EMI/EMC	Complies with MIL 461 C

(E) Dimensions/Weight

60 mm (W) x 40 mm (D) x 130 mm (H) / 425 gms max. (with standard 1.5 Ah Li-ion battery)

(F) Accessories

Antenna (Helical, Telescopic, Magnetic mount and Bunker), Battery packs (Li-ion and LiSO₂), Carrying Pouch, Fill gun with loading kit, Battery charger.

1.6 Radio Set Star V 25 (W) MK-1

Purchased by: BSF

Year of Purchase: 2007, 2009 & 2010

Name of Supplier:

- M/s Bharat Electronic Ltd.

Names of Vendors who participated in the Tender:

- Single Tender

Price : Rs. 5.82 Lakhs

Lead Time: 10 Months

TECHNICAL SPECIFICATION

Features

- Fully automatic, single frequency simplex or two frequencies Simplex transmit /receive function.
- 30MHz to 87.975MHz frequency with channel spacing of 25KHz.
- 2320 channels with 8 preset frequencies.
- Can store dual secrecy algorithm which are selectable from the Front panel.
- Possible to operate in the following modes:
 - * Clear voice with squelchy.
 - * Clear voice without squelch.
 - * Secure with squelch.
 - * Data communication.
 - * Automatic rebroadcast
 - * Scan
 - * Selective Call in voice mode.
 - * Full remote operation of all functions.
- 25 W and 5W power output (Selectable).
- Can operate from 24 VDC source.

General Description

Radio Set STARS V (25V) is a Secure Tactical VHF Combat Net Radio. It operates in the

frequency band of 30.000 to 87.975 MHz in 25KHz channels spacing and provides 2320 channels. The radio set supports voice and data communication in a secure mode also. It is possible to remotely control the radio set by using Remote Control (RCU). It incorporates features like preset SCAN, BITE, RF power control, Sulk mode, rebroadcast etc. STARS V (25W) has the facility of having a password for self-authentication and entry to select call mode. It can store two different secrecy algorithm at a time, which are front panel. Selectable

Accessories

- Remote Control Unit.
- Antenna Broadband.
- Handset.
- Jig for algorithm upgrade.
- Fill Gun.
- Ground plane kit and Mast.
- Dual Battery Charger.
- Control Extender
- Battery packs.
- Key loading & Algo upgrade software.

1.7 Distress Signal Unit (Model Motion SCOUT)

Purchased by: CISF

Year of Purchase: 2009

Name of Supplier:

- M/s. MSA (India) Limited

Names of Vendors who participated in the Tender:

- M/s Joseph Leslie Drager Pvt Ltd., New Delhi
- M/s MSA (India) Limited, Kolkata
- M/s B.L.Health & Safety Pvt Ltd, New Delhi
- M/s Fire Safety Devices Pvt Ltd, Faridabad
- M/s Joytech Engg & Marketings Consultants, New Delhi
- M/s Donald McArthy Trading Pvt Ltd, Singapore

Price: Rs. 5,906/-

Lead Time: 1.5 Months

TECHNICAL SPECIFICATION

1. **GENERAL:** The personal distress signal unit shall be designed to raise continuous audio visual distress alarm as and when the unit experiences no movement including vibrations for more than 25 seconds.
2. **TECHNICAL SPECIFICATION:** The DSU shall meet the following requirement:-
 - a) **SIZE:** Small and compact that could be attached to the waist bet with on/off key.
 - b) **AUDIO OUT-PUT:** Not less than 90 dB at 3 meter distance.
 - c) **LED INDICATORS:** Green LED to show unit is on and Red LED to show when unit has raised distress alarm.
 - d) **BATTERY:** Compatible with DSU.
 - e) **STANDBY BATTERY LIFE:** Minimum 100 hours standby life after full charge.
 - f) **DISTRESS ALARM:** Not less than 2 audio signals per second at full noise level.
 - g) **WEIGHT:** Not more than 350 grams.
3. **APPROVAL:** The DSU shall carry national/international certification for use by the emergency service personnel and the relevant document shall be submitted along with the offer.
4. **WARRANTY:** The DSU offered shall carry warranty for not less than 01 years.
5. **TECHNICAL EVALUATION:** The technical evaluation of the DSU shall be subject to the following:
 - a) Meeting the requirements as mentioned from Sr. No. 1 to 4 above,
 - b) Design in conformity to EN/DIN/US standards and certificate to be submitted along with the offer, and
 - c) Weight of the DSU: subject to compliance in all other respect, the units shall be listed in descending order-lightest on top and the financial bid shall be opened in respect of first five bidders and the lowest financial offer would be selected.

1.8 Equipment for Integration of Voice & Data on Strategic Communication Network

Purchased by: BSF

Year of Purchase: 2008 to till date

Name of Supplier:

- M/S Bharat Electronics Ltd., Bangalore

Names of Vendors who participated in the Tender:

- M/S ECIL IT&T Group, New Delhi
- M/S Bharat Electronics Ltd., Bangalore
- M/S ITI Ltd., New Delhi

Price: Rs. 14 Lakhs

Lead Time: 2 Years 10 Months

1.9 Field Telephone

Purchased by: ITBP

Year of Purchase: 2009-10

Name of Supplier:

- M/S ITI Limited, Doorvani Nagar, Bangalore-560016

Names of Vendors who participated in the Tender:

- M/S ITI Limited, Doorvani Nagar, Bangalore-560016

Price: Rs. 8,250/-

Lead Time: 6 Months

TECHNICAL SPECIFICATION

Sl.No.		Specifications
1.	Ring Generator Out put 75 V RMS	16 to 25 hz
2.	Speech Range	40 db (min)
3.	DC Loop Resistance Range :	
(i)	Auto	1.2 K Ohms
(ii)	Magneto	5.0 k Ohms
(iii)	Radio	260 Ohms
(iv)	Battery	4.5 V DC (3 Cells) Everyday 950 or Equivalent
4.	Current Drain (mA)	<18 For Speech <200 For Ring
5.	Over all Dimensions	
(i)	Length	235 mm
(ii)	Depth	125 mm
(iii)	Height	140 mm
(iv)	Weight	1.6 Kg (Without Cells)

1.10 Leased Line Modems

Purchased by: CRPF

Year of Purchase: 2007-08

Name of Supplier:

- M/s Realtime System Ltd., New Delhi.

Names of Vendors who participated in the Tender:

- M/s Realtime System Ltd., A-49, Okhla industrial Area, New Delhi.
- M/s ACE Micro Electronics Pvt. Ltd. Kalkaji, New Delhi-19
- M/s Artek Enterprises Pvt.Ltd., 505, Madhuban Building-55, Nehru Place, New Delhi.
- M/s Billennium Automation & Systems Ltd., E-48/9, Okhala Industrial Area, Phase-II, New Delhi-20.

Price: Rs. 2,62,500/-

1.11 UHF Hand Held Radio & Mobile Sets (Digital)

Purchased by: BSF

Year of Purchase: 2008-2009

Name of Supplier:

- M/S Adino Telecom Ltd.

Names of Vendors who participated in the Tender:

- M/S Mobile Communication Pvt. Ltd., New Delhi
- M/S Adino Telecom Ltd., New Delhi
- M/S Elcom System Pvt. Ltd., SAS Nagar, Punjab
- M/S 3G Wireless Communication Pvt. Ltd., Bangalore

Price: Rs. 0.52 Lakh (25W UHF Mobile Set)
Rs. 0.49 Lakh (5W UHF Hand Held Set)

Lead Time: 6 Months

TECHNICAL SPECIFICATION

Essential Physical Characteristics:

1. Radio set must be easy to maintain. The transceiver should be in service without major modifications for the next 8 (eight) yrs.
2. The radio set should be able to communicate under and in the following situations/environments:
 - (a) Within multi storey buildings:
 - (i) From one room to another on the same floor.
 - (ii) The radio set should be able to communicate from one floor to another in the same building up to 2 storey above or below.
 - (b) From outside a building to a room inside the building from a range up to 2 kms plus or minus 20 percent when the rooms are not fully screened.
 - (c) In heavily crowded by lanes/localities with a range of 500 to 600 m in case of hand held/body worn radio sets.
 - (d) Airport/dense electronic environment
 - (e) The range of communication from inside an aircraft to outside with all the aircraft doors closed should be minimum 500 meters
 - (f) Communication between moving vehicles at speeds up to 50 kmph for handheld/body worn radio sets.

3. Front panel control: All the controls should be available on the front panel in mobile and handheld radio sets.
4. Alphanumeric Display: It should have an easy to read alphanumeric liquid crystal display to provide the user with instant mode and radio status information. It should be backlit for night time with control switch.

Essential Technical Characteristics

5. The features common to all hand held categories of UHF R/s sets must be as under:
 - (a) Frequency range: -400 to 450 MHz. It should be synthesizer controlled.
 - (b) Channel spacing :-12.5/25 kHz
 - (c) Modulation :Frequency Modulated
 - (d) Microprocessor controlled: The radio sets should be microprocessor controlled, software programmable and easy to update to the latest operating software release.
 - (e) Digital series: The radio sets should be digital with an option to work in analogue mode. Modulation should be QPSK/BPSK.
 - (f) Sensitivity
 - (i) Analog mode : - 0.25 micro volt at 12 db signal to noise ratio
 - (ii) Digital mode : - 0.25 micro volt at 5 percent BER 0.40 micro volt at 1 percent BER.
 - (g) Frequency stability: plus 0.00025 percent (minus 20 to plus 60 deg C)
 - (h) Communication range : handheld radio sets must provide a communication range of at least 5 km plain terrain and 3 km in built up areas.
 - (i) Receiver Selectivity
 - (i) Adjacent channel : -70 db or better
 - (ii) Inter modulation rejection: -65 db or better
 - (iii) Spurious response rejection : -65 db or better
6. The other common features of the radio sets must be:
 - (a) BITE/Repair : Software programme be available to and fault diagnosis
 - (b) Dual Mode Operation: Should have both digital and analogue modes.
 - (c) Advance Scanning: It should be able to scan a list of modes such as non -priority operation. Talk back scan and auto scan priority user programme etc.
 - (d) Advanced Features: It should have advanced features such as unit identification call alert. Emergency alarm, radio check option or priority check scan etc.
7. Other Features for Hand held Body worn Radio set : The features that a Hand held /Body worn radio sets should have are:-
 - (a) RF Power output: 4/5 watt in steps of 1 watt programmed from front panel/selector/toggle switch.
 - (b) Audio output: It should have an inbuilt speaker with output of 500 mill watt.
 - (c) Microphone: Should be inbuilt.
 - (d) VOX Unit : A limited quantity of radio sets will be provided with VOX Kits for hand free

- operation. The VOX units must be able to be easily fit in the ear canal along with an ear clip for safety. The VOX unit must be able to be operated in dual mode i.e. PTT or vocal card option
- (e) Communication Range: As specified in Para 5 (h), however, in plain terrain it should give a range of 5 km.
 - (f) Belt Clip- A belt clip is necessary to clip it to the belt of the commando.
 - (g) Power Source: A rechargeable NI-CD/Lithium /Ni metal Hydride state of the art bty. It should be able to last for 6 to 8 hours at 5:5:90 (Tx: Rx: Stand by) working ratio.
 - (h) Battery charger: Each handled radio set to have a rapid battery charger for single btys and a multi -bty battery charger capable of charging 06 or more batteries at a time. One multi bty charger per six (06) radio sets must be procured .A foldable solar bty charger (portable) able to charge bty in isolated areas is desirable.
 - (i) Weight: The total weight including bty (not less than 1200 Mah rated capacity) should be less than 800 gms.
 - (j) Low Battery Indication: A LCD visual low battery indication should be available with a shutter to hide the visual indicator to avoid detection.
 - (k) Programmable Switch/Buttons: It should be available on front panel which should help in setting of various modes of operation and facilities.
 - (l) Compatibility: The radio set should be compatible with existing UHF radio sets in service on selected channels.
 - (m) Antenna: It should be small in size and be fixed on radio sets .It should have flexibility to avoid breakage during ops.
 - (n) Whisper Mode: It should have a facility to work in whisper or low condition to avoid detection. Should not give any cracking sound when switch it 'ON/OFF'.
8. Spare: The firm offering the radio sets should be able to supply the spares for the assessed life of 8 years.
 9. Training: The firm should train a team of 4 Mechanic in repairing of the radio sets free of cost. The firm should also include to its proposal to supply any accessory/special kit or test equipment required for repair of sets.
 10. Literature : The following literature /manual will be supplied along with radio sets:
 - (a) User manual with each radio sets
 - (b) Technical repairing manual at a scale of 5% of the population of radio sets procured.
 11. Radio Programming: The firm shall include in their proposal all necessary radio set programming software and hardware packages that may be required for the proposed radio system.
 12. Attachment for data transmission: The firm shall include in their proposal if any attachment / software /hardware packages that may be required for transmission of data.
 13. Trial of Radio System: The firm shall provide adequate qty of radio sets for field trial at no cost commitment basis, to ascertain the user satisfaction before the proposal is accepted.
 14. After Sales Services Warranty: Period should be one year from the date of purchase.

1.12 **HF TX/RX LHP**

Purchased by: ITBP

Year of Purchase: 2009-10

Name of Supplier:

- M/S Bharat Electronics Limited, Panchkula (Haryana)

Names of Vendors who participated in the Tender:

- M/S Bharat Electronics Limited, Govt. of India, MOD Enterprises, 405, Industrial Area, Phase-III, Panchkula (Haryana)

Price: Rs 2,76,100/-

Lead Time: 10 Months

TECHNICAL SPECIFICATION

Sl. No.	Nomenclature	Specifications
	GENERAL	
1.	Frequency Range	1.50000 to 29.9999 MHz at 10 Hz spacing
2.	Modes	Fixed Frequency: Clear & COMSEC Dual Frequency: Clear & COMSEC Frequency Hopping: Voice, Data, Flash, CW COMSEC: Voice, Data, Flash, CW BEST CALL (ALE): Clear & COMSEC
3.	Modulation	USB,LSB,AM
4.	Pre sets	100 Channel, 180 BEST call groups (tables) 10 COMSEC Keys, 10 ECCM hop set tables
5.	Frequency stability	±1 PPM
6.	In Put Power	12 V Nom.
7.	Power Consumption	≤ 4.0 W in Receive, ≤70W in Transmit
8.	EMC/EMI	MIL-STD-461/462C (Methods: CE06, RE02, RS02,RS03)
9.	Operating Temperature Range	-30° C to +55°C
10.	Dimension & weight (without battery)	85(H) x 224 (W) x 250 (D)mm 3.9 Kg
	TRANSMITTER	
11.	Power Out Put (selectable)	5W/10W/20W and adaptive power control
12.	In Put Signal	Mic and External user
13.	Antenna Matching capability	9ft whip, 15ft whip, NVIS and wideband dipole
	RECEIVER	
14.	Sensitivity	SINAD ≥10dB for -113 dBm RF input
15.	Image & IF rejection	80 dB min
16.	Squelch	Active, Digitally – coded
	BUILT-IN-FEATURES	
17.	Selective calling	Digital FSK coding, 27 individual, 3 groups, All (Broadcast)
18.	BEST call (FAST ALE)	Frequency group (tables) 180
19.	COMSEC- Communication Security	Encryption, Voice and Data
20.	Flash Messages	Pre-defined messages
	DATA COMMUNICATION	
21.	Built-in-modem	MIL-STD- 188-110A single tone upto 4800 bps
	ECCM FREQUENCY HOPPING	
22.	Hope rate	10 hops/second

1.13 Internet Prahari Project

Purchased by: BSF

Year of Purchase: 2010

Name of Supplier:

- M/S NIIT Technologies Ltd., New Delhi

Names of Vendors who participated in the Tender:

- M/S Wipro Ltd., Gurgaon (Haryana)
- M/S TATA Consultancy Service Ltd., Mumbai
- M/S Keltron, Travancore House, New Delhi
- M/S NIIT Technologies Ltd., New Delhi

Price: Rs. 228 Crore

Lead Time: 6 Months

1.14 Monitoring Receiver AR 8600

Purchased by: ITBP

Year of Purchase: 2009-10

Name of Supplier:

- M/S KAPTEL Overseas Pvt. Ltd., New Delhi

Names of all the Vendors who participated in the Tender:

- M/S KAPTEL Overseas Pvt. Ltd., 2/F, D-28, Gulmohar Park, New Delhi-49

Price Rs. 63,000/-

Lead Time: 3 Months

TECHNICAL SPECIFICATION

Sl.No.	Particulars	Specifications
1	Frequency Range	100 KHz to 3000MHz
2	Receiver Modes	WFM, NFM, SFM, WAM, AM, NAM, USB, LSB, CW
3	Sensitivity	100 KHz -1.9 Mhz, AM 2.5 μ V (10 dB S/N) 1.9 Mhz – 30 Mhz, AM 2.0 μ V (10 dB S/N) 30 Mhz- 470 Mhz, AM 1.5 μ V (10 dB S/N) NFM 0.7 μ V (12 dB SINAD) WFM 1.0 μ V(12 dB SINAD) 470 Mhz- 1040 Mhz, NFM 0.6 μ V (12 dB SINAD) 1040 Mhz- 2040 Mhz, NFM 3.5 μ V(12 dB SINAD) 2040 Mhz- 3000 Mhz, NFM 10 μ V (12db SINAD)
4	Selectivity	SSB/NAM – 3 KHz (-6dB), 9 KHz (-60dB) AM/SFM-9 KHz (-6dB), 20 KHz (-40dB) WAM/NFM—12 KHz (-6dB), 25 KHz (-40dB) WFM- 150 KHz (-3dB), 380 KHz (-40dB).
5	Aerial Connection	50 OHM, BNC
6	Audio output	800 mW (8 OHMS) max @ 10 % THD internal speaker, rear chassis 3.5mm socket, front panel 3.5mm socket.
7	Power Consumption	400mA typical usage, 70mA on standby, 10.8-16V Dc negative ground, 9.6V from optional internal BP8600 NiCad.
8	Operating Temperature Range	-5 to 50° C
9	Dimensions.	155 (W) x 57 (H) x 195 (D) mm excluding projections.
10	Weight	2 Kgs approx. (MW bar aerial included)
11	Memory Channels	1000 (20 banks)
12	Select scan Channels	50
13	Priority Channels	1
14.	Search banks	40
15.	PASS Channels	50 per search bank + 50 for VFO search
16.	Scan/ search Rate	37 increments per second maximum.
Special conditions		
17.	Store to be inspected by Joint receipt inspection (JRI) team in arrival in India	
18.	Training not imparted by the firm. However if needed the operational training will be imparted by Telecom Bn.	

1.15 Unit Level Switch Board (ULSB)

Purchased by: ITBP

Year of Purchase: 2009-10

Name of Supplier:

- M/S Bharat Electronics Limited, (A Govt. of India Enterprises, MOD), Balbhadrapur, Kotdwara, Distt.Pauri Garhwal (UKD)

Names of Vendors who participated in the Tender:

- M/S Bharat Electronics Limited (A Govt. of India Enterprises, MOD), Balbhadrapur, Kotdwara, Distt.Pauri Garhwal (UKD)

Price: Rs. 2,32,254/-

Lead Time: 6 Months

TECHNICAL SPECIFICATION

Sl. No.	Particulars	Required Specifications
1.	Subscriber	15 Lines individually selectable for Auto/magneto/ CB Mode by Dip switches
2.	Junction	Maximum 4 out of 15 can be configured in ring/TWT Junction Line
3.	Switch	Non blocking 15 lines can be extended up to non blocking 30 Lines by coupling two equipments in tandem
4.	Insertion loss	0 ± 0.5 dB for subscriber to subscriber with monitoring
5.	Cross Talk	7.0 dB down
6.	Call/Ringing Range	Line of 8kΩ loop resistance.
7.	Auto signaling Range	1.5 K
8.	Speech range, operator to subscriber line loss	40 dB (Maximum)
9.	Ringer Output	90 V, 25 Hz nominal
10.	Tone & Announcement	7 tones & Music on held.
11.	From Battery	12 V or 24 V DC
12.	From AC mains	90-300 V AC with MAU
13.	Power consumption	36 W (max)
14.	Operating Temp. range	-10 to +55 degree C
15.	Storage temp range	-30 to +65 Degree C
16.	Relative humidity	95% max at +40 Degree C
17.	Dimension	465x225x315 (L x H x D)
18.	Weight	≥12 KG.
19.	Accessories	LTB, Head Set, manpack harness, VIK, tandem cable, MAU & associated cables.

1.16 Video Conferencing System

Purchased by: CRPF & ITBP

Year of Purchase: 2008-09, 2009-10

Name of Supplier:

- M/s Globus Infocom Ltd. A-22, Sec-4, Noida (U.P).
- M/s ACE Business Solutions, F-92, Ground Floor Green Park, New Delhi 110044.
- M/s PAN Communications Pvt. Ltd., New Delhi

Names of Vendors who participated in the Tender:

- M/s Tata Elxsi Limited, F-6, Kalkaji New Delhi.
- M/s Globus Infocom Ltd, A-22, Sec-4, Noida (U.P).
- M/s Siemens Enterprises Communications Pvt. Ltd.,
A-25, Mohan Co-operative Ind. Estate, Mathura Road, New Delhi-110044.
- M/s ACE Business Solutions, F-92, Ground Floor, Green Park, New Delhi-110044 .
- M/s HCL Infosystems Ltd, Noida (UP).
- M/s Pan Intellcoms Ltd, New Delhi.
- M/s Targus Technologies Pvt. Ltd, New Delhi.
- M/s PAN Communications Pvt. Ltd., New Delhi
- M/s Indus Technologies, D18A, Shopping Complex -II, Mansrover Garden, New Delhi
- M/s Lumens Technologies, B-6, Somnath Chambers II, Bhikaji Cama Place, New Delhi

Price: Rs. 1,15,000/- (CRPF)

Rs. 1,95,000/- (ITBP)

Lead Time: 6 Weeks

TECHNICAL SPECIFICATION

SPECIFICATION FOR END POINTS

1. Video

(a) Signal System

The system should support PAL and should be a point-to-point system with codec, High Definition (HD) 720p camera with a minimum of 10x zoom, MIC, remote control, cable and power supply. The system should be capable of giving HD 720p @25fps. The system should be upgradeable to support HD 1080p @25fps in motion or sharpness video mode.

(b) Standards and Protocol H.261, H.263, H.263+, H263++, H.264

(c) Resolution The system should supports video resolution from 4CIF (Common Intermediate format), VGA, SVGA, HD-720p @25fps. The PC resolution should be 720p.

- (d) Frame Rate Up to 25 fps
- (e) Band Width Up to 4Mbps on point to point and 2Mbps on ISDN -PRI (Internal / External).
- (f) Video Inputs The system should have 2 video inputs to connect 1xHD camera and 1 for PC DVI (Digital Video Interface)
- (g) Video Outputs The system should have 2 video outputs 2xHDMI (High- Definition Multimedia Interface)/ DVI for connecting two HD displays DVI
- (h) Graphics Native 16:9 widescreen Advance screen layout Intelligent video management local auto layout.
- (i) Picture in picture Should support Picture in Picture (PIP)

2. Audio

- (a) Standards and Protocol G.711, G.722, G.722.1, G.723.1, G.728, G.729
- (b) Features CD-Quality audio Instant Adaptation Echo Cancellation
Automatic Gain Control(AGC)
Automatic Noise Suppression(ANS)
- (c) Audio Inputs The system should have 2 Audio inputs (2xRCA Phone connectors)
- (d) Audio Outputs The system should have 2xRCAPhono
- (e) Lip synchronization Active Lip synchronization

3. Network

- (a) Features
The system should have features such as QoS, RSVP standards, Packet loss based down speeding, TCP/IP, DHCP
(Dynamic Host Configuration Protocol), Auto gatekeeper discovery, Dynamic payout/ lip - sync buffering, DTMF (Dual tone multi frequency signaling) tone, Date and Time.
- (b) ITU-T standards DUAL STREAM:- The system should have capability to support H.239 in both H.323 and SIP mode.
- (c) Network Protocols The system should have H.323 and SIP capability
- (d) Interfaces 1xLAN /Ethernet (RJ-45)10 /100 and 1 USB

4. Camera Should have PTZ Feature

- (a) Image sensor 1/3" CCD Camera
- (b) Pan ± 75 degree or more
- (c) Tilt +10 degree/ -15 degree or more
- (d) Focus Automatic / manual
- (e) Total field of view 265° or better

- (f) Horizontal view angle 65° or better
- (g) Zoom ratio 10x Zoom optical or better

5. Remote Commander IR / Wireless

6. Microphone 360°Voice pick up Microphone

7. Multipoint Control Units (MCU)

- (a) Dimension The MCU must be up to 2 Unit rack solution provided with all the necessary accessories to integrate into a 19" rack.

- (b) Capacity N ports @ 4Mbps with HD 720p resolution should be supported on the same chassis with/without cascading where N stands for multiple of 10. (N is to be defined by the User).

- The MCU should additionally support with a minimum of 10 audio only participants.
- The MCU should be accompanied with external 4 PRI/ISDN gateway expandable to 7 PRI (internal / external) / on same chassis or different chassis. Flexible design enables streamlined traffic flow and mass scale for converged IP networks.
- The system should be HD enabled supporting HD 720p @ 25 frames in continuous presence mode and it should be up gradable to 1080p. The MCU must support 10/100/1000 Mbps Ethernet.

- (c) Audio support Audio Codecs G.711, G.722, G.723.1, G.728, G.729, MPEG-4 AAC-LC / MPEG-4 AAC-LD or Equivalent/better.

- (d) Video Support Video Codecs H.261, H.263, H.263+, H.263++, H.264 all resolutions should support 25fps.

- (e) Gatekeeper, Scheduler and Network management system MCU shall support an embedded / external Gatekeeper, management tool scheduling and address book. MCU shall have the capability to connect the PC/laptop for presentation sharing over LAN/IP network.

- (f) No of conferences The MCU should support same number of simultaneous conferences as its multipoint capability.

Conferencing highlights - personnel layout, auto layout, choose site to see layout, border for active speaker indication, lecture and presenting mode, conference profiles.

- (g) Continuous presence view MCU should support 16 Continuous Presence (CP) on single screen.

- (h) Interactive keypad MCU shall have a built -in auto -attendant from whom users can select conferences to join or start a new conference. This shall be operated using either DTMF or FECC (For End Camera Control)

- (i) Dynamic CP layout The MCU should support dynamic layouts- wherein layout should adjust based on the participants joining the calls. MCU shall support Automatic down speeding and packet error /loss concealment methods to ensure optimum video and audio quality. The MCU must provide standards based on method of compensating and correcting for packet loss of media streams.

- (j) Chairperson view- It should have chairperson view.

- (k) Far End Camera Control (FECC) and Volume Control. It should be possible to control far end camera with a facility to increase or decrease volume of end point.
- (l) H-239 Support -The MCU shall support H.239/ chair control
- (m) Dial - out capability Should dial out automatically to all participants, retry dial out conferences to complete call setup and should report specific failures. MCU shall support dual video H.239 and ability to send content to legacy Protocols that do not support H.239 through it main video.
- (n) Dial - in Capability -Should offer robust software driven dial-in and/or dial out capability. MCU shall have in built external capability to support PC based desktop clients for 12 PC users or more.
- (o) Security The MCU should support two levels of conference password-Chair Person and Participant password. The administration of the Video endpoint should be through Web interface using (Hypertext Transfer Protocol Secure) HTTPS/HTTP
- (p) Other Features
 - i) MCU shall provide HD quality in continuous presence to all HD end points connected and deliver this even if SD or HD end points or port of the conference. MCU have the ability to enhance the resolution even from the SD and ED endpoints and send to HD participants. The solution shall support Standard Definition, Enhance Definition, and High Definition in both voices Activated and Continuous Presence mode without loss of functionality or capacity.
 - ii) MCU shall be able to display the static image of audio only participants to the video participants within the continuous presence layout.
 - iii) MCU shall support communication up to 4 Mbps per port using both H.263 and H.264 video.
 - iv) MCU shall support conferences that permanently exist but use no resources /port if no participants are in the conference. The functionality gives end user the flexibility to directly join the conference without having to depend or wait for the system administrator/operator.
 - v) MUC shall provide a built -in web server, for configuration and administration.
 - vi) MUC shall support 2 access level /user privileges from administrator to simple guest.
 - vii) MUC shall have a built -in address book and built in external scheduling.
 - viii) The MCU shall support scheduled conferences and ad-hoc conferencing mode at the same time.
 - ix) MCU shall support a predefined and unique PIN for each conference.
 - x) MCU shall allow users to create conferences on the fly from their end points without the need of.
 - xi) The MCU shall support a mix of resolution in both voice activated mode and

continuous presence. Each end point shall receive at the maximum of its capacity without reducing the capacity of another.

- xii) MCU shall be capable of supporting H.323, SIP, and H.235 v3 in the same conference at any band with resolution
- (q) Centralized Recording The MCU server either internally or externally should be able to record the ongoing conference. Facility should exist to record the conferences on DVD / CD subsequently from the recording server.

8. Desktop clients-

Desktop conferencing requirements

- i) PC web camera (HD) & Mic should provide HD quality Video.
- ii) The solution provided should support integration with Microsoft outlook. These desktop clients on the PC should be able to initiate H.239 data collaboration and participate on view video and H.239.
- iii) Each Desktop Client participant should have the ability to change between voices activated video switching mode and continuous presence mode on the fly.
- iv) The Desktop Client user interface must provide simultaneous views of the participants and H.239 data collaboration portions of the conference. The user interface must provide full screen views of the participants or H.239 data collaboration portion of the conference.
- v) The Desktop Client must include a native component that enables desktop client participants to text chat while in conference.
- vi) The Desktop Client must include a native component that enables desktop client participants to text chat while in conference.
- vii) The Desktop administrator must be able to provision a directory of room systems. This directory shall be available in the desktop client user interface to ease the process of inviting room systems. DTMF should modes to join any conference.
- viii) The Desktop client should be able to secure Conferences via PINs/passwords.
- ix) Desktop client should be able to work on a standard PC with Windows XP, Windows Vista operating system running on machine with intel1.2 GHz or above processor and 1 GB RAM

9. LCD Panel

- (a) Model LCD Screen size : as per user requirement

- (b) Picture Display

Resolution: 1920x1080

Theatre Mode

Photo TV HD

Dynamic Contrast: 50,000:1

Panel Contrast: 3000:1

3D Digital Comb Filter

HD Ready/Full HD-5-

(c) Audio

Audio O/P: Min 50w

Voice Zoom

(d) Interface

HDMI In :1

AV In : 2

Composite/ S Video In:1

HD 15PC Input/Audio:1

AV Out:1

Headphone out:1,USB 2.0 -1

10. Server As per specification laid out in Rate Contract

11. UPS As per specification laid out in Rate Contract

12. Environment

(a) Operating Temperature 5° to 35°C

(b) Operating Humidity 30% to 70%

(c) Storage Temp -20° to +55°C

1.17 Satellite Terminal IN MARSAAT Gun (M-4)

Purchased by: NSG

Year of Purchase: 2009-10

Name of Supplier:

- M/S Tata Communication Ltd., New Delhi

Names of Vendors who participated in the Tender:

- M/S Tata Communication Ltd., New Delhi

Price: Rs. 41,73,510/- for 5 numbers

Lead Time: 6 Months

1.18 SELO Network Equipments

Purchased by: CRPF

Year of Purchase: 2009-10

Name of Supplier:

- M/s Technopoint Computers Pvt. Ltd., New Delhi.

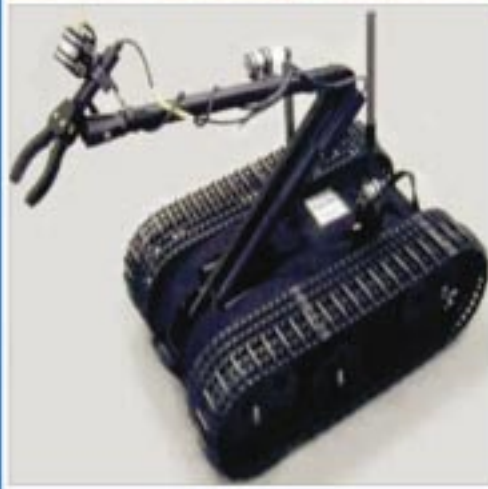
Names of Vendors who participated in the Tender:

- M/s Technopoint Computers Pvt. Ltd., 103 Sant Nagar, East of Kailash New Delhi-65.
- M/s Silica Infotech Pvt. Ltd. 142., Ground Floor, Sant Nagar., East of Kailash, New Delhi-65.
- M/s NIIT Technologies, 8, Bala Ji, Estate, Kalkaji, New Delhi-19

Price Rs. 2,04,540/-

Lead Time: 10 Months.

Surveillance Equipment



2.1 Arc GIS Extension (3D Analyst Network Analyst, Spatial Analyst) for Arc Editor 9.3.1

Purchased by: CRPF

Year of Purchase: 2009-10

Name of Supplier:

- M/s NIIT GIS Limited, Parwanoo, Himachal Pradesh

Names of Vendors who participated in the Tender:

- M/s NIIT GIS Limited, 41A Sector 1, Parwanoo, (Himachal Pradesh)

Price: Rs. 5,25,000/-

Lead Time: One Week

2.2 Battle Field Surveillance Radar

Purchased by: BSF

Year of Purchase: 2010

Name of Supplier:

- M/S Bharat Electronic Ltd., Bangalore

Names of Vendors who participated in the Tender:

- M/S Bharat Electronic Ltd., Bangalore
- PAC Basis

Price: Rs. 42 Lakhs

Lead Time: 9 Months

TECHNICAL SPECIFICATION

There should be no degradation in the range performance due to heavy condensation/rains.

Performance Parameter : The BFSR must have the following performance characteristics:-

(a) Resolution

- (i) Range - Desired parameter in 20 m but acceptable up to 50 m.
- (ii) Azimuth - 4° (subject to change in conformity to demonstrated capability of radar ex-import during validation trial of radar ex-import).

(b) Accuracy

- (i) Range - 20 m, RMS at maximum range.
- (ii) Azimuth - 0.5°

Visual Display Unit (VDU)

- (a) This must comprise an electro luminescent display with indication of the detected target, its range, azimuth and rectangular co-ordinates:
- (b) The VDU must incorporate a facility for a beeper and IED alarm, to draw the attention of a radio operator once a moving target is detected. The operator must then be able to use ear-phones or loudspeaker for audio tracking and identification.
- (c) The display should preferably be on gridded background of 1,50,000 so as to facilitate correlation between displayed data and map features.
- (d) **Display Format** - The display format should include B Scope and PPI presentation.
- (e) **Zoom** - Zoom facility with an magnification of an area 1 km, k 1 km, 2.5 km k 2.5 km and 5 km k 5 km should be available to the operator.
- (f) **Dual Window** - During zoom mode two windows should be presented as follows: -
 - (i) **Complete Screen** : This displays the complete surveillance zone. It has area marked which has been zoomed.
 - (ii) **Zoom** : This displays only the zoomed area which is of interest.
- (g) **Mode Selection** - The modes that are available for operator selection should be all menu driven with soft keys.

Audio Output - The audio should be provided to a headphone or a loudspeaker whichever is selected by the operator.

Electro-Luminescent Screen - "Read out" display of position of target in range, azimuth and coordinates should preferably be indicated, based on LCDs. It must also be able to indicate selected points of interest.

Key Board - Luminescent key board along with track ball should be provided. It should be integral to the operators console with built-in redundancies and capable of feeding programme and its execution, in respect of the selection of the following :

- (a) Selection of Mode
- (b) Data feeding
- (c) Cancelling of alarm over area of no interest.

Operating Modes - The system must have capability for the following modes of operations which should be menu driven.

- (a) **Operation** : This mode would enable initialization and switching on/of the transmission
- (b) **Surveillance** : The system must have the capability of automatic sector scan which can be centered on a selectable bearing. Sector scan should be variable by the operator preferably

between the limit of 30 to 1800 (15 to 900 either side of the central line). The operator must be able to carry out manual search to obtain improved information regarding location and identification of the target. The system must have facility for selection of depth of observation zone (0-3 km., 0-5 km., 0-7 km., 0-10 km. and 0-18 km.). This should be in PPI format.

- (c) **Acquisition** - Once the target has been detected it has to be identified. In this mode that selected area can be zoomed. The zoom facility for 1 k 1 km., 2.5k 2.5 km. 5 k 5 km. sector should be available in B scope. The radar should get locked on the target aimed upon by the operator and the operator should have the option to track the target manually.
- (d) **Graphics** - This should have been the following facility
 - a. **View Present** - In this one can select between PPI format and B Scope.
 - b. **Fencing** - This facility is earmarking specified area for auto alarm over pre selected area example of such areas are mandatory passage points, bridges, roads etc. facility must exist for minimum 4 to 5 such targets
 - c. **Range Marker** - In 360 degrees concentric circles showing ranges of 2,4,6,8,10 and 18 Kms along with bearing lines indicating 0, 45, 90, 135, 180, 225, 270 and 315 degrees should be displayed in PPI format to enable the operator to select his sector scan.
 - d. **Scope With Lambert Conical arthomorphix** - In this the area of scan should be presented in B scope with super imposed grid lines in Lamberts grid.
 - e. **Antenna** - Suitable scanning rate to be designed so as to meet requirement of auto classification.
 - f. **Video** - This Mode should enable the following
 - 1. **Raw Video** - IN this it should provide a CLUTTER MAP with various shades of gray level on a gridded background. The operator should have the option to retain or remove clutter map during various modes of operation.
 - 2. **TWS-** in this track while scan mode while continuing to scan it should be able to continuously track 20 targets automatically. Out of the 20 target being tracked automatically only those selected by the operator (1,3,6,12, and 29 targets) should be displayed along with this trails and the rest should remain in memory while continuing to be tracked. The track data should be displayed when the operator selected a track with the cursor/ trackball.
 - 3. **STC-** Sensitivity threshold control should be variable so as to assist removal of clutter.
 - 4. **Data Storage** - Facility to stores 50 targets data should be available. The storage would be operator assisted.
 - g. **Auto Classification** - The radar should desirably be able to classify targets automatically by signature matching with pre-stored target data (Doppler based indication)

Operating Frequency

- (a) Battlefield Surveillance Radar should preferably be able to operate on min 8 pre-set frequencies which are selectable and/or automatically programmable.

- (b) Battlefield Surveillance Radar can be required to operate close to one another. Under such situations operator must be able to select mutually non-interfering frequencies.
- (c) Effective ECCM capability against jamming should be built. It should provide jamming indication in simplest form which is easily understood by the operator. Manual frequency change by the operator in the initial stage may be acceptable though auto frequency hopping facility continues to be desirable.
- (d) **Frequencies Lock** - Selected frequency should be locked by a mechanical switch not easily accessible by the operator.

Remote Operations - The control console consisting of the VDU and the control key board must be capable of functioning separated from the transmitter/receiver unit through a cable of at least 25 meters. This should be extendable to 100 m by joining cable packs of 25 meters each.

Tripod with Bearing Drive and Tilt - The antenna should be placed on mechanism, which is connected to the tripod. The mechanism drive should allow adjustable sector scan. The tilt must allow at least maximum/minimum antenna tilt angle of +/- 150 with respect to the horizontal plan. The tripod must be made of telescopic legs for ease of handling. It would be possible to level the tripod on a ground inclined up to +/- 15 degrees. Electronic drive should be provided for bearing and elevation control.

Mast

There is need for a mast as an optional item with the BFSR though being delinked from the initial phase of manufacture. The mast will be essential, particularly for employment of the radar in vehicle mounted roles.

The design parameter must cater for mounting of radar on mast individually as well as alongwith the EO system (preferably Co-axially mounted). GSQR for mast is being forwarded separately.

Electro Optical System (for subsequent consideration)

Once the target has been acquired and identified over Doppler tones them for immediate visual scanning an electro optical system should be available as part of the overall system as an optional fitment. The electro optical system being developed may be employed either coaxially mounted with the BFSR, or be detached and employed independently. The design parameters should cater for ites interfacing with the radar at a subsequent stage. EOS should meet the following -

- (a) Weight - 2- 3 kg.
- (b) FOV - Dual FOV:
- (c) Electronic zoom
- (d) Magnification - k 4 and k 8.
- (e) Electronic Magnification - k 16
- (f) Detection - > 6 km
- (g) Identification - > 4 km
- (h) Spectral band - 8-12 macro m.
- (i) Video - LCD display and external CCIR TV Signal.
- (j) Remote control - Rs 232.

Power Source

A common power source must be used for all sub system i.e. radar, operators console and display unit. The power source must be capable of quick recharging in field, preferably using the charging system currently in operational service. Power source should preferably be of a rechargeable, commercially available variety. The BFSR must also be capable of operating on AC mains or a small portable generator in common use. Lithium batteries should be catered for use of BFSR at sub zero temperature. Low battery indication should be displayed on the screen.

Life of power source(battery)

The minimum life of the power source and their weight should be as follows:-

- (a) **Man Portable Mode** Light weight (1-2 kg) dry battery must not be less than 4 hours of continuous usage.
- (b) **Vehicle Mounted Mode.** Secondary battery must not be less than 10 hours of continuous operation.
- (c) **Generator** Small, compact, light weight portable generator for 10 hours of continuous operation.
- (d) **AC Mains** A compact light weight adaptor to be used with AC mains should be provided.

LRDE and BEL will jointly establish the power source to meet the required functional parameter in consultation with Army HQ and QR may be amended accordingly if required.

TRANSMITTER

Technology The transmitter should be solid state for better radar performance and enhanced life.

Peak Power The peak power should be as low as possible commensurate with the range as well as ECCM requirements. Radar should preferably use pulse compression technique thus ensuring low probability of interception(LFI).

Pulse Width. This must enable range discrimination as given at para 11 above .

RECEIVER

Noise Factor To be decided by developing agency.

Fiked Echo Elimination Factor. It must conform to latest state of art limits to ensure optimum detection and identification in all environmental conditions.

Physical Characteristics

Camouflage & Concealment Battlefield Surveillance Radar and Electro Optical System must have a low silhouette, no shining surfaces and lend themselves to easy camouflage.

Assembly and Dismantle - The system must be easy to assemble and dismantle under operational conditions. The system must be capable of being broken down to man portable load and should not have award external shape hindering carriage. Time to bring in to action and out of action should be six minutes

Modular Construction - Various sub system must have modular construction for ease of repair, and least time of action.

Reliability - The system must be sufficiently rugged, fool proof and built in with safety device so as to have maximum "Mean Time Between Failure(MTBF)"

The minimum MTBF should be 1500 hours.

Construction - External body and other parts of the system must be made of such a material which does not get unbearably hot or chilled during extreme hot/cold climate conditions.

System Ruggedness. - System must function even after being fully immersed in water with its console closed ,and under rain & water flow with console opened. The system must be able to withstand vibrations of vehicle based cross-country movement. These must conform to JSS specifications for this category of equipment.

Mounted/Dismounted Role - The system must be capable of being used in dismounted role as well as mounted on standard military vehicles.

EMI and EMC : The system must conform to laid -down EMI & EMC specifications. The system should cater for EMI & EMC compatibility including when mounted on a tank/BMP/BRDM.

Operation and Maintenance

Orientation

The radar must incorporate a simple and accurate system of orientation.

Operation at Night

The radar set must have sufficient internal lighting arrangements and marking of dials must be done of fluorescent paint. It must have proper black out arrangements for night operations.

Environmental Specification

The radar and Electro Optical System will be required to operate in the following conditions :-

- (a) Temperature
 - (i) Use 55° C to 20° C
 - (ii) Storage 70° C to minus 40° C
- (b) Altitude - All systems must be suitable for use and storage at heights up to 2700 meters above mean sea level at their full rated performance without modifications and up to 4500 meters with suitable minimum modifications, which should be capable of being performed in field.

Operation and maintenance must be simple and easy. The system must require least possible maintenance in the field.

Test & Adjustments - Test and adjustments prior to installing the system in actual operational conditions must be simple and easy for assimilation and functioning by an infantry operator. The system must incorporate Built in Test Equipment (BITE). The BITE facility provided in the equipment should be able to locate the faculty line replaceable unit (IRUs).

User Manual and Operation Instructions - Detailed instruction technical literature, circuit diagrams and inspection standards and should be issued along with equipment.

Spare Batteries must be authorized along with the surveillance system.

Charging System for Batteries - Dedicated charging sets must be catered for recharging the system batteries. These charging sets should be such that undue high noise of charging sets, does not reveal own position in defensive operations/special missions. The development of matching charging systems must be undertaken concurrently.

2.3 Hand Held Thermal Imager (Binocular)

Purchased by: BSF

Year of Purchase: 2010

Name of Supplier:

- M/S Alpha-ITL, Bangalore

Names of Vendors who participated in the Tender:

- M/S Stelop PTE Ltd. Singapore
- M/S FLIR System, Orlando, FI
- M/S Sinsil International, Bangalore
- M/S Jena Optronik GmbH, Germany
- M/S BEL, Machllipatnam
- M/S Alpha-ITL, Bangalore
- M/S Thales, France
- M/S Carl Zeiss Optronics, Germany
- M/S Samsung Thales Co. Ltd. Korea

Price Rs. 10,40,882/-

Lead Time: 2 Months

TECHNICAL SPECIFICATION

- 1 Weight should not be more than 3 Kgs without battery.
- 2
 - a) Should have Lithium Ion rechargeable battery. The battery should function for 3 hours or more in operational mode and for 5 hours or more in standby mode.
 - b) Should function on 180 volt to 250 volt 50 Hz AC mains and generator through AC/DC Adopter.
 - c) Battery Charger for charging the battery from 180 volt to 250 volt, 50Hz AC Mains along with DC Charging facility from 24 volt to 48 volt DC should be provided.
 - d) Full charging of battery should not take more than 3 hours.

- 3 Range:- Should have ability to differentiate between human beings and animals like horses and camels at a range of minimum 2.5 kms and should have ability to detect presence of a vehicle of maximum overall length of 4010mm, maximum overall width of 1540mm and maximum overall of 1875mm at a range of minimum 8 Kms.
- 4 Ready Time From Standby mode should be less than 1 Minute.
- 5 Cooling time should be 8 minutes or less.
- 6 (a) Should have Narrow Field of View (NFOV) of 4° x 3° (Maximum).
(b) Should have Wide Field of View (WFOV) of 8° x 6° (Minimum).
- 7 Power Consumption should be maximum of 12 W.
- 8 DDC System with Starring Array Detector configuration of minimum 320x240 Elements Matrix should be provided. DDC of each HHTI must have the Lab. Test Report of OEM. Make and model of DDC of each HHTI must match with the DDC of HHTI produced during the functional trial by BSF.
- 9 The HHTI should :-
 - (a) Be binocular/binocular having one objective glass and one detector system.
 - (b) Have capability to produce real time picture.
 - (c) Penetrate darkness, haze and smoke.
 - (d) Be immune to glare of searchlights.
 - (e) Not get damaged if faced towards sun accidentally.
 - (f) Have a suitable tint to reduce eyestrain. This feature should help the observer to quickly regain his normal vision.
 - (g) Should be rugged for operations as per IP 65 environmental standards.
 - (h) Should have a ruggedized container for transportation.
- 10 The HHTI should be able to work at temperature ranges of -30 degree to +55 degree centigrade.
- 11 It should have an in built Reticule to indicate range.
- 12 It should have provision for external video output (PAL).
13. The Mean Time Before Failure (MTBF) of equipment should be minimum 2500 hrs in operational mode.
14. Control panel should be easily accessible to use while holding the HHTI with both hands.

Note:- Before acceptance of the store, sample from the Bulk/Lot must be tested for all technical parameters from IRDE, Dehradun.

2.4 PNV Binocular Model -PR 1910BM4

Purchased by: SSB

Year of Purchase: 2009-10

Name of Supplier:

- M/S Bharat Electronics Ltd., Machilipatnam

Names of Vendors who participated in the Tender:

- Supply order placed by MHA

Price Rs. 2,02,000/-

Lead Time:

TECHNICAL SPECIFICATION

1. Light weight should not be more than 1.5 Kg including battery.
2. The Binocular should have I.I. Tube with resolution of minimum 56 lp/mm.
3. Should be water resistant at meter deep for 30 minutes.
4. Range - Detection 400 mtr and recognition 300 mtr (for human being).
- Detection 500 mtr and recognition 400 mtr (for light commercial vehicle)
5. Power source-should be 1.5V/3V battery. The battery should run at least for 08 hrs with IR on and for 15 hrs with IR off (should be compatible to re-chargeable battery).
6. Low battery indication should be provided inside the unit.
7. Field of view 6 degree minimum.
8. Operating temperature - minus 30 degree C to plus 55 degree C.
Storage temperature - minus 35 degree C to plus 60 degree C.
9. It should be supplied in a suitable carrying case.
10. It should have Automatic Gain Control (AGC) as well as Bright Source Protection (BSP).
11. Magnification 4 x or better.
12. Binocular should conform to JSS-55555 for humidity, shock, vibration and rain test - Certificate to this effect from any internationally recognized lab should be provided by the vendor.

Note : For the purpose of these QRs :-

Detection means :- Ability to detect vehicles, structures (man made/Natural) and any movement of man or animal.

Recognition means :- Ability to differentiate between Civilian/Uniformed personnel with man pack, & revealed weapon (rifle and above) and loaded/unloaded animal.

2.5 Self Contained, Positive Pressure & Open Circuit Type Breathing Apparatus

Purchased by: CISF

Year of Purchase: 2009

Name of Supplier:

- M/s Joseph Leslie Drager Mfg Pvt Ltd.,
87-C Leslico House, 3rd Floor, Bhawani Shankar Road,
Off. Prof. V.S. Agashe Marg. Dadar(West), Mumbai

Names of Vendors who participated in the Tender:

- M/s Joseph Leslie Drager Mfg Pvt Ltd., Mumbai
- M/s Vijay Sabre Safety Pvt Ltd., Mumbai

Price Rs. 42,224/-

Lead Time: 1.5 months

TECHNICAL SPECIFICATION

1. **GENERAL:** - The self contained, positive pressure and open circuit air breathing apparatus shall be certified for use by the fire fighters for 45 minutes total working duration.
2. **TECHNICAL SPECIFICATIONS:**
 - a) **Back plate and body harness:** - This shall be made of non-metallic, antistatic, impact, chemical & fire resistant material and manufactured in conformity to EN/DIN/US standard and certified for use by the fire fighters. It shall facilitate mounting of air cylinder through cam lock. The body harness shall be wearer friendly and safe for carrying load while all buckles shall be quick release type.
 - b) **Pressure reducer:** - This shall be so designed so as to meet the air demand for two users simultaneously at a stable pressure on the outlet with inlet pressure varying from 300 bars to 20 bars and shall conform to provisions in prEN 137-2002 class II.
 - c) **Face mask:** This shall be reverted edge seal type and made of flame resistant material conforming to EN 136. The reflex seal on the outer mask shall be so designed so as to facilitate excellent sealing to the wearer's face contour. It shall also be provided with integral inner facemask to reduce dead space, speech transmitter for clear voice reproduction and a wide angle panoramic vision made of polycarbonate material and shall be self-de-misting type. The head straps shall be easy to tighten and quick to release.
 - d) **Demand valve:** - The lung operated demand valve design shall either be titling diaphragm type or piston type. This shall be provided on the facemask and connected to the pressure reducer with the help of rubber hose through airflow and shall activate with the first breath.
 - e) **Pressure gauge:** - This shall be bourdon pressure gauge with luminescent dial with

- pressure making in bar an encased in the fore resistant rubber cover. The gauge shall be connected to pressure reducer through non-metallic rubber hose.
- f) **Hoses:** - The low pressure hoses shall be flexible and non-kinking type and suitably reinforced to withstand 30 bar air pressure while the high pressure hoses shall either be flexible or rigid metallic tube suitably secured to the back plate so as not to obstruct the movement of the wearer.
 - g) **Warning whistle:-** This shall be fitted either on the back plate or provided along with pressure gauge assembly and shall be automatic in operation giving audible alarm of minimum 90 dB intensity at 1 meter distance of low cylinder pressure in the range.
 - h) **'Y' manifold for additional connections:** - The set shall have provision through suitably placed 'Y' manifold to facilitate receiving air from a different source and supplying air for additional facemask.
 - i) **Air cylinder:** - This shall be corrosion and impact resistant and made of light alloy fully wrapped. The size of the cylinder shall be such that it can hold sufficient quantity of air (not less than 1800 liters) for providing 45 minutes total working duration when charged at 300 bars pressure. The cylinder shall be provided with cross flow valve and EN 144+2 compliant. The cylinder shall be duly approved by the chief controller explosive Nagpur and shall be capable of with standing a minimum hydraulic testing pressure of 450bars.
 - j) **Weight:** - The weight of the ready to use set shall not be more than 12.5 kgs.
3. Approval: the complete set shall have relevant EN or equivalent approval and certificate to this effect shall be furnished along with the offer.
 4. Technical evaluation: the technical evaluation of the SCBA shall be subject to the following.
 - a) meeting requirement as mentioned from sr. no. 1 to 3 above and
 - b) Design in conformity to EN/NIN/US standards, conformity certificate and CCOE

2.6 Electronic Dosimeter

Purchased by: CISF

Year of Purchase: 2008

Name of Supplier:

- M/s ECIL, ECIL Post Office, Hyderabad- 560 062 (Andhra Pradesh)

Names of Vendors who participated in the Tender:

- M/s Anjali Incorporation, Mumbai
- M/s ECIL, Hyderabad
- M/s International Environment Consulting, New Delhi
- M/s Electronic Enterprises (India) Pvt. Ltd, Kota

Price Rs. 3,872.22

Lead Time: 6 Months

TECHNICAL SPECIFICATION

1. Detector : PN. Junction Si Semiconductor
2. Measurement Range : 1 uSv to 99999 uSv
3. Display : 6 digit LCD
4. Weight : Approx. 60 Gms

2.7 Multi Zone Door Frame Metal Detector

Purchased by: CISF

Year of Purchase: 2009

Name of Supplier:

- M/s. Optimum Security Solutions,
B.O. 101, Plot No. 06, Anupam Plaza-I, Ghazipur Extn., Delhi-110 096

Names of Vendors who participated in the Tender:

- M/s Bharat Electronics Ltd, Mumbai
- M/s Micro Tech Industries Parwanoo (HP)
- M/s Security Shoppe(India) Pvt Ltd, New Delhi
- M/s Natchu Security Systems, Chennai
- M/s Security Defence Systems, Badi (HP)
- M/s SDS electronics Pvt Ltd, Panchkula, Haryana
- M/s Optimum Security Solutions, Delhi
- M/s Nickunj Eximp Entp. Pvt Ltd, Mumbai
- M/s HCL Infosystems Ltd., New Delhi
- M/s Godrej & Boyce Mfg.Co.Ltd, New Delhi
- M/s Smate India Pvt. Ltd., New Delhi

Price Rs. 1,68,750/-

Lead Time: 1 Month

TECHNICAL SPECIFICATION

1. It should be capable to detect both ferrous and non ferrous metals.
2. Passage dimensions : Height - 200 cm approx
Breadth - 72 cm approx
Width - 57 cm approx

- | | | |
|---------------------|---|--|
| 3. Weight | : | 90 Kg. maximum |
| 4. Power supply | : | 220+/-10VAC, 50, Hz, 12-24 VCD, should be provided with internal battery back-up for 4 Hours minimum. |
| 5. Alarm | : | Acoustic and optical alarm with alphanumeric display height on person bar display (metal locator), low battery indication. |
| 6. Sensitivity | : | Wide range of sensitivity setting and fine tuning, zone wise sensitivity setting required |
| 7. Zones | : | Not less than six zones, covering full height of the instrument. |
| 8. Calibration | : | Manual and automatic by build - in key pad by remote control via a serial/wireless link. All functions should be programmable & controlled by a microprocessor. |
| 9. Counter | : | Intelligent traffic counter for transit |
| 10. Detection | : | Uniform from top to bottom. |
| 11. Throughput rate | : | 25 people per minute. |
| 12. Multiple metals | : | Should be able to detect multiple metal ob of various sizes in all the zones simultaneously |
| 13. Protection | : | Conform to relevant electric safety standard (Supported by test certificates from NABL {INDIA} or other accredited labs from the country of origin of the equipment) |

2.8 PNV Monocular PR1920B

Purchased by: SSB

Year of Purchase: 2007-08 and 2008-09

Name of Supplier:

- M/S Bharat Electronics Ltd. Machilipatanm

Names of Vendors who participated in the Tender:

- Supply order placed by MHA

Price Rs. 1,96,000/-

Lead Time :

2.9 Geographic Information System (GIS) Hardware and Software

Purchased by: BSF

Year of Purchase: 2009

Name of Supplier:

- M/S RSI Softech India Pvt. Ltd., Hydrabad

Names of Vendors who participated in the Tender:

- M/S RSI Softech India Pvt. Ltd., Hydrabad
- M/S NIIT Tech Ltd., New Delhi
- M/S Speck System Ltd., Hyderabad
- M/S Easting House Electronics Pvt. Ltd., Patna
- M/S Sunbroadcast Equipment Ltd., New Delhi
- M/S Erdas India Pvt. Ltd., New Delhi
- M/S Rolta India Ltd., Mumbai

Price: Rs. 22,50,00,000/-

Lead Time: 11 Months

TECHNICAL SPECIFICATION

GIS (HARDWARE)

(A) SERVER FOR FHQ

Processor : Intel Xeon Dual Core 3.0 GHz/800 MHz FSB or higher

Clock frequency : 3.0 GHz or higher

Cache : Min 2 MB L2 per processor

Main Memory : 2 GB upgradable 16 GB PC-2 3200 DDR 2 or higher

Primary system Bus : 4 PCS-X or 2X2 PCI Express with 6 slots-one 64 Bit/133 MHz, two 64 Bit/100 MHz & rest 32 Bit/33 MHz

Number of expansion slots : 2 x 64 bit PCI express

Number of expansion bays : 6 X 6

Network interface : Dual 10/100/1000 mbps ENET

Hard disk : 2

Min. size : 2 x 1.8 TB SAS (one internal and one External) 15 KPRM

Controllers : Dual channel RAID controller with 256 MB

Multimedia and CD Rom : 16 X dual layer DVD writer or higher/better
Diskette (Floppy) Drive/Tape Drive : 36/72 GB DDS, 8mm Internal Tape drive
Monitor Size : 17" TFT or higher
Graphics accelerator : Inegrated PCI graphics accelerator with 16 MB SDRAM or higher
Key board USB : 104 Keys on P/S 2/USB
Mouse USB : Three button Scroll Optical mouse or higher
Serial I/O ports EPP Parallel ports : Serial - minimum 1 and USB minimum 3
Operating System : Windows Enterprise server R2 2003 MOLP - 51 nos with media with Exchange
- 2003 - 51 nos with media and manual + software assurance with 270 CAL User licenses each.

(B) SERVER FOR FIELD LOCATIONS

Processor : Intel Xeon Dual Core 3.0 GHz/800 MHz FSB or higher
Clock frequency : 3.0 GHz or higher
Cache : Min 2 MB L2 per processor
Main Memory : 2 GB upgradeable 16 GB PC-2 3200 DDR 2 or higher
Primary system Bus : 4 PCI-X or 2X2 PCI Exp with 6 slots one 44 Bit, 133 MHz, two 64 Bit/100 MHz & Rest 32 Bit 33 MHz
Number of expansion slots : 2 x 64 bit PCI express
Number of expansion bays : 6/6
Network interface : Dual 10/100/1000 mbps ENET
Hard disk : 2
Min. size : 3 x 146 GB SAS HDD 15 KPRM
Controllers : Dual channel RAID controller with 256 MB
Multimedia and CD Rom : 16 X dual layer DVD writer or higher/better
Diskette (Floppy) Drive/Tape Drive : 36/72 GB DDS, 8mm Internal Tape drive
Monitor Size : 17" TFT or higher
Graphics accelerator : Inegrated PCI graphics accelerator with 16 MB SDRAM or higher
Key board USB : 104 Keys on P/S 2/USB
Mouse USB : Three button Scroll Optical mouse or higher
Serial I/O ports EPP Parallel ports : Serial - minimum 1 and USB minimum 3
Operating System : Windows Enterprise server R2-2003 MOLP - 51 nos with media with Exchange
- 2003 - 51 nos with media and manual + software assurance with 270 CAL User licenses each.

(C) WORKSTATIONS

Processor : Xeon 3.8 GHz with ECC or higher
Clock frequency : 3.8 GHz or higher
Cache : 1 MB L2 Cache 800 MHz Front Side Bus 4 GB 400 MHz DDR2 SDRAM upgradable to 16 GB

Main Memory :

Network interface : Integrated Intel 10/100/1000 NIC, 802.3 LAN

Hard disk with size : 2 x 70 GB Ultra SCSI or higher SATA HDD (4SCSI ports) dual channel RAID controller

Multimedia and CD ROM : 16 x dual layer DVD writer or higher/better

Diskette (Floppy) /Tape Drive : 1.44 MB FDD

Size Monitor : 19" TFT or higher

Graphics accelerator : Wildcat Realism 800/Nvida Quadro

Key board USB : 104 Keys on P/S 2/USB

Mouse USB : Three button Scroll Optical mouse or higher with pad

USB & Serial I/O ports : Serial - minimum 1 and USB minimum 6

Ports : IEEE 1394 Firewire

Operating System : Windows XP Professional or latest with media.

(D) HIGH END COLOUR PLOTTER

Standards : Postscript level 3

Memory : 1024 MB RAM or higher

Format : A0 color Plotter

Interface : USB / RJ-45

Resolution : 1200 x 600 dpi or higher

(E) COLOUR LASER PRINTER

Standards : PCL6

Duty Cycle : 22 PPM

Resolution : 600 x 600 dpi

Format : Letter and Legal size

Memory : 160 MB or higher

Paper capacity : 600 sheets

Interface : USB, Parallel & RJ-45

(F) COLOUR SCANNER

Color Scanner Full size : A0 (36")

Optical RESOLUTION : 800 DPI

Memory : 512 MB

Operation Module : Push button

Interface : SCSI/USB/RJ-45

Note : However, at the time of procurement advanced technology compatible and available hardware may also be taken into consideration for Server, Workstation, Scanner, Plotter and Printers.

(G) GENERAL TECHNICAL SPECIFICATION OF 5 KVA/1 KVA ONLINE UPS

Input : 160V - 260V 50/60 Hz Single phase AC

Output : 230V +/-1% (with alternative setting for 220V+/-1%), 50/60 Hz Single phase.

UPS shall be provided with :

- (a) Serial communication port RS 232 for computer interface for data exchanges of electrical parameters of UPS like voltage current frequency, charging status mode of operation etc.
- (b) Supply output power and charging current at the same time.
- (c) Manual and static by-pass switch for maintenance of UPS

Switching device : IGBT

Switching frequency : 20 Hz

Total Harmonics distortion : 2% maximum for UPS upto 5 KVA and 3% maximum for UPS above 5 KVA on resistive load

Inverter efficiency : Minimum 90%

Overall efficiency : Minimum 85%

Power factor :

- (a) Load power factor better than 0.65 lagging
- (b) UPS power factor better than 0.9 lagging

Overload : UPS shall withstand 20% overload for 10 minutes and 50% overload for one minute

Noise level : At a distance of 1 meter shall be less than 55 dB (A).

Protection :

- (a) Over voltage, short circuit and overload at UPS output terminal
- (b) Under voltage at battery terminal
- (c) Over shoot and under shoot shall not be greater than 4% of rated voltage for duration of 40 m Sec.

Indicators & Meters : Mains presence, Battery charging and discharging, Low battery voltage

Digital meter shall be provided for : Input AC voltage, Output AC voltage, current and frequency, Battery voltage and current.

Backup : 60 min for 5 KVA and 30 min for 1 KVA

Battery bank : UPS shall be supplied with SMFVRLA battery on the following make; Exide, Panasonic, Hitachi.

GIS (SOFTWARE)

Terms used

Commercial off the shelf GIS: COTS-GIS

Customized GIS-for BSF

Features

Compatibility with Available GIS data/formats (COTS/GIS)

Features description

- a. The GIS package must be compatible with GIS/Mapping data & formats supplied by CAMS & SOI. Digital data is supplied by these agencies in the formats listed below :-

Vector Data :

- DGN maps
- DVD-1 data

Raster Data :

- Satellite images aerial photographs and scanned images available in various formats such as Tiff, GeoTiff, BMP, JPG CAL, RLE, GIF, PCX, PNG etc. Handle satellite images of different types - IRS 1C, 1D 1KONOS, QUICK BIRD etc. Facilities should be available to superimpose the image on 2D/3D digital map information.

GIS Data: MGE data

- b. No loss should occur, while reading the DGN data supplied by CAMS/SOI, in terms of the following :
 - i) Accuracy and symbology as appearing in original data.
 - ii) Texts, symbols, linear features, shape etc. shall display exactly as it appears in the original data.
 - iii) It shall display and retain complex strings, for example roads, telephone lines etc.
 - iv) It shall accurately read Projection Systems and co-ordinate information as defined in original data.
 - v) Reading height values from the counter files
 - vi) The different layers shall be separated out automatically and displayed with proper representation as per CAMS/SOI standard.
- c. Digital vector maps supplied by CAMS :

Preference will be given to software packages having facility to access and edit DGN maps supplied by CAMS/SOI in Native Format without any conversion/translation.

However, software packages using data converters/translators for accessing/editing DGN files can also be considered provided NO LOSS should occur, while reading the DGN data as mentioned under point 1(b)(i) to 1(b)(vi) above.
- d. Metadata: The application software should be capable of reading the attribute information stored in DBMS such as Oracle or MS Access, if linked with the map elements.
- e. The software should be able to read the height information from the contours (line strings and complex strings) without any database interaction.
- f. The application software should be capable of reading the layer and feature definition, if present in the source data.

- g. There should be no loss in the Cartographic information linked with the source map in terms of projection system, datum and Ellipsoid definitions and map scales.

GIS Data Preparation and Manipulation

- a. Creation of GIS project: The software should be able to store data coming from the above sources under a GIS project for further display and analysis.
- b. Map updation: The software should allow user to make changes on the base map. For this purpose, GIS software should provide drawing tools/CAD tools for creation of lines with different styles, polygons, text, complex strings, symbols etc with cartographic precision.
- c. Updation of metadata: The user should be able to create, link and modify user-defined attribute data, stored in DBMS, to map entities.
- d. Appending of photographs and multi-media files : The software should give the facility to append and view photographs/audio and video clips to the map entities as an attribute.
- e. Creation of Military Grids: Ability to create grids and graticules in different projection systems with user-defined parameters. Military grids can be created in the layout window.
- f. Settings for Scale based viewing: The software should be capable of defining custom zoom levels (apparent view scale) for different maps and map elements. Eg: If the user currently viewing a 1:250,000 topo-sheet performs a Zoom-in operation, then a more detailed topo-sheet, i.e. 1:50,000, should become visible. Similarly, if the user is currently viewing Class II roads and I. As soon as the user zooms out, the Class II roads should not be visible and only the Class I roads should be visible. On click of IKON the next large scale map of the required location should be displayed. This should be available from 1:250,000 scale to 1:25,000 scale maps.
- g. Placement and Mosaicing of Raster Data
 - i) Placement of raster data in the background with options to move, rotate, transpose, flip, mirror, scale etc.
 - ii) Transparency and translucency display to enable viewing of multiple images
 - iii) The software should be capable of geo-referencing and moseying of raster images.
 - iv) The software should support Raster compression formats such as iTiff, MrSID, JPG, ECW and RLE.
- h. The software should support unlimited undo and redo level and backspace based undo for digitization of line features.
- i. User-defined symbols/Symbol Editor: Tool to create, store fresh symbols and also modify the existing symbols in the library should be made available.

Warping: Perform Raster image i.e. RLE, Tiff etc warping on defined geographic projection. Geo-referencing should also be done.

Viewing of GIS enabled Land Data (COTS-GIS)

- a. Opening maps/overlays for display: The user should be able to selectively view and display the land maps and overlays for the purpose of visualization.

- b. Read Database Attributes : The user should be able to read the database attributes (metadata) by clicking on the map elements. The software should have native connection to DBMS such as Oracle, MS Access, ODBC etc.
- c. 3D Visualization: The software should also enable 3D DTM visualization and photo-realistic rendering. The software should allow generation of panoramic views.
- d. Plotting: Should hybrid (raster and vector) plotting to various devices like inkjet, laser etc.

Basic 2 D GIS Analysis (COTS-GIS)

- a. Layer/Feature based Display: The software should support a layer based/feature based display for the purpose of selective viewing of certain features such as roads, water bodies etc.
- b. Scale/dependent Display: The software should allow selective visualization of different maps and map elements at different zoom levels.
- c. Coordinate Display: In order to know the exact ground location of different positions on the map, the software should allow coordinate readout in terms of Latitude/Longitude or Easting/Northing values on-the-fly on the map.
- d. GIS Queries: A query wizard should enable the user to interactively create any valid SQL query to query on the associated database. The query results should be depicted graphically on the map and in report form.
- e. Creation of Thematic Layers. The package should enable generation of theme-based layers over the raster map.

Extended 2D GIS Analysis (COTS-GIS)

- a. Generation of buffer layers and queries on the buffer zone.
- b. Spatial Analysis: This shall involve operations for creating spatial layers, combining two or more layers into an overlay, and analyzing the overlay.
- c. Network Analysis: The software should be capable of finding the shortest path and the most optimum path between two points on the basis of given constraints. The software should allow the user to input the start point and destination point through mouse pointer or through a pair of Easting, Northing and the shortest path should be computed on the map, on the basis of a given criteria such as road width, length, journey time etc.
- d. Coordinate Display: In order to know the exact ground location of different positions on the map, the software should allow simultaneous coordinate readout in terms of Latitude/Longitude along with Easting/Northing values (4/6/8/10 digits) on-the-fly on the map.

Map Marking and updation of attribute data (COTS-GIS)

- a. Map marking: The software should provide tools for creation of user-defined overlays (for recording observations/deployments) containing MIL symbols, lines, polygons, text etc.
- b. Library of Military Symbols: The software should provide a library of commonly used military symbols with their essential attributes.
- c. Updation of attributes data: The user should be able to create, link and modify user-

defined attribute data, stored in DBMS, to the map elements.

- d. Appending of photographs and multi-media files: The software should give the facility to append and view photographs/audio and video clips to the map entities as an attribute.
- e. The software should allow automatic saving of changes made to map or database.

3D GIS Analysis (COTS-GIS)

- a. DTM Creation: The software should be capable of creating a Digital Terrain Model out of DTED, ASCII data and contour maps for the purpose of 3D visualization, flythrough and analysis. It should have provision to include several terrain features like contours, spot heights, check points, faults, ridges, break lines, text, valleys, planar areas etc. during interpolation of DEM.
- b. DTM Visualization: The software should also enable 3D DTM, visualization and rendering.
- c. It should be able to load multiple DTM data into one working environment to take care of 3D analysis of adjacent areas.
- d. Dynamics display of height of each and every point on the map.
- e. Line of sight between two points on the map, with ability to vary viewer and target height and to introduce intervening obstruction height in LOS/Visibility.
- f. Slope -aspect analysis of each point on the map.
- g. Slope maps: Provision to generate thematic maps showing slope-range polygons, so as to determine the steepness of terrain.
- h. Creation and visualization of 3D perspective and orthogonal view from DTED data.
- i. The software should allowing merging of two DTM models.
- j. Draping of a user-defined vector layer on 3D perspective view.
- k. Draping of raster image of same area on the 3D perspective view
- l. Visibility fan around a particular point showing visible and non-visible areas, with ability to vary viewer height.
- m. Path profile of selected route.
- n. Flythrough through a pre-determined path as well as ability to vary height, roll and change direction etc. during flythrough.

Data Security and History Tracking/Event Player

- a. History Tracking/Event Player: (for the history of events/information/deployment with date & time stamp)

The software should have facility of playback of own/enemy movement in a given sector/region during a given time period. It should also allow colour-coded history playback on the map on the basis of date, creator, type of movement and location. This utility should allow user to visually compare history changes, undo or redo any event/activity by tracking through the history log. Overlays access history, time based changes to symbols and captured shot facility should also be made available.

- b. **Digital Signatures:** The software should have the capability to assign digital signatures (of individuals or an organization) to digital file/data so that authenticity of data & signing authority is maintained. Any changes to the content of the file/data, after it has been digitally signed, should invalidate the data for further use. Digital signatures would be incorporated in WAN environment.
- c. **Digital Rights:** System should be able to assign different Access Rights such as View, Edit, Copy, Print, Setting an Expiration Date to the data etc for secure usage of the digital file/map data.
- d. **Animation:** The software should allow creation and playback of 3D animation movies with facility to define actors and their movements, paths of animation, frames and camera movements.

Technology Compliance

- a. **Open GIS Compliance:** Ability to store and retrieve spatial and non-spatial data in Oracle 8i/9i. The software should support OGIS Simple Feature Model (SFM) and Oracle Extensions to it. The software should have a hybrid storage environment allowing users to choose what is stored in Oracle Spatial and what is stored in traditional vector and raster file formats.
- b. The system should support Window platform including Windows 95/98/2000/XP.
- c. Systems should support NSDE format as & when made available.
- d. The software should have a non-modal and event driven GUI.
- e. The system should have a simple-to-use user interface.
- f. The software should enable access to images located at a remote location on the LAN/WAN. This should be based on the Internet Imaging Protocol (IIP), thus allowing a fast access and navigation of MBS and GBs a data even on a low bandwidth connection.
- g. **Customization:** The system should enable customization of interface, toolbars etc. It should be custom programmable using industry-standard programming tools such as VB, Java, C, C++ etc.
- h. **Scalable/Upgradeable:** The system should be modular so that it is seamlessly scalable/upgradable to incorporate high-end GIS and data analysis functionalities by the vendor in future.
- i. **Client/Server Architecture:** The application should support client/server architecture, with clients having restricted access to data.
- j. **Security Features:** In order to enable authenticated access to the maps and map elements, the application software should allow incorporation of security features such as Digital Signatures and Digital Rights.

Mandatory GIS Data/format compatibility (COTS-GIS)

It is mandatory for the vendors to have completed Compatibility with data/formats supplied by Mil Survey - CAMS and SOI as mentioned under Appendix "B-8".

Advance simulation tool and visualization

- (a) Software should have tool to depict the simulation of real time incidents

- (b) Viewer: Software should be compatible with the advance simulation images and it incorporates the data of incidents.
- (c) Other relevant features relating to should be incorporated.
- (d) Software should have capability to build simulation and virtual effects etc for depiction of real time incidents on digital map. {Customized GIS for BSF}

Advance GIS based decision support solution

Customized GIS software should have facility for spatial and temporal query solutions based on the real time data for operational commanders. These decision supports should cover the following areas.

- Observation related Analysis
 - Effective Command and control support
 - CI analysis & pattern of activities
 - Demographic behaviors
 - Disaster Scenario
 - GIS based probabilities analysis etc.
- {Customized GIS for BSF}

Services

- (a) Further as per user's requirement:
 - (i) Creation of custom attribute tables - BSF designed
 - (ii) Creation of custom dialog boxes, icons, wizards etc.
 - (iii) Facility to create CD's containing map data and attribute tables for distribution
 - (iv) Customized Web Pages: Creation of custom web pages for BSF website
- (b) AMC charges for Five Years.
- (c) Training - A program to be detailed using data generated on site and may if required. The training to address following:-
 - All aspects of handling various Modules.
 - Use of different types of data including data export and import.
 - Creation of trainers for further training of personnel.

Training in updates from time to time at least for One week.
- (d) Documentations:
 - (i) CDs/User manual/User guide
 - (ii) Installation Guide
 - (iii) Quick start manual
 - (iv) Source Code listing
 - (v) Training manuals customized to suite BSF requirements/workflows.

MANDATORY GIS COMPATIBILITY WITH MILITARY SURVEY & SOI DATA

The GIS Software must be compatible with GIS/Mapping data & formats supplied to CAMS & SOI.

Format in which Digital data is supplied by CAMS/SOI

DGN Data

Mandatory compatibility for the Vendor for their GIS software

Digital vector maps supplied by CAMS:

Preference will be given to software packages having facility to access and edit DGN maps supplied by CAMS/SOI in Native Format without any conversion/translation.

However, software packages using data converters/translators for accessing/editing DGN files can also be considered provided NO LOSS should occur, while reading the DGN data in terms of the following (i to vi)

- i) Accuracy and symbology as appearing in original data supplied by CAMS/SOI.
- ii) Texts, symbols, linear features, shapes etc. shall display exactly as it appears in the original data.
- iii) It should display and retain complex strings, for example roads, telephone lines etc.
- iv) Should accurately read Projection Systems and co-ordinate information as defined in original data
- v) Reading height values from the contour files.
- vi) The different layers should be separated out automatically and displayed with proper representation as per CAMS / SOI standard.

Oracle Dump

Flat attribute data pertaining to the DGN maps

DTED

The USGS data format for visualization of 3D terrain.

DVD

The software should have facility to read and manipulate latest version of DVD format.

Raster Data

Satellite images, Aerial photographs and scanned images available in various formats such as Tiff, GeoTiff, BMP, JPG, CAL, RLE, GIF, PCX, PNG etc.

Ellipsoid Parameters stored in the DGN data

NSDE

The s/w should have facility to read and manipulate. CAMS/SOI will supply the scanned raster maps with boundary of the map given in latitude and longitude. (Geo-referenced). Handle satellite images of different types - IRS, 1C, 1D IKONOS, QUICK BIRD etc. Facilities should be available to superimpose the image on 2D/3D digital map information.

It contains the boundary information of the map for Geo-coding and geo-referencing.

Should accurately read Projection Systems and co-ordinate information as defined in original data

National Spatial Data Exchange Format will be the standard format for data exchange. The vendor to provide the necessary translator for compatibility of their GIS software with NSDE format.

DEVELOPMENT OF CUSTOMIZED GEOGRAPHICAL INFORMATION SYSTEM (CUSTOMIZED GIS FOR BSF)

SCOPE: To carry out end user customization of a generic COTS GIS suite of products and supply GIS software products as per this RFP.

1.0 Introduction

BSF is presently executing an system Project called GIS-BSF in the same pattern as per Army - GIS. Under this project, a Information Decision Support System capable of automatic the Frontier zone of BSF and presenting Decision support options to field commander (Units/Sectors) is to be developed. Application Software packages are to be taken up development under various development contracts to realize this system within sanctioned the frame.

The application software has been broadly divided into four functional subsystems viz

1. Operations (OPS)
2. Intelligence (INT)
3. Administration (Adm Pers) and
4. Terrain (TRN)

The terrain Function is the common and underlying fabric for all other functions.

2.0 Statement of Work (SOW)

The broad terrain requirements as identified for the two subsystems Operations and Intelligence are detailed below in Section 4.

In order to realize all these terrain functionalities and meet the terrain requirements, the Customized GIS for BSF envisaged under this Paper will have the offer the functionalities listed in Section 3.

The primary aim of customization of core GIS is to address and realize all Terrain requirements of BSF-GIS and integrate with other BSF subsystems.

The inputs to the GIS under will be in data formats.

Once the core GIS is customized, it must be thoroughly tested in the environment specified for BSF GIS.

3.0 Common facilities to be provided by the Customized GIS for BSF

Following facilities have been identified to be offered by the CUSTOMIZED GIS FOR BSF. It is possible that majority of functionalities are built into the core GIS and some are to built around the core GIS through customization. The customization will fill the gaps, if any, offering all the functionalities listed.

S.No. Facility to be offered by Customized GIS for BSF

1. To Select and retrieve relevant map or set of maps of particular scale of particular area/from a set of GR points and place name/a set of latitude, longitude and place name/of particular land mark/specific topo-sheet numbers.
2. Read and display geo-referenced raster maps in TIFF format, with both latitude and longitude in DMS and Easting, Northing (4/6/8/10) digits displayed on the fly at the bottom of the displayed map.
3. (a) Read, (b) display and (c) edit vector maps in DGN format, with both latitude and longitude

- in DMS and Easting, Northing (4/6/8/10) digits displayed on the fly at the bottom of the displayed map.
4. Create compose and display thematic layers of vector maps/Theme based display/composition of a map theme wise/Layer wise/feature wise display. The system should display all the layers with relevant names of themes in the legend window and give the user option to select or deselect layers through click of mouse. Also user should be able to set some of the themes as default for the display of maps.
 5. Dynamic reading of correct values of latitude and longitude (DMS)
 6. Dynamic reading of correct values of easting & northing (grid ref.) EN in (4/6/8/10) digits.
 7. Query and analysis of basic map entities displayed in the map, (Spatial data). The result of the query should be displayable in a separate window, which can be customizable so as not to obstruct the view area of the map. E.g. top bar/bottom bar of the display window.
 8. a) Query and analysis of non-spatial (GIS) data. (Oracle dump tables attached to map entities)
b) Structured, unstructured and semi structured query on both spatial and non-spatial data pertaining to the map. Saving the query and its result in a query bank/buffer for further analysis or viewing.
 9. To Zoom in / Zoom to full extent / zoom to next Extent/Zoom to active layer/Zoom to previous Extent/Zoom to activate scale of the displayed map.
 10. To Change display properties like color, display tools frequently used mil symbols etc. The user should pick some frequently used MIL symbols and should be able to place as an icon for further use.
 11. To Pan/Pan In one of the cardinal direction of the display map.
 12. Creation of military symbols from textual-equivalent of the MIL symbol e.g. 161 INF DIV and changing the color and scale of the MIL symbol thus generated before placing it on the desired location of the map. The desired location will be inputted through keyboard in DMS form or in EN form. Storing all the MIL Symbols in a library for further use.
 13. Creation of working view of desired military symbols from the library in the working view.
 14. Retrieve a MIL symbol from the existing library and place at any place on the displayed map as per choice of user through mouse pointer or explicit grid reference or reference through DMS.
 15. Writing of text in different font and orientation on the map (Map annotation)
 16. Creation of a user defined overlay containing MIL symbols, Text and spatial and non-spatial data. Saving the user defined layer in a user designated file name (user layer). Edit the changes on the map and save them in the user layer. (Temp. Change incorporation)
 17. Save and display the user layers in a pre designated sequential manner and display them as slide show. (Programmed briefing Sequence)
 18. Create, link and manipulate user defined attribute table to map entities.

19. Linking of more than one table to an entity.
20. Appending photos and video clips
21. Query and analysis of user defined entities.
22. Find direct (by air) distance between two points
23. Find distance along a road between two points
24. Find shortest path between two points
25. Find optimum path by varying the constraints
26. Simultaneous display of adjacent maps/Seamless mosaicing of adjacent maps 2 maps / 4 maps / 16 maps
27. Query and analysis on entities on the mosaic maps.
28. Creation of buffer zones and queries on the buffer zone.
29. Calculation of area designated by user-defined polygon on the displayed map.
30. Dynamic display of height of each and every point on the map.
31. Line of sight between two points on the map.
32. Introduction of intervening obstruction height in LOS/Visibility.
33. Slope-aspect readout of each point on the map.
34. Creation and visualization of 3 D perspective and orthogonal view from DTED data.
35. Varying of light intensity and sun angle for the 3D view.
36. Draping of a basic vector on 3D perspective view.
37. Draping of user defined vector layer on 3D view.
38. Draping of a raster image of same area on the 3D view.
39. Fly through a predetermined path.
40. Various of height, yaw, pitch, roll and change direction etc. during flythrough.
41. Transmit user defined overlay from client to server, from server to server and from client one LAN to a client of another LAN in a WAN.
42. Get two overlays from server and merge them into one overlay and save.
43. Network analysis on mosaiced map and find the Shortest Path and alternate path. The software should allow the user to input the start point and destination point through mouse pointer or through a pair of EN and the SP should be computed on the map. The system should give a facility to store a series of intermediate map entities e.g. place name along with EN in a file describing the shortest route.
44. Visibility fan around a particular point.
45. Path profile of selected route.

46. Variation in viewer and target heights in LOS/visibility analysis
47. Placing of user defined symbols on 3D models.
48. Creating and linking of user defined tables to mil symbols on 3D models
49. Text to graphic conversion and vice versa. Given a series of EN and Mil SYM name in a database, the system should display them on the map. Also give a map and MIL symbols displayed on the map and text annotated on it and the system should save them in a database. The report of such saves should be generated in a screen for print out.
50. Viewing of symbols as display scale independent/dependent depending on users choice.

4.0 Broad Terrain Requirements of OPS and INT

This section lists the Terrain functionalities required by the two subsystems of BSFIDSS. The two subsystems will be accessing the CUSTOMIZED GIS FOR BSF through function calls/APIs to achieve and offer the terrain related requirements expected of them. The CUSTOMIZED GIS FOR BSF must be able to offer and support all these functionalities.

a) Operations Sub system - Terrain requirements

- (i) Overall deployment of own troops.
- (ii) Overall and detailed enemy deployment including artificial obstacles (Canals, Ditch Cum Bunds, etc) in enemy territory.
- (iii) Sector wise deployment of own and enemy troops
- (iv) Deployment of own and enemy forward zone elements including surveillance elements.
- (v) Minefield layout showing landmarks, boundary of the mine field, alignment of strips and density of mines.
- (vi) Details of bridges/sites earmarked as reserved demolition
- (vii) Areas earmarked for denial
- (viii) Vulnerable areas and vulnerable points including important communication centers over the entire zone.
- (ix) Layout of artificial obstacles like DCB/Canal with characteristics like width, depth, gradient and so on of the obstacle available for every 1 KM of its length or wherever the attribute value changes take place.
- (x) Gun densities available on a particular approach and over the entire sector
- (xi) Graphical display of own and enemy artillery gun ranges
- (xii) Distance from International Boundary
- (xiii) Patrolling program at Frontier/Sector/Unit level
- (xiv) Demographic details of towns/villages

- (xv) Location of terrorists encounters infiltration routes with related details
- (xvi) Areas usually waterlogged or affected by floods
- (xvii) Going conditions in a particular area
- (xviii) Communication network including characteristics of roads tracks
- (xix) CA/CP task overlay to include objectives, RV, release points, axis of attack minefield gap, location of armor and infantry tasked.
- (xx) Engineer support plan overlay to include location of various staging area, Bridge marshalling area, Engineer assembly areas and so on.
- (xxi) Obstruction crossing control overlay to include assembly area, waiting lanes including their marking lanes control posts, crossing sites/bridge dispersal point, area of bridgehead including the alignment of obstacle.
- (xxii) Separate armor overlays for defensive/offensive tasks to include their harbor deployment forward zone, plans for moving back, deployment on main defense, battle formation for lean on operation advance/attack, breakout, location of 'A' vehicle waiting area, move, induction bridge head protection armor and breakout armor.
- (xxiii) ATGM and Mechanized Infantry overlays for defense/attack, to include like deployment pattern.
- (xxiv) Aviation overlay including location of support base/helipads, location of Forward Area Armament & Refueling Point, and operating ranges.
- (xxv) SATA plan overlay to include deployment, area coverage and move plans.
- (xxvi) AD plan overlay to include number of units/sub units, Location of equipment ranges and area coverage.

b) Intelligence sub system - Terrain requirements

- i) Enemy activities over the entire corps zone sector wise.
- ii) Enemy dispositions
- iii) Details of enemy defense including gun positions, Anti-Tank ditches, individual weapons sites, strong points and defense works.
- iv) Going in a particular area showing the state of roads, tracks and classification bridges.
- v) Pattern of enemy artillery and mortar firing over a period of time. Detailed shelling include date, time, targets, number of rounds, rate of fire, and location from which enemy guns or mortars were fired.
- vi) Enemy minefield layout

- vii) Gaps in terrain information for tasking
 - viii) Logistics areas at corps, division and brigade level and deployment of element like refilling points in each sector.
 - ix) Existing communication network and alternate routes, sector wise
 - x) Availability of local resources like water, timber and so on.
 - xi) Deployment of medical resources
 - xii) Contingency logistic plan at Frontier/Sector, unit level.
- c) Any necessary modification / up gradation required are considered essential should be taken care by the Firm during customization period which is for two years after the warranty.

2.10 Global Positioning System (GPS)

Purchased by: CRPF & BSF

Year of Purchase: 2009-10

Name of Supplier:

- M/s GPS India Network Pvt. Ltd., New Delhi

Names of Vendors who participated in the Tender:

- M/s Elektronik Lab., Chennai.
- M/s GPS India Network Pvt. Ltd., New Delhi.
- M/s Accord Software & System Pvt. Ltd., Bangalore.
- M/s Interchain Solution Pvt. Ltd., Bangalore.
- M/s Asin Industries, New Delhi
- M/s Elcon Technologies, Gurgaon

Price: Rs. 16,363/-

Lead Time: 3 Months

TECHNICAL SPECIFICATION

a)	Navigation Features	
i.	Routes	Minimum 50 routes with compatible SD memory card
ii.	Track Back	Storage of Track Log files should be provided
iii.	Map Datums	Should have the facility for user-defined datum with inbuilt Standard datums including Indian datums.
iv.	Coordinates	Late/ Lon, UTM, MGRS (Indian GR system) with facility of selecting any of the Indian zones) and other grid based on user defined requirements.
v.	Navigation Screens	Should Display Battery status, own position, compass, graphical plot, speed and time, total distance covered and cross track error.
vi.	PC Interface	Should provide cable with software to upload and down load data with high speed USB Port.
vii.	Alarm	Off track visual indication and arrival audio alarm
viii.	Way point icons	Should be provided.
ix.	Compass	Should have built in Electronic compass for real time direction indication without GPS fix.
b)	Performance	
i.	Receiver	Min 12 parallel channel receiver
ii.	Acquisition	≤ 20 seconds hot, ≤ 60 seconds warm and ≤ 3minutes cold.
iii.	Mapping units and software	Loading of Maps of user specific format in the GPS unit along, with map loading software should be provided.
c)	Update rate	One per second continuous
d)	Accuracy	< 10 meters
e)	Power (source)	Rechargeable Batteries and compatible Battery charger with option of standard AA batteries
f)	Physical	
i.	Weight	Max 300 grams with batteries
ii.	Display	High contrast Color Display with backlighting of display
iii.	Key board	Should have keys or multi – function keys for easy & quick operations like navigations, Setup, illumination, Goto, Point logging and marking
iv.	Case	Ruggedized and water proof.
g)	Temperature Range	-10 ⁰ C to 60 ⁰ C
h)	Memory	Memory back up – Minimum 1 GB additional memory through SD card should be provided with the unit.

2.11 Video Camera Recorder

Purchased by: NSG

Year of Purchase: 2009-10

Name of Supplier:

- M/S Videology, Hauz Khas, New Delhi

Names of Vendors who participated in the Tender:

- M/S Mico Electronic & Electrical Delhi
- M/S Artek Enterprises, Delhi
- M/S Videology, Hauz Khas, New Delhi

Price Rs.2,76,305/-

Lead Time: 1 Week

2.12 Hand Held Search Light (without remote and with remote)

Purchased by: SSB & ITBP

Year of Purchase: 2007-08 & 2008-09

Name of Supplier:

- M/S Security Instruments 23/2 (1st floor), Punjabi Bagh extension New Delhi-26
- M/S Static Systems Electronics Pvt. Ltd., 413, Vishwadeep Tower, Janakpuri, New Delhi

Names of Vendors who participated in the Tender:

- M/S Security Defence systems industrial Area Baddi (HP)
- M/S Nikon Electronics Pvt. Ltd., Hyderabad.-44
- M/S Joseph Leslie & Company Mumbai
- M/S Khurana Security Systems, 980 Industrial Area, Phase-II Chandigarh
- M/S Garron Security Systems Mohali
- M/S Security Instruments, New Delhi.
- M/S Static Systems, Electronics Pvt. Ltd. New Delhi.
- M/S SDS Electronics Pvt. Ltd Panchkula (Haryana)
- M/S Lotus Machines(P) Ltd. Chandigarh

Price Rs. 5737.50 without remote and Rs. 6918.75 with remote

Lead Time: 8 Months

TECHNICAL SPECIFICATION**1. Casing/Body:**

- (a) Casing/body of HHSL should be tubular heavy duty water resistant and one piece moulded with integral handle of ABS. It should be light, impact proof and corrosion proof. Should be able to withstand impact from one metre on hard surface.
- (b) Maximum weight including the battery=4.3 kgs.
- (c) Length maximum =35cms
- (d) Front dia maximum=22 cms
- (e) Rear dia maximum= 19 cms

2. Construction:

- a) Modular construction consisting of replaceable modules for ease of servicing/repairs.
- b) The lamp shall be replaceable by unscrewing the front cover.
- c) The battery and blown fuses can be replaced without disturbing electronic circuit by unscrewing the back cover.
- d) Colour of the casing should be preferably black or olive green.
- e) Makers name shall be clearly printed on the body of the cabinet.
- f) Operational instructions in brief shall be printed on the casing of the body.

3. Operating Temperature: Equipment shall be able to operate satisfactorily in the temperature range of -20°C to 55°C and 95% RH at 40 °C. Lab certificate should be furnished by the firm alongwith tender documents.

4. Battery: Rechargeable sealed 12 volts and minimum 7 AHC maintenance free batteries.

5. Housing of Battery:

- (a) Housing for the battery should be provided in the cabinet/casing of equipment.
- (b) There should be adequate space around the battery in the battery housing for dissipation of heat developed in battery while charging.
- (c) The battery fuse should be easily accessible from outside for ease of replacement.
- (d) The battery compartment should not be over crowded by placing electronics all around it.
- (e) All electronics should be placed on lamp end of the search light.
- (f) Electronics should not be in direct contact with body of the battery.
- (g) The housing is such that the battery could be replaced easily.

6. Circuit:

- a) Glass epoxy PCB.
- b) Electronics component nomenclature should not erase.

- c) Wire should be heavy duty.
 - d) Tantalum capacitor should be used.
 - e) PCB should be easily removable for repairs.
 - f) Moulded modules should not be used at any stage.
 - g) Electronic circuit should not be sealed at any stage.
 - h) Any additional circuitry for facilitating like traffic lights, LCD display torch light etc will not be acceptable to avoid complexity in circuit.
- 7. Minimum Continuous Operation:** Should operate minimum of one hour continuously.
- 8. Wiring:** Wiring should be neat and clean using minimum number of wires for case of serviceability. Wires should be heavy duty.
- 9. Switches/Selector:** Suitable control for ON/OFF and function like flasher, dimmer and timer. Single rotary selector for all the following modes:
- a) Continuous/direct light
 - b) Preferably 2 positions for dimmer to extend battery life to 2 and 5 hrs respectively.
 - c) Flasher to give 45 flashes (± 2 flashes) per minute.
 - d) Timer 1 minute.
 - e) Remote control (when provided as an option with search light)
- 10. Battery Status:** Low battery indicator and DC blown fuse indicator shall be provided.
- 11. Beam Distance/Range:** Search light should be able to detect a group of moving persons at a distance of 400 meters minimum.
- 12. Reflector:**
- a) Parabolic reflector mounted in the shock resistance cap of good quality rubber.
 - b) Sealed/glass beam reflector should not be used.
- 13. Front Glass:** The glass should be of a good quality and should be heat and shock resistance. It should not crack when water droplets fall on it when used continuously.
- 14. Shoulder Straps:** Shoulder straps should be adjustable, should be minimum 150cms long 3cms wide, made of good quality nylon and the metallic part to connect the strip to the search light should be coated with non shinning paint. Strap should have a pad of minimum 20cms long 5cms wide 3cms thickness.
- 15. Battery Charger:**
- a) In built battery charger.
 - b) Input voltage 90 to 270 volts, 50 HZ single phase AC.
 - c) Charging time 8 to 10 hrs.

- d) Charging status: Single LED to indicate Bty is on charging.
- e) Adequate protection shall be provided against short circuit, bty. Over charge, bty. deep discharge and reverse polarity.
- f) When battery voltage drops to around 10.5V advance low battery indication should be provided through LED and battery should cut off at 10.5V ($\pm .2V$)

16. Resting Support: Should be provided on front and back cover plates as well as on the body of the casing.

17. Power Cord: 3 meters long fitted with suitable connector.

OPETIONAL ACCESSORY

18. Remote Control:

- a) The transmitter should work on 9V/12V Battery.
- b) Dimension of Tx unit:- 80mm x 50mm x 20mm (± 5 mm) excluding the length of the antenna.
Range minimum 100 meters.

19. IR Filter: Should have IR filter which can be attached or detached with ease. IR collar should be able to jack on the Hand Held Search Light.

20. Specification of wired control:

- a) Length of the cord 100mtrs minimum.
- b) Cord shall be spooled on a plastic or metallic reel having knob for spooling and mounted on a power coated metal frame.

2.13 Passive Night Vision (PNV) Sight for INSAS Rifle and LMG

Purchased by: BSF

Year of Purchase: 2010

Name of Supplier:

- M/S BEL Machillipatnam

Names of Vendors who participated in the Tender:

- Single Tender

Price: Rs. 3,06,500/-

Lead Time: 13 Months

2.14 Pneumatic Telescopic Mast System with Allied Accessories

Purchased by: CRPF

Year of Purchase: 2009-10

Name of Supplier:

- M/s Kunta International, C-14 Sector-64 Noida-201301

Names of Vendors who participated in the Tender:

- M/s. Kunta International, Noida
- M/s ResQ Technologies, Ahmedabad
- M/s Applied Communication & Controls, Delhi
- M/s Kadevi Engineering Company Pvt. Ltd, Hyderabad

Price Rs. 1,67,149/-

Lead Time: One Month

TECHNICAL SPECIFICATION

SI. NO	Parameters	Specification
1.	Fully Erected Height	21 Meters \pm .20
2.	Fully Retracted Height	3.6 Meters \pm .1
3.	Head Load	10 Kgs max
4.	Diameter of body section (Main mast)	Not exceeding 135mm
5.	Guy ropes radius	4mm (Not less than 4mm)
6.	Guy radius	7 meters
7.	Guy ropes for three peg system	12 No. (3x4)
8.	Application	Ground Mounting
9.	Type of operation	Pneumatic-Foot pump only
10.	Sway	\pm 3 degree
11.	Rotation Azimuth	\pm 180 degree azimuth plain
12.	Enviromental Specs	MIL –STD 810E or JSS 55555
13.	Weight of Mast	<70 Kgs
14.	Standard accessories:- <ul style="list-style-type: none"> ● Base Plate of 500mm x 8mm (\pm 0.5mm) diameter with cup & nails of 600mm x 16mm (\pm 0.5mm)size(as per requirement) ● Hammer(5 lbs with wooden handle) ● Foot Pump:Double cylinder,Max Air Volume:650 cu cm per stroke with 2 mtrs long rubber pipe having brass nozzle at open end to match with pneumatic mast nozzle. ● SS Guy ropes of 4 mm radius with guy Tensioner as per requirement. ● Ground mount pegs of 1200mm(\pm0.5mm)long with arrangement for fitment 4 Nos guy ropes of standard size as per requirement . ● Lightening Protector complete. 	

Description :-

(i)	The masts should be a made of high strength heat treated aluminium alloy HE30-T6 Tubes ,light weight ,and high tensile ,along with precision machined guide ,locking collars and guy holder.The mast should withstand the adverse environmental condition such as high and low temperature and difficult field condition.
(ii)	The mast should be erected by using a foot pump.
(iii)	The mast could with stand wind speed of up to 120 Kms/hour for short duration and 80 Kms/hour for regular operation with all guys ropes tightened .
(iv)	The mast should stay erected condition without air pressure for long periods.Each tubes moves on Teflon bearing and high quality air seals.
(v)	Each section should be hard anodized & the body along with locking guide & guide collars is Olive Green painted.
(vi)	All mild steel parts should be a hot dip galvanized to with stand harsh environmental conditions.
(vii)	The masts should be approved to rigrous MIL STD 810E or JSS-55555 for environmental standard for operation and storage.
(viii)	The complete mast system should be included all needed accessories for its erection ,such as base plate ,spikes,foot pump,pegs,Hammer,stainless steel guy ropes ,guy tensioner,clamps etc.
(ix)	All guy ropes should be of stainless steel and radius of 4mm.
(x)	Base plate with cup ,nails (base spike),pegs, guy tensioner & clamps etc should be made of hot dip galvanized and of specification described above.
(xi)	Arrangement for fitment of ground plain antennas on the top of the mast.

2.15 Search Mirror (Spl. Equipt.)

Purchased by: ITBP

Year of Purchase:2008-09

Name of Supplier:

- M/S Point Blank Defence Systems,
16, Apana Bazar, Ring Road, Nehru Nagar New Delhi.

Names of Vendors who participated in the Tender:

- M/S Bharat Electronics Limited (A government of India Enterprises, MoD),
L-I, MIDC, Industrial Area Taloja, Navi Mumbai- 410208
- M/S Special Equipment service Group, D-18, Jawahar Park, Khanpur New Delhi-62
- M/S Point Blank Defence Systems, 16 Apana Bazar, Ring Road,
Nehru Nagar, New Delhi.
- M/S Precisions Operations System (India) Pvt. Ltd. Plot No. A/465,
Road No. 28, Wagle industrial Estate Thane-400604

Price: Rs 2,900/-

Lead Time: 2 Months

TECHNICAL SPECIFICATION

Search/Inspection Mirror

Mirror size	:	2ft x 1" (plane) or 4" (round plane)
Arm length	:	5ft (detachable & extendble)
Weight	:	6kgs (maximum)
Lighting Optional	:	4 cell commander torch
Spl. Features	:	Large area viewing
Application	:	Under carriage inspection of vehicles

2.16 Teletector

Purchased by: CISF

Year of Purchase: 2008

Name of Supplier:

- M/s. Pulsecho Systems (Bombay) Pvt. Ltd.,
107 /110, Nirmal Industrial Estate, New Sion Fort, Sion, Mumbai-400 022

Names of Vendors who participated in the Tender:

- M/s Para Electronics India Pvt Ltd., Mumbai
- M/s Pla Electro Appliances Pvt Ltd., Mumbai
- M/s Electronics Enterprises (India) Pvt Ltd., Kota
- M/s Stat Diagnostic Services, Mumbai
- M/s Pulsecho Systems (Bombay) Pvt Ltd., Mumbai
- M/s Impex Engineering Corporation, New Delhi

Price Rs. 57,603/-

Lead Time: 2 Months

TECHNICAL SPECIFICATION

1.	DOSE RATE RANGE	High ranges in Red Scale. a) 0-10 Sv/h (0-1000 R/h) b) 0- 500 mSc/h (20-50 R/h) Low range in Red Scale a) 0-20 mSc/h (0-2 R/h) Low range in Black Scale a) 0-500 mSv/h (0-50 mR/h) b) 0-20 Sv/h (0-2 mR/h)
2.	WITH A TELESCOPE EXTENDABLE ROBE UP TO 4 M TOTAL LENGTH	
3.	TWO GM DETECTOR BASED	ZP 1400 (low range) ZP 1300 (High Range)
4.	ENERGY DEPENDENCE	65 KeV to 1.4 MeV.
5.	TEMPERATURE RANGE	-20 TO 60 Degree centigrade
6.	TELECTOR HOUSING	Aluminum die -cast
7.	BETA DETECTION	By beta window (about 25 mg/cm ²) weight per unit area with the protective cover removed in the low.
8.	TELESCOPE	Stainless Steel
9.	POWER SUPPLY	Four leak proof dry cell batteries, 1.5 V, IEC R14
10.	DIMENSION	Total length 97 cm to 417 cm, width 13 cm maximum height approx 8 cm.
11.	CHANGE OVER SCALE	Coupled with operating switch. To avoid misreading only the scale associated with the pre set range shows in the window.
12.	SCALE ILLINIANTION	Automatic, when instrument is switched on
13.	WEIGHT	Approx.3 kg.

2.17 Micro Survey Meter (with carrying case)

Purchased by: CISF

Year of Purchase: 2009

Name of Supplier:

- M/s. Pla Electro Appliances Pvt. Ltd., Thakor Estate, Kurla Kirol Road, Vidyavihar (East) Mumbai - 700 086

Names of Vendors who participated in the Tender:

- M/s International Environmental & Consulting, New Delhi
- M/s Dynalog India Ltd, Mumbai
- M/s Electronics Enterprises India Pvt Ltd, Mumbai
- M/s Anjali Incorporated, Mumbai
- M/s Pla Electro Appliances Pvt.Ltd, Mumbai
- M/s Spak Systems Ltd, Hyderabad.

Price: Rs. 88,406/-

Lead Time: 3 Months

TECHNICAL SPECIFICATION

1	Hand held, Portable, lightweight and analog does rate meter.
2	Radiation detected: Gamma and x-rays
3	Energy range: 40 KeV to 1.3 MeV
4	Range –Five linear range from 0 to 200 mR/h
5	Detector-Internal tissue equivalent, organic scintillator
6	Accuracy: within 10% of rading for Cs-137 between 20% and 100 full scale of any range
7	Temperature: Operational from -20 to 40 degree centrgrade
8	Battery compliment: Two 9 volt, NM 1604 or equal
9	Weight : approx 3.0 pound

2.18 X-Ray Baggage Inspection System

Purchased by: CISF

Year of Purchase: 2008

Name of Supplier:

- M/s. Bharat Electronics Limited, Jalahalli Post, Bangalore

Names of Vendors who participated in the Tender:

- M/s ECIL Rapiscan Ltd, New Delhi
- M/s SDS Electronics Pvt Ltd, Panchkula (Haryana)
- M/s. Bharat Electronics Limited, Jalahalli Post, Bangalore
- M/s Precision Operation Systems India Pvt Ltd,Pune
- M/s Speak Systems Ltd, New Delhi
- M/s Trident Infosystem Pvt Ltd,New Delhi
- M/s Instrumentation Ltd, Kota

Price Rs. 13,21,875/-

Lead Time: 2 Months

TECHNICAL SPECIFICATION

GENERAL

- | | |
|----------------------|--|
| 1. Tunnel opening | 530 (W) mm x 330 (H) mm +/- 10% |
| 2. Conveyor height | 190mm +/- 10 % |
| 3. Conveyor Speed | Approx 0.2 m/s +/- 10% |
| 4. Power | 230-110 VAC, 50 Hz |
| 5. Conveyor Capacity | Not less than 50 kg. |
| 6. Sensors | > 1000 diodes, L-shaped detector line. |

X-RAY

- | | |
|---------------|----------|
| 7. Voltage | 100 k VP |
| 8. Duty Cycle | 100% |

- | | |
|-------------------------|---------------------------------|
| 9. Cooling | Sealed oil bath |
| 10. Beam Orientation | To provide better image quality |
| 11. Does per Inspection | As per International standards. |

ENVIRONMENT

- | | |
|---------------------------|------------------------------|
| 12. Operating Temperature | 0 degree C to 40 degree C |
| 13. Storage Temperature | -20 degree C to +60 degree C |
| 14. Humidity | 90% non-condensing |

IMAGING AND PERFORMANCE

- | | |
|--|--|
| 15. Resolution | 38 AWG (0.1mm) typical 39 AEG (0.09mm) |
| 16. Penetration | 10mm Steel (Standard) |
| 17. Electronic Zoom | 2 to 16 times enlargement |
| 18. Video display | 17" SVGA High resolution, low radiation, flicker Free display (colour) |
| 19. Colour stripping for organic & inorganic substances. | |

RADIATION SAFETY

20. Manufactures/Supplier has to provide certificate of Compliance with all radiation safety requirements and external emission limits from competent authority.

FILM SAFETY

21. Guaranteed safety for high-speed films.

OPERATIONAL TRAINING

22. Operating staff has to provide free training.
23. The manufacturer/supplier should provide technical /maintenance manual.
24. The technical literature/catalogue provided by the bidder should match with technical specs of tender enquiry. In case of variation of compliance statement from literature/ catalogue, particulars given in the literature catalogue will prevail for technical specifications.

Weapons, Bullet Proof Equipments & Bomb Disposal Equipments



3.1 AGL & Grenade

Purchased by: BSF

Year of Purchase: 2009

Name of Supplier:

- M/S FSUE "ROSOBORONEXPORT", Russia

Names of Vendors who participated in the Tender:

- M/S FSUE "ROSOBORONEXPORT", Russia
- M/S Kintex SHC, Bulgaria

Price: Euro 28.51 (Grenade)/Item/Unit

Euro 16,935/- (AGL)

Lead Time: 12 Months

TECHNICAL SPECIFICATION

(A) AUTOMATIC GRENADE LAUNCHER

1	The AGL should be belt fed and should be air-cooled.
2	Caliber -30 mm
3	Effective range : Direct & indirect fire – upto 1700 mtr (min) Aimed fire with open sight – utp 800 mtr (min) With telescopic sight – utp 1000 mtr (min)
4	Accuracy – The weapon should offer precision engagement of targets at effective ranges mentioned at Point – 3 above.
5	Type of fire- The weapon should fire single shot as well as in automatic mode.
6	Life of barrel – Should be able to fire min. 6000grenades.
7	Rate of fire – Norman – 50 rds per minute (min) Rapid – 100 rds per minute(min) Cyclic – 350 – 400 rds per minute(min)
8	Magazine – Ammunition should be belt fed from a magazine of 30 rds capacity (min).
9	Versatility – Should be employable from ground configuration, mounted on vehicles or on helicopters.
10	Travers- The weapon should be able to traverse on its mount to cover at least 180 degree frontal arc. It should have the facility of free and controlled traverse.

11	Elevation – Free as well as controlled elevation arrangements should be provided in its mounting. It should also have a depression / elevation from - 15 ⁰ to +70 ⁰ .
12	Design- The weapon should be so designed that it can be stripped without the need for special tools.
13	Protection- The mechanism of the weapon should be adequately protected from dust and water.
14	<p><u>Sighting System</u></p> <p>a) <u>Launcher Sight</u>- To be used for laying the launcher, when firing at targets at various ranges in direct and indirect mode. It should accommodate the azimuth and elevation mechanism with optical system:-</p> <p>i) <u>Weight</u> – Not more than 1 Kg</p> <p>ii) <u>Weight with Case</u> – Not more than 3 Kg</p> <p>iii) <u>Magnification</u> – Not less than 5x</p> <p>iv) <u>Field of view</u> – Not less than 8⁰</p> <p>v) <u>Filter</u> - Should be provided with different filters for bright and poor light conditions.</p> <p>vi) <u>Quick Release Handle</u> – Should be provided with quick viewing and laying up to 1000 meters in direct firing mode.</p> <p>viii) <u>Measure of unit</u> – Should follow “degree” or “mils”</p> <p>ix) A light source should be provided for illumination of the dials of the sight and open iron sight at night.</p> <p>b) <u>Passive Night Sight</u> – Provision for attachment of Night sight should be available.</p>
15	The weapon should be compact, easy to carry, handle and operate and simple to maintain.
16	The weapon should be compatible to use indigenously developed 30 mm AGL ammunition..
17	<p><u>Weight</u></p> <p>a) Launcher with Mount – Not more than 20 Kg</p> <p>b) Ammunition Box with 30 Grenades(Empty) – Not more than 15 Kg</p> <p>c) Ammunition Box (Empty) – Not more than 2.5 Kg</p> <p>d) Grenade – Not more than 0.35 Kg</p> <p>e) Aiming Post (with illumination) – Not more than 1.30 Kg</p>
18	The overall length of the weapon should not exceed 1.1 meter.,
19	<u>Mountings</u> – In addition to tripod, suitable mounting should be also be provided for vehicle and helicopter configurations.
20	The weapon should be capable of functioning satisfactorily in sand, fog, rain and snow.
21	The AGL should effectively function in temperature range -30 ⁰ to +50 ⁰ C.
22	The AGL should be easy to maintain. The parts of the AGL should not corrode on exposure to rain and salt water.
23	The AGL should be easy to repair. Parts likely to wear out, damage or break in prolonged use should be capable of being replaced easily.

(B) GRENADES (Rounds for AGLs)

The weapon should be compatible to use 30 mm AGL ammunition of following specification: -		
1	Caliber	30mm
2	Round Weight	350 gms
3	Grenade Weight	275 gms
4	Round Length	132.3 mm
5	Muzzle velocity	185 meters / Sec \pm 5 m/s
6	Range	1700 meters or better
7	Accuracy at a range of 1700 mm -Lateral error at cross wind velocity of 10 m/s -Longitudinal error at nose / tail wind velocity of 10m/s	40 m Max 110 m Max
8	Explosive Weight	45 gm \pm 10%
9	Average fragment with (of fragment \geq 0.25 gms)	0.45 gms \pm 10 %
10	Number of fragments with weight \geq 0.25 gms	275 Nos Minimum
11	Average fragment initial energy	350 J or higher
12	Dispersion angle of 80 % fragment (minimum)	$40^0 \pm 5^0$
13	Lethal radius	5 m or higher
14	Hitting radius	100 m or higher
15	Should have a direct impact fuze with self destruction mechanism	
16	Shelf life	8 years minimum

Important Note: - The weapon should not have been manufactured earlier than the last one year. Model No./Batch/Lot No./Year manufacture, name of manufacturer should be embossed on the body.

3.2 Grenade .90

Purchased by: BSF

Year of Purchase: 2008

Name of Supplier:

- M/s Standard Fireworks (P) Ltd., Sivakasi

Names of Vendors who participated in the Tender:

- M/s Silver Fireworks, Sivakasi
- M/s Standard Fireworks (P) Ltd., Sivakasi

Price Rs. 38/-

Lead Time: 20 Months

3.3 Automatic Mortar Fire Data Controller/Computer (AMFDC)

Purchased by: ITBP

Year of Purchase: 2009-10

Name of Supplier:

- M/S Digital Intergrator Pvt.Ltd.46, Electronic Complex, Pardesipura, Indore (MP)

Names of Vendors who participated in the Tender:

- M/S Digital Integrator Pvt.Ltd.

Price Rs. 32,250/-

Lead Time: 3 Months

TECHNICAL SPECIFICATION

S.No.	Nomenclature	Specification
1.	GENERAL	<p>AMFDC (Automatic Mortar Fire Data Controller/ Computer) should have ballistic data computation facility for 81 mm Mortars on imputing Grid Reference and Height of Mortar Position, Height of the Target. It should be able to impart basic as well as advance training to Mortar Fire Controller (MFC) in the selection, prioritizing and engaging of targets and the Mortar Position Controller (MPC) in calculating the bearing, elevation and charge of the Ammunition. It should generate direction of barrel with North Reference, elevation data for barrel, Charge of ammunition to fire, Time of flight of Ammunition in the trajectory.</p> <p>The system should have rugged key board to enter data with standard size of keys (to accommodate standard size finger). The device should have capability to compute required data in fraction of second without physical referring range tables for different ammunition. It should have data accuracy of 10 mins. In angle and 10 meters in range.</p>
2.	PHYSICAL	<p>(a) Length: 200 mm \pm 20mm.</p> <p>(b) Width: 100mm \pm 10m</p> <p>(c) Height: 50 mm or Less</p> <p>(d) Weight: The device should be handy/ compact, light in weight, Should not be more than 700 Gms. (with Battery and Pouch).</p> <p>(e) Weight: 500 gm or less (without battery and pouch).</p> <p>(f) The device should have LCD visual display to see the data at wide angle.</p> <p>(g) The device should have provision for commonly available type DC Power Source and this power should support for minimum of 6 hrs of normal operation.</p>
3.	FIRING CAPABILITIES	<p>(a) The firing device should be compatible for firing with ammunitions like High Explosive i.e., 81 mm Mortar Shell HE, Smoke and illuminating rounds.</p> <p>(b) The device should have Over Crest Fire Management in Ammunition saving system.</p> <p>(c) The device should have safety facility for protection from fire on to friendly troops.</p>
4.	NOS. OF TARGETS	<p>The device should have provision to accommodate minimum:-</p> <p>(i) 100 Target Grid Reference.</p> <p>(ii) 20 Mortars Positions.</p> <p>(iii) 40 Safe Zones with 2/3 points.</p> <p>(iv) 20 Crest Clearances.</p>
5.	GENERAL FEATURES	<p>(a) The device should have facility to see the ballistic data at night also i.e. system should LED Lighting so that data can be easily cleared in night.</p> <p>(b) The device should have provision to carry in pouch as User Manual/ guide.</p> <p>(c) The device should have facility for System Diagnostic.</p> <p>(d) It should be possible to compute further correction once initial shoot is taken.</p> <p>(e) This should be similar in procedure with actual firing orders.</p> <p>Equipment should be carrying warranty of minimum 02 years period including 100% Repair and refit in situ, followed by repair and maintenance on payment for 10 years or on AMC basis and rate of AMC should be mentioned.</p> <p>(f) System to be configured to latest version of Operating system.</p> <p>(g) Manufacturer should be having an ISO 9001- 2000 as above certification.</p>
6.	AMC/TRAINING	<p>The firm sending proposals shall clearly spell out AMC provisions and successful bidder would require imparting training to 5-7 personnel on usage and maintenance of equipments at consignee location. All expenses would be borne by the firm.</p>

3.4 Assault Rifles

Purchased by: CRPF

Year of Purchase: 2009-10

Name of Supplier:

- M/s Israel Weapon industries (IWI) Ltd Israel

Names of Vendors who participated in the Tender:

- M/s Rosoboronexports, FSUE, Russia.
- M/s Israel Weapon industries (IWI) Ltd. Israel.

Price : Euro 977/-

TECHNICAL SPECIFICATION

SL NO	PARAMETERS	REQUIREMENT
1.	Caliber	5.56mm
2.	Cyclic Rate of Fire	Not less than 600 rds per minutes
3.	Overall length Butt – retracted folded/fixed	650 mm maximum
4.	Type of fire	Single shot & Automatic
5.	Bayonet	Should be multipurpose
6.	Weight of the rifle with empty magazines	3.50 kgs maximum
7.	Ejection pattern	Front angular 15 degree to 75 degree(desirable)
8.	Safety	Should have mechanical and applied safety
9.	Life of Barrel	20000 rds minimum
10.	Smoke from Barrel	Minimum
11.	Ability to withstand impact	Should be able to withstand an impact of free fall on hard/rocky surface from a height of 6’
12.	Shine and colour of the furniture	Black with good aesthetic
13.	Capacity of Magazine	30 rounds (minimum)
14.	Effective range	Minimum 400 Meters
15.	Flash eliminator	Essential
16.	Accuracy/consistency	The weapon should be consistent and should be able to fire accurately as per the following accuracy standards:

SINO	Range(m)	Sight	No of rds	Mode	Group size (mm)	MPI(mm)	Remarks
1	30.5	200	5	SS	25.5HX38V	12.5 up 12.5 Lt	4 rds out of 5 rds
2	200	200	5	SS	168 HX 168v	0-250 up 84 Lt/Rt	4 rds out of 5 rds
3	200	200	9	TRB*	200x200	9 hits in target size(1200mmx200mm)	
4	400	400	5	SS	336Hx336v	0500 up 168 Lt/Rt	4 rds out of 5 rds

*3 Magazines of 3 rds each shall be used for this test.

17.	Operating /Storage Temperature a) Operating Temperature b) Storage Temperature c) Humidity	 -40 degree C to + 50 degree C -40 degree C to + 50 degree C 95 % at 25 degree C
18.	Engineering Support Package The manufacturer of the Assault rifles should provide engineering support package including. a) technical literature b) training manuals and user hand book c) illustrated spares part list duly priced d) list of STEs/SMIs/Test jigs for i) Repair and testing of main equipment at field level' ii) Repair and testing of PCBs, modules of main equipment and its accessories at Base level. e) Recommended list of spares for four years for field level and base level repairs and spares back up must be assured for at least 15 years.	
19.	Add on sights: a) Collimator/Reflux sight-Essential b) Invisible laser designator with compatible night sight-essential c) Attachment for easy fitment of compatible night sight without need for zeroing again-Essential.	
20.	Add on requirement a) Provision for mounting UBGL	

3.5 Bomb Suit

Purchased by: BSF & CISF

Year of Purchase: 2009

Name of Supplier:

- M/S BEL, Navi Mumbai
- M/S Rotax Electronics (P) Ltd., 12, Shaheed Bhagat Singh Marg, New Delhi

Names of Vendors who participated in the Tender:

- M/S B L Health & Safety Pvt. Ltd. New Delhi
- M/S BEL Ltd. Mumbai
- M/S Rotax Electronics (P) Ltd., 12, Shaheed Bhagat Singh Marg, New Delhi

Price Rs. 12,99,375/- (BSF)

TECHNICAL SPECIFICATION

S NO	TECHNICAL FEATURES	PARAMETERS
1	The suit should consist of the following items, which collectively make a complete garments:-	
a)	Jacket with collar.	
b)	Trousers	- Adjustable
c)	Boot protector / Over shoes	
d)	Helmet with Visor.	
e)	Hand Gloves.	
f)	Transit bag.	
g)	Transit bag.	
h)	Complete Cooling Suit.	
2	The suit protection performance figures should be for the Satang 17 grain NATO fragment simulator type V-50 (Firm to submit lab test report from International reputed Lab):-	
a)	Front Chest	- 1600 M/Sec or better
b)	Front Groin	- 1600 M/Sec or better
c)	Sleeves Front	- 560 M/Sec or better
d)	Collar Front	- 850 M/Sec or better
e)	Trousers front Thighs	- 690 M/Sec or better
f)	Trousers Front Shins	- 620 M/Sec or better
g)	Boot Cover	- 450 M/Sec or better
3	Cooling Suit	
a)	The Fabric should be washable.	
b)	The heat removal rate should be at least 270 watts (full suit) or better (Firm to submit lab test report from International reputed Lab).	
c)	Should enable the operator to wear it comfortably for minimum of 30 minutes with ambient temperature at 35 ⁰ C or more.	
d)	The pump should be operable by a Dry / rechargeable battery.	
e)	Should be available in different sizes to suit users requirement.	
f)	A second water / ice bottle should be supplied for stand by	
g)	The cooling source should be ice and water.	
4	Ballistic EOD Helmet Protection performance (Firm to submit lab test report from international reputed lab).	
a)	V 50 (helmet)	- 600 M/Sec or better
b)	V 50 (visor)	- 700 M/Sec or better
c)	Weight with visor not more than 7 Kgs.	
d)	The system should have an arrangement for breathing in an NBC environment	
e)	Ventilation and Demisting	- A helmet mount fan should provide effective ventilation and demisting with control unit within easy reach of the user.
f)	Communications	- The helmet should have built in microphone for operator to hear all the conversation taking place in the vicinity.
g)	Two way communication	- It should provide a two way communication whether on radio or on wire between operator and officer in charge upto a distance of 100 meters.
h)	Search Light The helmet must be fitted with a search light for working in dark condition.	

5	Jacket	
a)	Immediate removal / quick release of the jacket should be achieved.	
b)	The jacket should have pouches for keeping working tools (Desirable).	
6	Trousers	
a)	The trousers should be adjustable catering for different sizes.	
b)	Immediate removable / quick release of the trousers should be achieved.	
7	Power Pack	
a)	A rechargeable or alkaline power pack which should be suitable placed.	
b)	The power pack should have battery status indicator.	
c)	Recharging	- Mains charger should be provided for rechargeable power pack, if applicable.
8	Weight	
a)	The complete weight of the suit alongwith complete accessories should not exceed 33 Kgs	
b)	Over all operating weight including helmet, cooling suit, complete suit and communicate support etc should not exceed 41 Kgs.	
9	Back Bone Protection.	- The suit should provide a high impact back bone protection arrangement (Firm to submit lab test report from International reputed Lab).
10	Operational Time	- The Suit should take no more than 10 minutes to wear with the help of a trained technician (Desirable).
11	Static Discharge	- The bomb suit should have protection against static charge
12	Miscellaneous	- The firm should provide the following, along with the equipment:-
a)	Training aids, Charts, slides, training brochure, training work model, blow up diagram, video films etc, to be provided.	
b)	Technical Manual in English giving full description of the item	
c)	User Hand Book in English to be provided with suits.	
d)	Literature on preservation / maintenance in English	
e)	Specification for packing, handling/ transportation / storage.	

Note : 1. Firm will submit lab report from National / International accredited lab for following parameters.

3 (b) The heat removal rate should be at least 270 watts (full suit) or better (Firm to submit lab test report from international reputed lab)

4 (d) The system should have an arrangement for breathing in an NBC environment.

(9) Back Bone Protection:- The suit should provide a high impact backbone protection arrangement (Firm to submit lab test report from international reputed lab)

3.6 Explosive Detector

Purchased by: CRPF, ITBP, CISF & BSF

Year of Purchase: 2009-10

Name of Supplier:

- M/s Bharat Electronics Ltd., Navi Mumbai

Names of Vendors who participated in the Tender:

- M/s Schilecher India Ltd. New Delhi
- M/s SDS Electronic Ltd Punchkula (Har)
- Electronic Enterprises (India) Kota (Raj)
- Elkosta Security System India New Delhi.
- M/s Specks System Ltd. New Delhi
- M/s Zicom Electronics Security Systems, Mumbai
- M/s Endee Engineers Private Limited, Mumbai
- M/s Smiths Detection (Asia Pacific) Pvt. Ltd., New Delhi
- M/s Bharat Electronics Ltd., Navi Mumbai

Price Rs. 12.50 Lakhs

Lead Time: 3 Months

TECHNICAL SPECIFICATION

1.	Sensitivity: The detector should be able to detect all type of explosives in vapour mode at room temperature.
2.	Selectivity: System should not respond to odour of non explosive substances.
3.	Specificity False alarm rate should be less than 1 % .
4.	Detector Capability: Should be able to detect all types of explosives including explosives with low vapour pressure explosive in mixture form.
5.	Carrier Gas: Detector system should not require the use of carrier gas.
6.	Auto Calibration: Adjustment/Resetting for further operation should be automatic.
7.	Warm Up Time : Should be less than 10 minutes.
8.	Analysis Time: Less than 6 seconds.
9.	EMI: Operation should not be affected by electro magnetic interference of other electronic/electrical devices.
10.	Versatility : Equipment should allow search of all places example field Area authomobiles, aircraft etc.
11.	Ease of operation: Controls should be simple and easy to operate by bomb technician. Should not involve technician making or interpretation at the operator level,Grand Learn Capability.
12.	Operating Temperature. (a) Minimum - (-) 10 ⁰ C (b) Maximum - (+) 55 ⁰ C
13.	Endurance : On 230 VAC supply equipment should work continuously on battery, continuous operation should give more than 3 hours of operation.
14.	It should be one man portable and complete equipment should fit into one hand carrying case, Maximum operating weight should not exceed 4 kgs.
15.	Indication : Both visual and audio alarm signal
16.	Power supply: Should operate both on battery as well as external power source.
17.	Safety: The equipment should be safe to handle and be free from radiation hazards to the operator.
18.	Should be able to function both on vapour and particle mode.
19.	Spares and Service: User hand book, tech service manual, spares kit comprising of battery charger, test samples and spare battery should be provided with the equipment.

3.7 Explosive Detection Kit

Purchased by: CRPF

Year of Purchase: 2009-10

Name of Supplier:

- M/s Security Instruments, Punjabi Bagh New Delhi

Names of Vendors who participated in the Tender:

- M/s Pacific Innovative Technology Instruments Pvt. Ltd., New Delhi
- M/s Security Instruments, Punjabi Bagh New Delhi
- M/s Technomax securities, Faridabad (Haryana)

Price Rs. 38,421/-

Lead Time: Three Months

3.8 Deep Search Metal/Mine Detector (DSMD)

Purchased by: ITBP

Year of Purchase: 2008-09

Name of Supplier:

- M/S Bharat Electronics Limited (A Government of India Enterprises, MoD),
L-1 MIDC, Industrial area, Taloja, Navi Mumbai-410208.

Names of Vendors who participated in the Tender:

- M/S Bharat Electronics Limited, Navi Mumbai- 410208.
- M/S. Special Equipment Service Group, D-18, Jawahar Park, Khanpur, New Delhi-62.
- M/S Point Blank Defence Systems, 16, Apana Bazar, Ring Road, Nehru Nagar, N. Delhi.
- M/S Precisions Operations Systems (India) Pvt. Ltd. Plot No.A /465,
Road No. 28, Wagle Industrial Estate, Thane- 400604.

Price: Rs 1,27,367/-

Lead Time: 2 Months

TECHNICAL SPECIFICATION

- (1) **Physical Characteristic-** The detector and its accessories should be light weight and made of non corrosive (exceptionally corrosion protected) material aluminum, carbon fiber etc. Material should have proven reliability and durability.
- (2) **Weight and Dimensions**
 - (a) **Search Head:-** The search head may be in any shape, i.e. circular, oval, rectangular etc. However, the total area of search head should be between 210 Sq cm to 710 Sq cm.
 - (b) **Length of Telescopic rod :-** Search head should be connected with a telescopic rod which should allow prolonged usage by the operator in kneeling standing and lying position without causing undue fatigue for both minimum and maximum possible extension. The length of telescopic rod should be
 - (i) Collapsed 700mm (+/- 10%)
 - (ii) Extended 1600mm (+/- 10%)
 - (c) **Weight**
 - (i) Telescopic pole and search head - 2 kgs (max.)
 - (ii) Electronic control unit - 2 kgs (max.)
 - (iii) The maximum operating weight of the equipment including telescopic pole, search head and electronic control unit - 4 kgs (max.)
 - (iv) Bag weight including accessories of detector - 4.5 kgs
 - (v) Total weight of the equipment including carrying case - 11 kgs (max.)
- (3) The electronic circuit should be hermetically sealed and separate from batteries so that in case of battery leakage the electronic circuit is not damaged. The manufacturer will provide a certificate from a recognized laboratory for the same.
- (4) Detector design should allow its use both with and without earphone. The equipment must have volume control facility. Detector must give detection sound when operated without earphone. If earphone is used the detection sound should not be heard in open but only in earphone.
- (5) Must have a power control and sensitivity control to detect all type of ferrous/non ferrous metals.
- (6) Must have a visual display to indicate detection and proximity of target metal. The LEDs should be bright enough to be visible in day light (Preferably on the hand grip or on search head).

(7) Must have self-compensating capability to detect the metals in different type of terrain/soil/water (including salt water). Certification to this effect will be provided by the manufacturer from a recognized laboratory.

(8) Detection Capabilities.

(a) Should detect all ferrous and non ferrous metals.

(b) Must be capable of detecting buried mine/metals in :-

(i) All type of soils including laterite (Ferrous and aluminum oxide) (Certification required from approval testing facilities).

(ii) Under water one ft.

(iii) In all weather condition from arid to pouring rain. The equipment should meet international standard IP-67.

(iv) Over the temperature range of -20° to +55° C (Certification required from approval testing facilities).

(v) Metal near metal: The equipment should be able to differentially detect two detonators No. 27/33 placed at a distance of one ft apart.

(9) **Detection Setting Procedure:** The detector should be operational and capable of being set for operation in air/metal free soil within 30 seconds of switching on of setting switch. Trigger level/threshold control to be provided.

(10) Detection Sensitivity:

The size and shape of the object with which the tests will be conducted are as under:

(i) 0.15 gm metal - 1 inch x 1 inch tin foil.

(ii) 50 mm nail - Thickness 03 mm and dia of head 06 mm.

(iii) Salty Water - 3 gm iodized common salt in 1 ltr. of water.

The sensitivity of the detector must meet the following specifications:

In Free Air :

(a) 0.15 gm metal - 15 cm

(b) 50mm nail vertical - 29 cm

(c) 50 mm nail horizontal - 23 cm

Under Ground:

(a) 0.15 gm metal - 11 cm

(b) 50mm nail vertical - 27 cm

(c) 50 mm nail horizontal -17

In Clear water:

(a) 0.15 gm metal - 11 cm

(b) 50mm nail vertical - 28 cm

(c) 50 mm nail horizontal - 19cm.

In Salty water:

(a) 0.15 gm metal - 11 cm

(b) 50mm nail vertical - 28 cm

(c) 50 mm nail horizontal - 19 cm.

Detector must be capable of pinpointing detected metal to ± 5 cm range. The distance will be taken from the centre of the search head to the centre of the object.

Detection tone should be distinct from the working tone. The instrument should be free from radio and static interference.

(11) **Electrical Parameter:** The detector must be powered by standard size commercially available dry cells for 20 hours and rechargeable cell for 12 hours. Must have a facility to indicate low battery.

(12) **Transport, Storage and Transit:** The detector together with its accessories must come in a lightweight, durable compact back pack carry bag that is capable of surviving in all adverse environmental conditions. The back pack carry bag weight inclusive of detector accessories must not exceed 4.5 kgs.

Weight of the complete detector in its bag and transport box must not exceed 11 kgs. Transport box should be ruggedised enough to withstand shock and drop from a 3 mtr. height, without suffering any damage to the transport box body or equipment (detector) kept inside it.

Period of warranty of supplied equipment minimum 2 years.

Manufacturer should take to provide spares for 10 years.

3.9 Machine Pistol Model 5 (MP5)

Purchased by: CRPF & NSG

Year of Purchase: 2009-10

Name of Supplier:

- M/s Heckler & Koch GmbH, Germany

Names of Vendors who participated in the Tender:

- M/s Heckler & Koch GmbH, Germany

Price : Euro 1378/-

Lead Time : 12 Months

3.10 Water Jet Disruptor (along with accessories)

Purchased by: CISF & CRPF

Year of Purchase: 2009

Name of Supplier:

- M/s Chemring EOD Ltd., Armtec Estate,
North Lopham, Norfolk, IP22 2LR, UK

Names of Vendors who participated in the Tender:

- M/s Chemring EOD Ltd., Armtec Estate, North Lopham, Norfolk, IP22 2LR, UK
- M/s Rotex Electronics Pvt. Ltd., New Delhi

Price £ 6,706/-

Lead Time: 4 Months

TECHNICAL SPECIFICATION

1.	Should be capable of performing both to disarm and to disrupt.
2.	Should have recoilless operation
3.	Should have capability of stand-off operation
4.	The mounting should be stable and should permit movement of the disrupter in all angles.
5.	Should have flexibility in selection of velocities of low and high velocity jets.
6.	Should have an aiming device for stand-off operation with laser and telescopic sights.
7.	Should be light weight not more 15 Kgs.
8.	Operation temp-5 ⁰ C to + 55 ⁰ C.
9.	Body of metallic rust proof material.
10.	It should be capable of firing at least following projectiles:- 1. Blade Projectile. 2. Bolster Projectile 3. Chisel Projectile. 4. Fin/Spin stabilized 5. Fork Projectile
11.	<u>Accessories</u> (a) Operators manual (b) Carrying case with harness (c) Training material/Aid

3.11 Expendable Item for Water Jet Disrupter

Purchased by: NSG

Year of Purchase: 2009-10

Name of Supplier:

- M/S Richmonal EEI Ltd., UK

Names of Vendor who participated in the Tender:

- M/S Richmonal EEI Ltd., UK

Price Rs. 25,92,291/- for 24 numbers

Lead Time: 12 months

3.12 Commando Dagger

Purchased by: NSG

Year of Purchase: 2008-09

Name of Supplier:

- M/S Eskay Enterprises, New Friends Colony, New Delhi

Names of Vendors who participated in the Tender:

- M/S Eskay Enterprises, New Friends Colony, New Delhi
- M/S Security Shoppe India Pvt. Ltd Bhikaji Cama Place, New Delhi-66

Price Rs. 3,183/-

Lead Time: 4 Months

3.13 Door Buster

Purchased by: NSG

Year of Purchase: 2008-09

Name of Supplier:

- M/s Security Shoppe India Pvt. Ltd., Bhikaji Cama Place, New Delhi-66

Names of Vendor who participated in the Tender:

- M/s Security Shoppe India Pvt. Ltd., Bhikaji Cama Place, New Delhi-66

Price Rs. 18,78,750/-

Lead Time: 9 Months

3.14 Hand Grenade Training Simulator

Purchased by: ITBP

Year of Purchase: 2008-09

Name of Supplier:

- M/S Zen Technology Ltd., C-63, Industrial Estate , Hyderabad

Names of Vendor who participated in the Tender:

- M/S Zen Technology Ltd., C-63, Industrial Estate , Hyderabad

Price Rs 5,87,941.00

Lead Time: 2 Months

TECHNICAL SPECIFICATION

General Requirement From a Hand Grenade Training Simulator

- a) The Hand Grenade Simulator should provide exact feel and experience of handling a real and genuine “Grenade Hand 36 M HE” which is manufactured by Ordnance Factory.
- b) The Simulator should have adequate safety while handling.
- c) The simulator should support as a training aid for grenade throwing and lobbing.
- d) The user should feel that a genuine grenade in weight, shape and size of "Grenade Hand 36M HE" he/she is throwing.
- e) The blast sound, smoke and waves generated by the Simulated Grenade should be identical to that of real grenade 36M HE.
- f) Basic Training Centre has recommended that the explosion noise should be more than the existing simulator at BTC.
- g) The simulated Grenade must not get fragmented. This will avoid injury and enables the simulator grenade to be reused for further training of personnel.
- h) The simulated grenade may be used repeatedly for a number of times.

1. Technical Details:

- a) Material:- Grenade should be made of material which shall give feel like that of a real hand grenade. The material should help in absorbing the shocks, so that the shell of the simulated grenade never break.
- b) Safety Vent:- Since Safety Vent is used as an opening for the purpose of insertion of ammunition in a original grenade but in a Simulated Grenade, the opening should be dummy opening and it should be used as safety vent.

- c) Guide Tube: A detachable guide tube should be available in the Simulated Grenade so that it may be cleaned as and when required and may be replaced with a new one in case of any necessity.
- d) Base Plug: The base plug should be available to close the base opening of the simulated grenade shell. The base plug should help not only in closing the base opening but also to take the impact load.

2. Option Feature:

Simulated Grenade should have option for rifle launcher with 5.56mm INSAS.

3. Technical Specification:

Size

- a) Length : 9cm like actual Hand Grenade
- b) Diameter : 19cm (like actual Hand Grenade)
- Shape : Cylinder (like Hand Grenade)
- Weight : Should resemble (Approx 700 gms) actual Hand Grenade.
- Sound : Close to actual grenade
- Feel : Same as original i.e. 36M HE Grenade
- Actuation : Spring loaded
- Time between pin Striking and lob : Amply safe

Blast after throwing/lobbying or launching from Rifle:

- a) Hand Grenade : 4 Sec
- b) Rifle Grenade launching : 07 Sec.
- Type of Cartridge Used : Pyrotech Cartridge

4. Other Requirements:

- a) Firm participating will indicate the warranty period of Hand Grenade Simulator alongwith the details of repair/AMC facility in India. Minimum one year warranty is required.
- b) If required, a functional demonstration would be conducted within specified duration as deemed fit by competent authority from date of opening of tender and participating firms should ensure and present with product for same within stipulated period.

3.15 Infantry Weapon Effect Simulator

Purchased by: ITBP

Year of Purchase: 2008-09

Name of Supplier:

- M/s Zen Technologies Ltd., 139/2, Nalagarh, Khasra No. 491/3, Distt-Solan (H.P) -174101

Names of Vendors who participated in the Tender:

- M/s Zen Technologies Ltd., 139/2, Nalagarh, Khasra No. 491/3, Distt-Solan (H.P) -174101

Price Rs 3,65,62,500.00

Lead Time: 6 Months

TECHNICAL SPECIFICATION

GENERAL

- i) The system should be able to withstand the vagaries of all type of climates including altitudes of 10,000 feet, temperature from -10 to 50 degree centigrade and weather conditions such as rain, fog, snow during day and night time.
- ii) Capable to simulate effect of 7.62mm GM(MAG), 7.62mm LMG, 5.56mm INSAS LMG, 7.62mm SLR, 5.56mm INSAS Rifle, 7.62mm SSG-69, CM 9mm and 7.62mm AK-47/AKM.
- iii) Capable to handle upto 35 trainees together/individually.
- iv) Be capable of real time tracking of movement of all participants as mentioned at Ser-(iii) above, in 2X2 kms area of exercise.
- v) May also provide visual display of area of exercise on instructor control unit.
- vi) Should provide for 3 years warranty period including 100% repair and refit in situ, followed by repair and maintenance on payment for 10 years or on AMC basis.
- vii) Provide for training of 5 personnel per set of equipment free of cost.
- viii) Should provide for battery indicator on all sub systems.
- ix) System should not get activated due to firing of other weapons in near vicinity or due to bicat strips and crackers.
- x) Software backup to be provided on a CD.

TRAINEES' HARNESS

- i) Should be light weight, easy to wear and merging with standard camouflage dress. Weight should not exceed 2000 gms.

- ii) Should not interfere in any manner with the normal handling of 7.62mm GM (MAG), 7.62mm LMG, 5.56mm INSAS LMG, 7.62mm SLR, 5.56mm INSAS Rifle, 7.62mm SSG-69, CM 9mm, 7.62mm AK-47/AKM and web equipments carried during operations.
- iii) Should be tamper proof and indicate tamper, if attempted by trainees.
- iv) Be capable of differentiating between kills and injuries.
- v) Should de-activate the weapon of the trainee after registering a kill.
- vi) The battery should be replaceable/rechargeable and last for a duration of min 48 hours of continuous use after recharge/replacement.
- vii) The censor should be sensitive enough to record laser beams fired from distances at par with the effective range of standard small arms being used in the force i.e.

S.No.	Range	Weapon
(a)	Upto 1000 Meters	GM(MAG) 7.62mm & 7.62mm LMG on Tripod
(b)	Upto 800 Meters	5.56mm INSAS LMG and 7.62mm SSG-69
(c)	Upto 500 Meters	7.62mm LMG on Bipod
(d)	Upto 400 Meters	5.56mm INSAS Rifle
(e)	Upto 300 Meters	7.62mm SLR and AK 47
(f)	Upto 100 Meters	CM 9mm

- (viii) Should provide for registering hits from 360 degrees all around, both on the body and head.
- (ix) Should provide audible indications to the wearer about registering of a kill or injury separately.
- (x) Should be rugged enough to withstand stress caused due to activities like quick running, debussing, crawling, jumping from heights upto 12 feet, adopting lying position and rolling over.

INSTRUCTOR CONTROL UNIT

- (i) Be capable of re-programming the trainees' harness individually upto a distance of 500 meters.
- (ii) Be capable of simulating all battlefield conditions such as arty and Mor fire, explosion of grenades, IEDs and mines.
- (iii) The power source should be replaceable/rechargeable battery which should last for 24 hours on standby mode and generate 1000 shots after it is recharged/ replaced.
- (iv) Should be programmable for disabling all participants together/individually.
- (v) Should be programmable to get feedback from all trainees harness simultaneously, in groups of any size or individually.

WEAPON ALIGNMENT SYSTEM

- (i) Should be compatible with normal weapon sights of 7.62mm GM(MAG), 7.62mm LMG, 5.56mm INSAS LMG, 7.62mm SLR, 5.56mm INSAS Rifle, 7.62mm SSG-69, CM 9mm, 7.62mm AK-47/AKM, telescopic sight of SSG-69, day light telescope of INSAS Rifle, day light telescope of

INSAS LMG, passive night sight INSAS Rifle, passive night sight INSAS LMG and passive night weapon sight of 7.62mm SLR/LMG and KN-250/SIMRAD of SSG-69.

- (ii) Should provide for similar degree of accuracy as achieved during normal zeroing of weapons as shown below:-

S.No	Weapon	Range	Group Size
(a)	7.62mm SLR	100 Yards	20 cms for 5 shots
(b)	7.62MM LMG	100 Yards	16 cms for 5 shots in single shot mode and 32 cms for burst mode.
(c)	9mm CM	35 Yards	5 cms for 5 shots
(d)	5.56 mm INSAS Rifle	100 Yards	12 cms for 5 shots
(e)	5.56mm INSAS LMG	100 yards	16 cms for 5 shots in single shot mode and 32 cms for burst mode.
(f)	7.62mm SSG-69	100 Yards	7cms for 5 shots
(g)	7.62mm GM(MAG)	25 Yards	4 cms for 5 shots

- (iii) Should provide real time display of the required correction.
- (iv) The power source should be replaceable/rechargeable battery, which should last for 48 hours in standby mode or 5000 uses of the alignment systems after rechargeable/replacement.

CONTROL STATION

- i) Should have video monitor to depict real time movement of participants.
- ii) Should have the capability to track movement of participants upto 2x2 kms of exercise area.
- iii) Should provide for direct communication between the control station and one designated leader in a group of 25 participants.
- iv) Provide for post action analysis of the complete exercise both individually and collectively.
- v) Should depict co-relation between projector and trainee harness individually, for sub units of programmable strength and the entire group indicating the following:-
- (a) Two way records of hits or near misses scored/sustained by both groups.
- (b) Identity and type of weapon used by and against.
- (c) Number of shots fire from each weapon and hits/misses thereof.
- (d) Number of reactivation indicating identity of instructor control unit.
- (e) Attempted tampering with the harness and use of weapon after deactivation.
- (f) Time of each occurrence.
- vi) Should have the capability of installing printers of all types i.e. laser, Dot Matrix and Inkjet.
- vii) Should provide for 220 Volt AC Power supply and rechargeable power unit, which should last for 4-5 hours of use in normal mode and 1-2 hours of printing.

- viii) CPU of the system should have storage capacity of minimum 80 GB or above, upgradable and compatible with multi media system.

LASER PROJECTOR

- (i) Be compatible with all weapons in use in BSF i.e. 7.62mm GM(MAG), 7.62mm LMG, 5.56mm INSAS LMG, 7.62mm SLR, 5.56mm INSAS rifle, 7.62mm SSG-69, CM 9mm and 7.62mm AK-47/AKM.
- (ii) Should have the range for various weapon being used in BSF as under:-

S.No.	Range	Weapon
(a)	Upto 1000 Meters	GM(MAG) 7.62mm & 7.62mm LMG on Tripod
(b)	Upto 800 Meters	5.56mm INSAS LMG and 7.62mm SSG-69
(c)	Upto 500 Meters	7.62mm LMG on Bipod
(d)	Upto 400 Meters	5.56mm INSAS Rifle
(e)	Upto 300 Meters	7.62mm SLR and AK-47/AKM
(f)	Upto 100 Meters	CM 9mm

- (iii) Should be programmable for single/burst shot.
- (iv) The lasers used in the I.WESS should be of class 1 type, eye safe laser & should not be harmful to the human eye even from point blank range.
- (v) The laser projector should get de-activated when the trainee is hit by hostile fire.
- (vi) The power unit should be replaceable/rechargeable battery, which should last for 24 hours on standby mode and should be able to fire following number of shots in respective weapons:

S.No.	Weapons	No. of Shots
(a)	Rifles and Carbine	100 Shots
(b)	LMGs	750 Shots
(c)		MMG 4000 Shots

- (vii) Should be compatible with normal weapon sights of 7.62mm GM(MAG), 7.62mm LMG, 5.56mm INSAS LMG, 7.62mm SLR, 5.56mm INSAS Rifle, 7.62mm SSG-69, CM 9mm, 7.62mm AK-47/AKM, telescopic sight of SSG-69, day light telescope on INSAS Rifle, day light telescope of INSAS LMG passive night sight INSAS Rifle, Passive night sight INSAS LMG, passive night weapon sight of 7.62mm SLR/LMG and KN-250/SIMRAD of SSG-69.
- (viii) Weight should not exceed 500 gms, mountable on the weapon in such a manner that normal use of weapon is not hampered.
- (ix) Should be directly de-activatable by the umpire/instructor.

3.16 Non Liner Junction Detector

Purchased by: ITBP

Year of Purchase: 2009-10

Name of Supplier:

- M/S BEL (A Govt. of India Enterprises), Navi Mumbai

Names of Vendors who participated in the Tender:

- M/S BEL (A Govt. of India Enterprises), Navi Mumbai

Price Rs. 6,48,000.00

Lead Time: 1 Month

TECHNICAL SPECIFICATION

Transmitter		
1	Frequency	840 MHz to 915 MHz.
2.	Power Out Put	Should not be more than equivalent to 4 watt continuous.
3.	Modulation	AM/FM/ pulse or continuous.
Receiver		
4.	Should have Rx frequency for 2 nd and 3 rd harmonics	1680 to 1830 MHz and 2520 to 2745 MHz respectively.
5.	Sensitivity	Should be more than – 115 dbm.
Antenna		
6.	Cables	All cables and connectors should be well secured.
7.	Display	Should have visual display.
8.	Should have control functions	(a) Volume (b) Power selection

Output		
9.	Audio	With and without head phone.
10.	Display	Visual display distinguishing both 2 nd and 3 rd harmonics.
11.	Test target	A single power diode.
12.	Detection range in open space (max Tx and max sensitivity) In dug underground	Minimum 0.4 m or better. Minimum 0.15 m or better.
13.	Test false alarm rate	Should be less than 5%.
Power Requirements		
14.	Battery	Rechargeable battery should provide minimum 3 hrs operation time on single full charge. Should provide one spare battery. Battery should have protection against reverse polarity.
15.	Battery charger specification	180 to 240 V
Weight Required (Approx)		
16.	Operational weight	Should not be more than 6.5 Kg (weight in hand should not exceed 3.5 kg)
Operation conditions		
17.	Operation temperature range	-5 ⁰ C to + 50 ⁰ c or better
18.	Humidity	90% RH
19.	Activation	The system should not activate any active radio controlled device in close proximity to search head.
Miscellaneous		
20.		The firm should be able to provide the following, as applicable, along with the equipment:- (a) Cleaning kit. (b) Special Maintenance Tools. (c) Training aggregate-charts, slides, training brochure, training work model, blow up diagram, video films etc.

3.17 Bullet Proof Helmet

Purchased by: ITBP & SSB

Year of Purchase: 2008-09, 2009-10

Name of Supplier:

- M/S Anjani Technoplast Ltd., A-1 Industrial Estate Bazpur Road, Kashipur
The firm has now been blacklisted for unfair practice in connection with procurement of Bullet Proof Jacket.

Names of Vendors who participated in the Tender:

- M/S Anjani Technoplast Ltd., A-1 Industrial Estate Bazpur Road Kashipur
- M/S MKU Pvt. Ltd., Chandralok Complex, 26/72-D Birhana Road, Kanpur (U.P.)
- M/S TATA Advanced Material, Bangalore
- M/S Sarvamangala Industries Enterprises (P) Ltd., Krishnapuram, GT Road, Kanpur
- M/S Vijay Sabre Safety pvt. Ltd., Mumbai
- M/S VSA (India) Ltd., Rajaghat, Kolkata
- M/S Calcutta Fabricators, Kolkata

Price Rs. 6,000/-

Lead Time: 4 months

3.18 Bullet Proof Mobile Morcha

Purchased by: ITBP

Year of Purchase: 2009-10

Name of Supplier:

- M/S Laggar Industries Limited, Sobti Nagar, PO. Nurpur,
Pathankot Road, Jalandhar (Punjab)

Names of Vendors who participated in the Tender:

- M/S Laggar Industries Limited, Jalandhar (Punjab)
- M/S Star Wire (India) Limited, Lajpat Nagar, New Delhi

Price Rs. 62,500/-

Lead Time: 1 Month

TECHNICAL SPECIFICATION

Sl.No.	Characteristics	Specification (s)												
1.	Assembling	Should be conveniently assembled and dismantled												
2.	Handling	Two carrying handles should be provided for convenient handling.												
3.	Dimensions	<table border="1"> <thead> <tr> <th>Left plate Small/Large</th> <th>Centre plate (Small/ Large)</th> <th>Right plate (Small/Large)</th> </tr> </thead> <tbody> <tr> <td>1200mm/1900 mm</td> <td>1200mm/1900 mm</td> <td>1200mm/1900mm</td> </tr> <tr> <td>700mm/ 750mm</td> <td>700mm/ 750mm</td> <td>700mm/ 750mm</td> </tr> <tr> <td colspan="3">Tolerance \pm 5mm shall be acceptable in height & width</td> </tr> </tbody> </table>	Left plate Small/Large	Centre plate (Small/ Large)	Right plate (Small/Large)	1200mm/1900 mm	1200mm/1900 mm	1200mm/1900mm	700mm/ 750mm	700mm/ 750mm	700mm/ 750mm	Tolerance \pm 5mm shall be acceptable in height & width		
		Left plate Small/Large	Centre plate (Small/ Large)	Right plate (Small/Large)										
		1200mm/1900 mm	1200mm/1900 mm	1200mm/1900mm										
		700mm/ 750mm	700mm/ 750mm	700mm/ 750mm										
Tolerance \pm 5mm shall be acceptable in height & width														
4.	Firing Port	Each plate should have one firing port window of size 175 ± 5 mm X 125 ± 5 mm with adequate overlapping. B.P. sliding shutter from inner side. The height of the firing port shall be defined by the user.												
5.	Fitments	All fitments in the Morcha should be done in such a way that the properties of B.P steel are not affected i) The joint shall be tested for its B.P property irrespective of the distance of such joints form the edges. ii) There should be no gap between the sheets in assembled condition of Morcha												
6.	Weight of Morcha	Weight of B.P Mobile Morch consisting all the 03 plates with all fitments should not be more than 152 Kgs for small Morcha and 260 Kgs for large Morcha												
7.	Colour	Colour of the B.P Mobile Morcha should be green/ disruptive/ camouflage pattern/as per user requirements												
8.	Locking arrangements	Each plate of the B.P Mobile Morcha should have convenient locking arrangement for assembling and unlocking arrangements for dismantling												
9.	Protection Level	Each plate should provide following protection level at 90 degree angle:- 6 shots from SLR(7.62 mm X 51 mm) at a distance of 10 meters 6 shots from AK-47 (7.62 mm X 39 mm) at a distance of 10 meters Note: - Minimum distance between shots should not be less than 20 mm. The distance of shot from the edges should not be less than 30 mm.												
10.	Replacement	Whenever the B.P Morcha is fired upon and the port shutter gets damaged, the replacement should be possible.												
11.	Provision of Wheels	There should be a provision to attach/detach wheels as per tactical requirement of the user												
12.	Inspection of the Item on supply	01% of the total store shall be required to be provided in addition with the bulk supply without any additional cost for carrying out ballistic trial.												

3.19 Light Weight Bullet Proof Jackets

Purchased by: CRPF

Year of purchase: 2010

Name of supplier:

- M/S. MKU Pvt. Ltd. New Delhi

Names of Vendors who participated in the Tender:

- M/S MKU Pvt. Ltd. New Delhi
- M/S Anjani Technoplast Pvt. Ltd. Greater Noida. (U.P)
- M/S TATA Advance Material Limited Bangalore.
- M/S S.M. Pulp, Pvt. Ltd. New Delhi.
- M/S Lakshmi Cotsyn Ltd. New Delhi.
- M/S Adigear International New Delhi
- M/S Southern Group Industries Pvt. Ltd. New Delhi
- M/S AXR Enterprises Kanpur
- M/S Star Wire India Pvt. Ltd. New Delhi.

Price Rs. 17,550/-

TECHNICAL SPECIFICATION

Design Parameters for BP Jackets

- A. Shall conform to NIJ Standard of Ballistic Resistance of Personal Body Armour (NIJ) Standard - 0101.04 updated revision 'A' & 'B' Protection against all of the following weapons:
- (i) 9 x 19 mm cartridge fired through Sub- Machine Gun (Such as Sten Machine, MP5, Carbine any other variant) from a distance of 5 meters to achieve a muzzle velocity 430 +15 m/s and the weight of the bullet between 7.4 gm to 8.2 gm.
 - (ii) 7.6 x 51 mm Cartridge NATO ball ammunitions fired through 7.62 mm SLR/Bolt action rifle from a distance of 10 meters to achieve a muzzle velocity 838 m/s # 15 m/s and the weight of the bullet 9.4g to 9.6g.
 - (iii) 7. 62 X 39 mm (Mild Steel Core Bullet) cartridge fired through AK series rifles from a distance of 10 meters to achieve a muzzle velocity 715 m/s +15 m/s and the weight of the bullet 7.45 g to 8. 05 g.
- B. Vest should have the components mentioned in para D below. Each component should be made of multi layers of same material. Each layer will be in single piece and of equal shape and size to maintain uniform thickness all over area up to edge level.
- C. SIZES OF SOFT ARMOUR PANEL (SAP): STANDARD AND LARGE.**

D. AREAS OF COMPONENTS OF SOFT ARMOUR PANEL.

Coverage area of the Soft Armour Panel as per the sizes will be as under:

S.No.	PANEL	STANDARD SIZE (Sq. Mtr.)	LARGE SIZE (Sq. Mtr.)
1.	FRONT	0.15	0.18
2.	BACK	0.24	0.26
3.	COLLAR (TOTAL)	0.06	0.06
4.	SHOULDER (TOTAL)	0.04	0.04
5.	GROIN	0.06	0.06
	TOTAL	0.55	0.60

However, drawings of the various components of BP Jacket are enclosed as appendix- 'A' for guidance purpose in respect of its dimensions.

- (x) Negative tolerance in terms of area measurement is not permissible.
- (xi) Measurements will be made with the help of scaled drawing on graph paper and using plan meter.

E. WEIGHT OF THE JACKET

Total weight of BP Jacket including HAPs, SAPs, trauma pads and outer carrier should not exceed as mentioned below: -

- (i) Standard size - 6.31 kg.
- (ii) Large size - 6.62 kg.

F. SIZE OF HARD ARMOUR PANEL - 305 mm x 254 mm

Negative tolerance in dimensions of HAP is not permissible.

G. Shall consist of an outer carrier, removable Soft Armour Panel (SAP) of aramid fiber/suitable material and Hard Armour Panel (HAP) made of High Performance Polyethylene.

H. BP JACKET - CONSTRUCTION:

- (i) It should be in the form of jacket to provide protection against 9mm bullet (Threat level III A of NIJ). It should not restrict overall vertical movement of the neck of the wearer.
- (ii) It should have provision to accommodate two HAP plates in front and back as per dimensions specified in tender documents. Shall be lightweight and comfortable providing optimum mobility and speed.
- (iii) Adjustable at the shoulders, waist and groin with appropriate fasteners (Velcro's). An adjustable nylon belt of minimum 10 cm width should be providing with double locking of jacket with Velcro.
- (iv) The vendor has to declare the type of materials, number of layers and their aerial density in technical bid of tender and they have to maintain the same in bulk supply.

(v) SAP should be encased in polyurethane coated materials so as to make it water proof.

(vi) **Velcro Fasteners**

All the clothing flaps of the jackets should have high quality Velcro fasteners, so that it can be worn and taken off easily/quickly. The quality and report of Velcro including shears strength and peel strength should be as per Bureau of Indian standards specification IS: 8156-1994. The IS: 8156 - 1994 may be available in the office of Bureau of Indian Standards. Vendors will submit test reports on Velcro form any NABL accredited lab or DMSRD (MoD), Kanpur.

(vii) **Pocket with Flaps**

The jacket should be provided with two external pockets in outer carrier to house two magazines of 5.56 mm LMG in each pocket. Two pockets should also be provided to accommodate one grenade (HE 36) in each pocket. The size of each magazine is 19 cm X 7.6 cm and size of HE 36 grenade is 110 mm X 65 mm.

(viii) **Belt / Kamarbandh**

An additional belt of nylon/polyester weaving with minimum width of 10 cm should be provided around the waist to properly secure the B.P jackets with the body of the wearer around waist, so that weight of jacket is distributed on waist/shoulders. Kamarbandh should be of same material as outer carrier with Velcro.

(ix) Two pouches (one each on front and rear of outer carrier) should be provided to accommodate two 305 mm x 254 mm Hard Armour Plates so that jacket protects vital organs of body.

(x) Ballistic panels (SAPs & HAPs) shall be removable form outer carrier.

(xi) Outer carrier shall be machine washable.

(xii) **Truma Pad for Trauma Attenuation**

(a) Trauma pad must be provided behind the SAPs, so that it remains to body surface to provide proper cushioning.

(b) It must cover uniformly up to edge level of the SAPs.

(c) Back face Signature (BSF) should not exceed 25 mm in plasticine block at 30 + 2.9 degree centigrade temperature of plasticine.

(d) Drop test will be carried out as per NIJ standards.

I. MATERIALS

● The outer carrier shall be made of high tensity, heavy duty, abrasion proof and 100% vest integrity fabric PU coated Nylon.

● The Fabric weight should not be less than 95 gm/m².

● The fabric shall be treated for protection against water, fire (fire retardant) and ultra violet rays's exposure.

● The fabric must be suitable to wear in the Indian conditions of heat, rain and humidity.

● The inner side (body side) shall also be of a similar fabric and shall be treated for moisture and water repellency.

● The cloth of the carrier must be pre- shrunk before stitching.

● BP jackets should be UV Proof.

Note:

Tab methods of testing criteria for measuring the properties of outer carrier shall be as per IS: 11871 - 1986, IS: 3417 - 1979 (reaffirmed 1997), IS: 392 - 1989 and IS 391 - 1975.

- Duration of flame after removal of burner- maximum 5 seconds (Test Method ISI 1871)
- Duration of flame afterglow - maximum 5 seconds (test method ISI 11871)
- Hydrostatic Head - Minimum 100 cms of water (Test Method IS 391 - 1975)
- Water penetration should be zero (Test Method IS 392 -1989)
- Mean Ultra Violet Penetration Factor -Minimum 100 (Test Method IS 3417)
- Important - vendor should supply 3 meters of each fabrics used both at the time of tender and from actual production fo testing.

The tests specified will be conducted at a government institute, having required technical expertise. The institute will be selected by Technical Evaluation Committee in consultation with experts. All tests will be in accordance with the SOP. Any changes in the SOP will be decided by Technical Evaluation Committee.

J. VEST FIT:

- The overall length of the BP jacket shall be such that there is no "ride up" while sitting.
- The overlapping degree of front and rear panels shall be such as to provide for maximum freedom of movement.

K. COLOUR: CAMO. The bidders will submit samples of BP jackets of any camo colour. However, before placement of bulk supply order, exact camo colour along with modification required, if any, in outer carrier will be intimated

L. LABELLING: The outer carrier and the two soft Armour panels must be labeled as per NIJ standards giving the following details.

Name of the Manufacturer:

Name of the Product:

Date of the Manufacturing:

Date of Issue:

Threat level:

Size:

Serial no.

NIJ Standard:

Strike face of jacket should be clearly marked

M. SOFT ARMOUR PANEL (SAP)

- SAP shall be able to withstand NIJ threat level III A in respect of the caliber & the weapons selected for trail and other parameters such as weight & velocity of the bullet in ammunition selected for trials.
- Shall protect both front and back torsos.
- Shall be made of Aramid/suitable material.
- The weight of Aramid/suitable Filament, denier and type of weave shall be so balanced as to make the SAP lightweight, Soft and pliable.

- The aerial density of the panels shall be such as to provide the rated ballistic and trauma protection.
- No tears, rips, worn spots, discolorations, loose or torn stitching and set wrinkles on the SAP shall be allowed.
- The panel shall be treated with approved and durable water repellent.
- The SAP shall be removable from outer carrier to allow for periodic cleaning.
- The SAP shall be placed in tightly sealed; water repellent and PU coated heavy-duty fabric so as to make it completely waterproof.
 - (a) Hydrostatic Head-Minimum 100 cms of water (Test Method IS 391 - 1975)
 - (b) Water penetration should be zero (Test Method IS 392 - 1989)
- The aramid fiber layers shall be stitched in a suitable patterns in case SAP is made of aramid. The design given with this specification is for illustrative purpose only.

Note:

Tenders must declare number of layers and type of material (aerial density of material) used for fabrication Soft Armour Panel and Hard Armour Panel as per original manufacturer of the material. Raw Material Assurance Certificate (RAMC) must be given from original manufacturer in respect of material for SAP and HAP, valid for a period of six months from the closing date of tender. The tenderer has to declare the numbers of layers used for fabricating SAP and HAP of tender samples and they have to maintain the same in bulk supplies.

N. HARD ARMOUR PLATE (HAP)

- Shall be made of High Performance Polyethylene Fiber.
- Shall provide NIJ threat level III protection against cartridge 7.62x51 mm ammunition and 7.62x39 mm ammunition (Mild Steel Core Bullet) from a distance of 10 meters in conjunction with soft Armour Panel.
- Each plate should not weigh more than 1.5 kg.
- Shall be of minimum size 305 mm x 254 mm to cover the vital parts of the body.
- Curvature of the HAP shall be suitable to fit the body contour.
- HAP shall be shielded water repellent and PU coated heavy-duty fabric so as to make it completely water proof.

O. OTHER STIPULATIONS

JACKET STYLE	: POLICE
SERVICEABILITY	: 10 YEARS (HAP, SAP & Trauma pad)
GUARANTEE	: The outer carrier along with Trauma padding shall be guaranteed for a period of 2 Years against all manufacturing defects.
TEMPERATURE	: -500 C TO +500 C (Operating Temperature)
HUMIDITY	: 95% at 400C
STORAGE	: Normal Room Temp.

P. IMMUNITY LEVEL:

(a) **Hard Armour Plates:** The HAPs are to be tested in conjunction with SAPs.

- Six bullets NATO ball (9.4 g to 9.6 gms) fired from 7.62 MM SLR/ bolt action rifles a distance of 10 meters at zero angle of incidence.
- Six bullets (mild steel core), from 7.62 mm of AK rifles from a distance of 10 Mts. at zero angle of incidence on separate plates.

(b) Soft Armour Panels:

- Six shots fired through 9mm sub machine Gun (Such as Sten Machine, MP-5, Carbine, any other variant) from a distance 5 meters. With a muzzle velocity 430 ± 15 m/s and the weight of the bullet between 7.4 gm to 8.2 as specified in standard.

The velocities of bullets fired through weapons are given as follows:

Armour Type	Test Bullet	Bullet weight	Reference Velocity m/s	Hits per Armor part at 0 ⁰ angle of incidence	BSF* depth Maximum	Shot per Panel
III A	9mm FMJ RN	7.4gm to 8.2 gm	430 ± 15	4 + 2 at 30 ⁰ angle	25 mm	6
III	7.62mm NATO FMJ	9.4 to 9.6 g	838 ± 15	6	25 mm	6
	7.62 mm mild steel core	7.45 g to 8.05 g	715 ± 15	6	25 mm	6

- BSF - Back Face Signature on Plasticine.
- Selected weapon and lot of ammunition, for which reference velocity has been once achieved, will remain the same throughout ballistic testing of all tender samples of various firms.

All tests will be in accordance with the SOP. Any changes in the SOP will be decided by Technical Evaluation Committee.

Q. TESTING CRITERIA

(i) Scientific inspections/ ballistic trail of these BP jackets will be conducted as NIJ standard 0101-04 incorporating revision 'A' & 'B' for BP jackets.

- (ii) Groin pad will be tested ballistic ally with 9 mm SMC. Three evenly spaced fair hits at zero degree angle incidences shall be taken and BSF should not exceed 25mm.

R. MISCELLANEOUS

- (i) The supplier/ manufacture shall provide one number of BP jackets of the order size along with HAP at their cost from the lot of every 500 numbers but minimum four numbers per lot of jackets for the purpose of the ballistic test/evaluation of the tendered specifications at the time of materializing the supply. These tests will be selected prior to dispatch at random in the factory premises.
- (ii) While submitted the samples for tender, the supplier shall mention the exact area of SAP and HAP and give the template of the Jackets as per the area, so that import of raw materials of the BP Jackets will be allowed accordingly.
- (iii) Five tender samples are required for technical evaluation from a firm.
- (iv) Each model/brand of BP Jackets should be submitted against a separate tender form.

S. TESTING FACILITIES

Ballistic trails as per the QRs will be held at TBRL, Chandigarh or any other facility as decided by Technical Evaluation Committee.

Vehicles



4.1 All Terrain Vehicle (ATV)

Purchased by: BSF

Year of Purchase: 2009

Name of Supplier:

- M/S APPLICAZIONI Rielaborazioni Impianti Speciali S.P.A.

Names of Vendors who participated in the Tender:

- M/S APPLICAZIONI Rielaborazioni Impianti Speciali S.P.A.

Price : Euro 1,162,022/-

Lead Time: 10 Months

TECHNICAL SPECIFICATION

1. Seating Capacity 5+1

Body of the vehicle should be adapted to various modifications to suite requirements as per areas of deployment in High altitude areas.

Driver cabin should be hard top with hard doors and load body with roll over bars.

Bucket type seats for driver/co-drivers and four Nos foldable/easily removable seats in load body.

2. Body and Cabin structure

Standard dash board gauges with time clock.

3. Engine Power High powered engine developing power ranging from 120 hp to 190 hp @ 2900 rpm and torque of 300 nm to 800 nm @ 1200 to 1600 rpm with over heat protection and to prevent seizure of engine in extreme cold conditions. Trial will be conducted.

4. Vehicle Configuration:-

Emission: BS III or better compliant

Transmission: Fully automatic transmission with pre-selective gearing system.

Suspension: Leaf spring suspension at front and rear with shock absorbers at front and rear for ride comfort.

Brakes- Dual brakes system with antilock braking facility.

Steering - Right hand drive, power steering

Dimension - Length 5200 mm max. Width & Height 2400 mm max.

Wheel - All terrain tyres for good cross county mobility in high altitude area with provision for fitting of snow chain/ anti skid chain.

5. Pay load Minimum 1000 kg. with equipments
6. Speed
 - a) On road speed: Not less than 80 kmph;
 - b) Cross country: Not less than 30 kmph on normal cross country & 45 kmph on unprepared/ gravel road.
7. Range: 500 km approximate on road.
8. Turning radius: Not more than 16 mtr.
9. Gradient: Min. 30 degree
10. Side slope: Min. 15 degree
11. Vertical obstacle: 300 mm
12. Trench crossing ability including river/water crossing Min 500 mm
13. Lighting system 12 V 80 AH. Alternator 100-150 amp with battery charging for extra battery through main engine. Adequate lights including light in engine compartment and arrangement for black out of head lamps, tail light and brake lights when required, fog light and convoy lights. An extension socket on the dash board to be provided.
14. Fuel system Diesel/petrol
15. Fuel Tank capacity: Not less than 75 ltrs.
16. Fordability: Up to 600 mm unprepared
17. Operating temperature: -30 degree to +45 degree
18. Gross vehicle weight: Not more than 4500 kg
19. Ground clearance: Not less than 210 mm under axle Facilities and equipment required Cold starting facility and able to operate on sub zero level temperature up to -30°C Provision for mounting of weapon.
20. Tools and spares acceptable.
 - Towing hooks with towing capacity about 3 Ton.
 - Self recovery winch.
 - Provision for Telescopic mast
 - Brackets/arrangements for fitting GPS.
 - Provision for latest wireless and radio Communication.

- Fire fighting equipments suitably fitted on the vehicle.
 - Drinking water facility.
 - Climatic control system with wall and piles.
 - Camouflage nets with poles.
21. Field trial:- Procurement of Specialist vehicle would be considered subject to successful field trial of technically qualified vehicle in the areas of deployment of ITBP. Vehicle should be readily available for trial by the bidder.
 22. Training:- Supplier to impart training to ITBP personnel for operation and maintenance of the vehicle.
 23. Logistics:- Logistics support package shall be provided including workshop repair manual, illustrated parts catalogue, operation and maintenance manual.
 24. After sale service:- After sale service to be provided on requirement along with regular supply of spare parts. Maintenance parts should be readily available.
 25. Warranty:- Supplier will provide guarantee for maintaining the vehicle for TWO YEARS with further extended warranty for the next three years. Rates for such warranty should be quoted in offer as part of cost.

4.2 Field Artillery Tractor

Purchased by: BSF

Year of Purchase: 2006

Name of Supplier:

- M/S TATA Motors Ltd., New Delhi

Names of Vendors who participated in the Tender:

- Single Tender

Price Rs. 8,76,000/-

Lead Time: 6 Months

4.3 Driving Training Simulators Light and Heavy Duty Vehicles

Purchased by: ITBP

Year of Purchase:2009-10

Name of Supplier:

- M/s Zen Technology Ltd., C-63, Industrial Estate , Sanath Nagar Hyderabad (A.P.)

Names of Vendors who participated in the Tender:

- M/s Zen Technology Ltd., Hyderabad (A.P.)

Price Rs 51,00,000/- (for light duty) and 78,50,000/- (for heavy duty)

Lead Time: 3 Months

TECHNICAL SPECIFICATION

Sl. No.	Parameters	Specifications
1.	Physical Fidelity	While sitting in driving seat of DTS, the driver should be in the vehicle cabin with real instrument panel board and perception of:- <ul style="list-style-type: none"> (a) Road and its width, marking, signs, (b) Side view mirror. (c) Traffic control devices. (d) Bridge. (e) Traffic in both directions. (f) Cabin and road background. (g) Width and length of the vehicle. (h) Street lights. (i) Tree falling, if required. (j) People movement.
2.	Environmental Fidelity	The DTS should give real simulation of the following effects:- <ul style="list-style-type: none"> (a) Rain, fog, Snowfall & Sand. (b) Hill & cross-country terrain. (c) All the above during day and night. (d) Sun glare. (e) Sand storm. (f) Smoke.
3.	Large Screen Display	The screen (size 10.5' x 6.5') should be provided with realistic picture with following parameters :- <ul style="list-style-type: none"> (a) Depth. (b) Magnification. (c) 3 D.
4.	Sound Effects	DTC should be capable of synchronizing real simulation of sound with action of following :- <ul style="list-style-type: none"> (a) Engine start. (b) Engine idle condition. (c) Different gears. (d) Accelerator. (e) Crash. (f) Brake operation. (g) Tyre burst. (h) Horn. (i) Blinker. (j) Realistic environment effect sounds. (k) Engine starts failure sound.

5.	Moving Platform for Driver Cabin	<p>For realistic feel of driving in different situation and terrain the cabin to have the moving capabilities such as:</p> <ul style="list-style-type: none"> (a) Pitch (b) Roll (c) Forward and backward motion (d) Slope and dangerous deep valleys (e) Ascent and decent (f) Abrupt braking (g) Crushing movement
6.	Cabin Facility	Cabin should be provided as per requirement of user.
7.	Instructor Station	<p>The instructor station should provide the following facilities:</p> <ul style="list-style-type: none"> (a) System Diagnostic (b) Individual driver records (c) Individual Performance analysis (d) Introduction of events. Emergency situations & Malfunctions like tyre burst, vehicular malfunction, etc. (e) Error recording and illustration of actions frequently committed by drivers such as: - <ul style="list-style-type: none"> i) Time taken to take foot of from accelerator to brake ii) Right gear v/s right speed iii) Analysis of clutch riding iv) Analysis of accidents v) Analysis of over speeding vi) Lane violation and wrong parking vii) Traffic signal violation viii) Analysis of vehicle crash ix) Stall, Accelerator, break, gear error x) Speed breaker error xi) Stop sign, Wrong lane, blinker, horn error xii) Round about, speed limit and head light error xiii) Analysis of reversing and garaging xiv) Instructor should be able to create spontaneous obstacle xv) The software should enable the instructor to restart the simulation at any point in-between. (f) Report can be generated date wise and trainee wise. (g) Graphical representation of trainee performance.

8.	Instructor Panel	<p>Instructor console should consist of high end processor configurations:</p> <ul style="list-style-type: none"> -(a) Clock speed = Quad core or more (b) RAM= 4 GB or more (c) Video card = 512 MB or more (d) DVD Combo (e) Monitor-17" LCD- 3 Nos. (f) Compatible Key board and optical Mouse (g) Integrated communication & sound system for communication between instructor and trainees. (h) Ethernet 1 Gbps (i) 64 bit Windows operating system and instructor station software.
9.	Training in following situations/conditions should be provided: -	<ul style="list-style-type: none"> (a) Offensive driving (b) Defensive driving (c) Hill driving (d) Desert driving (e) Driving in Rain/snow/fog/storm conditions (f) Driving in metropolis (g) Cross country driving (h) Convoy driving (i) Highway driving (j) Overtaking (k) Parking
10.	The system should be supplied along with facility to measure and evaluate the driver's reflexes for: -	<ul style="list-style-type: none"> (a) Side vision (b) Depth perception (c) Reaction on simple & complex situation (d) Night vision (e) Glare recovery
11.	I/O Control	<p>The I/O control station should consist of: -</p> <ul style="list-style-type: none"> (a) Clock speed = Quad core or more (b) RAM= 4 GB or more (c) Video card= 512 MB or more (d) DVD Combo (e) Monitor-17" LCD- 3 Nos (f) Compatible key board and optical mouse (g) Integrated communication & sound system for communication between instructor and trainees. (h) Ethernet 1 Gbps (i) 64 bit windows operating system and instructor station software.

12.	Instructor's Station	(a) The basic instructor station should be able to control one visual station. However, the instructor station should be scalable to control up to 5 trainees for convoy driving. (b) Instructor should be able to communicate with trainees individually or all at a time.
13.	Visual Station	The visual station should consist of the following subsystems and modules (minimum configuration): - (a) vehicle cabin of user choice (b) screen- 10.5' x 6.5' (c) motion platform with a pay load of 1000 Kg or more (d) projection system – XGA 3000 Ansilurnens (e) Intel i7 Quad pro based computer with 80 GB V2, 1Gbps Ethernet, 64 bit windows operating system, graphic card 1GB
14.	Software	Should be windows based user friendly software
15.	Power Requirement	220 V 50 Hz on Mains. Complete system should have integrated UPS back up with 50% over load safety with 1 hour back up.
16.	Fault Finding Capability	The DTS should be capable of identifying committed errors, which should be recorded and replayed.
17.	Fault Correcting System	By system and through trainers intervention on line
18.	Driving Training Curriculum	From basic training to advanced for skilled drivers on user selectable terrains.
19.	Training	Vendor should provide training for minimum 10 working days.
20.	Operating Manuals/ User's Hand Book	Should be provided
21.	Validation	Software validation from third party
22.	Other requirement	The firm should have for repair, maintenance and AMC in India.
		Firm should provide software updates free of cost including latest software being sold to any of the CPMFs.
		After sale service shall be provided on requirement within 3 working days
		Free of cost training shall be provided by the firm for minimum 20 personnel.
		Participating firm shall categorically provide details of past suppliers along with performance report
		Firm should submit the compliance statement Para wise in respect of each specification and quality certification form authorized National/International accreditation agencies like ISI, BIS, CE etc. with warranty of 12 months from the date of receipt of stores at consignee's depot.

4.4 Light Recovery Vehicle

Purchased by: ITBP

Year of Purchase: 2009-10

Name of Supplier:

- M/S TATA Motors, Commercial vehicle Division, Jeevan Tara Building, 5, Sansad Marg, New Delhi

Names of Vendors who participated in the Tender:

- M/S TATA Motors, Commercial vehicle Division, New Delhi
- M/S Babber Wreckers Pvt. Ltd., New Delhi.

Price Rs. 14,40,000/-

Lead Time: 6 Months

4.5 Water Cannon

Purchased by: CISF

Year of Purchase: 2008

Name of Supplier:

- M/s Vijay Fire Vehicles & Pumps Ltd.,
Plot No.35, Chandivali off. Saki Vihar, Andheri (E), Mumbai- 400 072

Names of Vendors who participated in the Tender:

- M/s Dass Hitachi Ltd., Ghaziabad
- M/s Vijay Fire Vehicles & Pumps Ltd., Mumbai
- M/s ARCO Engineers, Pune

Price Rs. 27,08,475/-

Lead Time: 1 Month

TECHNICAL SPECIFICATION

Water cannon mounted on a vehicle shall be used for delivering water under pressure mixed with irritant/indelible ink in the form of a pulsating/continuous jet to meet the requirement to disperse the mob or unlawful assemblies.

The vehicle shall be fabricated on a TATA LPT 2515 chassis, 6X 4 configuration powered by 6 cylinders in line water cooled DI turbo charged diesel engine developing minimum 130 BHP at 2800 R.P.M.

General features

The vehicle mounted water cannon shall have water tank capable of carrying water of minimum cap 12000 ltrs and an irritant tank, each of cap not less than 500 Ltrs. A centrifugal pump capable of delivering minimum 3200 LPM of water at 8.5 Kg/cm² and 2400 LPM at 10.5 Kg/cm² coupled to a separate engine for driving the pump developing minimum 160 BHP at 2800 R.P.M. Fuel tank shall be filled with the explosion suppression material to avoid explosion in the tank.

A variable round the pump proportionator having three-position selector valve shall be fitted between the suction and delivery of the pump. Position 1 shall be selected during operation of one Cannon, position 2 shall be selected during operation of both cannons simultaneously and position 3 shall be selected during operation of both cannons along with front the rear spray nozzles. The OFF position should isolate the proportionator so that the appliance could be used to deliver water only if required.

Material Selection And Treatment.

Timer shall not be used in the body construction. All parts which forms water ways or come in contact with indelible ink and irritant shall be of corrosion resisting material or suitable treated to prevent corrosion. All water pipe lines shall be dipped galvanized. The water tank shall be internally painted with Epoxy Paint after shot/sand blasting and all metal parts exposed to atmosphere shall corrosion resistant.

DESIGN AND CONSTRUCTION:

Water Tank:

The water tank mounted on the chassis shall be capable of carrying water of minimum 12000 liters made of mild steel sheets. Thickness of the sheets at the bottom, front and rear sides shall not be less than 6mm. for sides & top minimum 5mm. thick. The tank shall be suitable baffled with not less than 3mm thick sheet. The tank shall be designed to keep the centre of gravity of the appliance as low as possible.

Suitable lifting eyes shall be provided on the tank to enable lifting for repairs/replacement as necessary.

The tank shall be fitted with a filling orifice, a drain cock and two bolted manholes of minimum dia 450 mm on the top of the tank. A 300 mm dia-filling orifice shall be provided on top of one of the manhole cover at the rear. The drain cock shall not be less than 75 mm dia water way through out.

An overflow pipe of not less than 100 internal dia shall be fitted to the tank. The overflow pipe shall be taken effective ground clearance when fully loaded and shall discharge away from the

wheels. The pipe shall be so designed and located to ensure that water will over flow through the pipe only while refilling the tank but no water shall overflow through this pipe when the application is in motion, is standing on an uneven ground or brakes are applied the moving vehicle.

Two filling pipes (hydrant connections) each with an internal dia. Of not less than 63 mm shall be fitted to the tank. Each of these shall be fitted with 63 mm instantaneous male couplings incorporating a strainer. The water from the tank shall not leak through the filling pipes.

Water level indicator tubular type for the water tank shall be provided and calibrated and marked as empty, $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ and full. The same shall also be in the driver's cabin control panel.

Arrangement shall be made for self filling of water tank directly from the pump using a pipe of dia not less than 50 mm. controls for this operation shall be at the pump panel and also in the driver's cabin.

All pumps shall have a clear and unobstructed water way of dia not less than 125 mm. the draw off shall be protected by a brass wire screen filter.

All piping joints shall be accessible so that maintenance can be done easily. Drain cocks where ever necessary shall be provided ad so arranged as to prevent the cocks from being opened by vibrations. Open/close shall be marked on each valves /cocks.

Pump

A centrifugal type pump shall be connected to a separate TATA 697 Turbo charged, 160 BHP AT 2800 RPM engine or equivalent to drive the pump. The pump engine assemble shall be fitted on the chassis in a locker just being the driver's cabin. The pump casing and impeller shall be gun metal. The pump shall be of stainless steel of self adjusting type. The impeller neck rings in the pump casing shall be of high quality bronze and should be hydraulically balanced to reduce end thrust.

The pump shall be capable of giving 3200 LMP at 8.5 Kg/Cm². the pump shall also be capable of giving the performance as below when working with all internal and external strainer (except basket strainer) at sea level at NTP.

- i) Out put -3200 LMP at 8.5 Kg/Cm². with 3m suction lift when working through two x 2.5 m length of specified suction hose.
- ii) Output -2400LMP at 10.5 Kg/Cm². with 3m suction lift when working through two x 2.5 lengths of specified suction hose.

ALLOWANCES FOR OUTPUT

01% for every 2.8⁰ C rise in water temp above 35⁰ C, 04% for every 300 m elevation above mean sea level. The suction eye of the pump shall be provided with 125 mm suction hose connection with internal strainer and GM tank cap with chain. A 125 mm/100 mm suction adapter shall also be provided to use 100 mm dia suction hose, if required. The strainer shall be retained properly. The pump shall be provided with two delivery outlets at the pump panel fitted with ball valves with standard 63 mm delivery hose connection and gun metal blank caps fastened with chain.

The pump casing and impeller shall be free from casting defects such as blowholes etc. pumps shall be tested to be hydraulic pressure of 28 Kg/cm² to detect any leakage perforation etc.

The pump shall be connected with the water tank water cannons and spray nozzles. The various controls for operating pump unit, cannons, spray nozzles etc. shall be located in the driver's cabin control for operating of pump shall be duplicated at the side pump control panel.

Primer

The primer shall be capable of lifting water at least from a depth of 7 m in 24 sec and shall preferably be of exhaust ejected type.

Engine for driving pump

TATA model Cummins turbo charged 6 cylinders water cooled direct injection 5675 cc diesel engine developing 180 BHP at 2800 RPM shall be used for driving the pump. The engine pump assembly shall be mounted in a locker behind the driver's cabin. Adequate louvers shall be provided in the locker for ventilation

Cooling System

In addition to the radiator cooling, an indirect cooling system of the open circuit type shall be provided with the pump -engine, discharging water to the waste, this shall enable full power output to be maintained during continuous stationery running of the engine without over heating.

The operating temperature of the engine cooling water shall be thermostatically controlled.

The oil in the oil pump shall be prevented from overheating and the pump characteristics shall be so chosen that the engine does not run at its maximum speed for giving maximum output.

Suitable gauge for cooling water and flow lamp for lubricating system of pump engine shall be provided in the driver's cab and on pump panel. This shall be marked with operating temperature.

Protective wire mesh guard of 10 gauge wire dia and 25 mm opening shall be provided underneath the pump engine locker to cover the open space.

Irritant and indelible ink tank:

Two separate and distinct stainless steel tanks each of 500 Ltrs capacity shall be suitable mounted on the chassis which can be removed separately for replacement. The tanks shall be fabricated out of minimum 2 mm thick stainless steel sheets with welded construction and reinforced suitably which can withstand a hydraulic pressure of 0.3 Kg/cm²

Each tank shall have a filling orifice with a removable strainer and a drain cock/pipe of dia not less than 50 mm.

The draw off tube shall be suitably located and fitted with a stainless steel gauge strainer of suitable mesh size and of adequate straining area. The tank top shall be removable and the joint between top and body of tank shall be leak proof. Suitable venting arrangement shall also be provided. The draw off tube from each tank shall be connected to the proportionator/indicator and the pump as necessary. The plumbing for this shall have a clear passage of not less than 1 ½" mm throughout without any obstruction.

Tube type level indicator for ink and irritant tanks shall be provided near the tanks and calibrated as empty 1/4, 1/2, 3/4 and full. In addition level indicator shall also be provided in the driver's cabin and calibrated to read empty, 1/4, 1/2, 3/4 and full.

Proportionator:

A round the pump indicator should be fitted between the suction and the delivery of the pump which will induct irritant or indelible ink as required in to the water stream with no loss in delivery pressure from the pump. The proportionator shall comprise of two inductor and two selector valves, calibrated to ensure correct intake of irritant/ indelible ink from 0 to 8%.

Water cannon

Two Nos. water cannons shall be mounted on rotatable platform. Each cannon shall be capable of traversing through 210 degree in horizontal plane with front 90 degree area to be covered by both the cannons and elevating from- 15 degree to +60 degree in vertical plane. Both the cannons shall have an output of around 1100 LMP at 10.5 Kg/Cm² with a throw not less than 50 M. both the cannons shall be of hydraulic controlled type with cannons movement effected by means of separate joy stick suitably located in the driver's cabin. The hydraulically operated cannons shall be fitted provided in the driver's cabin control panel to indicate the horizontal & vertical position of cannons at any instant. All the controls shall be provided with manual override controls so that in case of failure of hydraulic or pneumatic systems it should be possible to operate the cannons manually from within the driver's compartment.

Pulse jet arrangement: the water cannons shall be fitted with pulse jet arrangement so as to discharge water in the form of water shots (pulses of shots duration i.e. 2 sec. "ON" and 2 sec. "OFF"). Of required the cannons shall also be capable of discharging water in continuous stream. The switch over from pulse system to continuous stream shall be affected by simple arrangement.

Ground spray nozzles: two nos. spray nozzles in front of the vehicle between the front wheels shall be provided. The spray nozzles shall have a wide jet pattern to cover an area, at least twice the width of the vehicle with a throw of minimum 6m.

Rear spray nozzles: two nos. rear nozzles having a throw of 6 m. at the rear side of the vehicle shall be provided to protect the vehicle from the mob. Wide pattern spray nozzle shall be located suitably.

Body work and stowage: enclosed accommodation with double compartment for driver and in - charge in the front seat and a crew of four in the rear seat shall be provided. The design of the cab shall be such that it shall provided maximum possible vision for the crew and shall ensure adequate ventilation. Hinged doors shall be provided on both sides of the appliance. The doors shall be provided on both sides of the appliance. The doors should open outward and these shall hinge forward and have locks with double catch striking plates. All doors/windows shall be fitted with polycarbonate sheets and should have winding type regulators. Windscreen of splinter proof safety type shall be provided with removal protective wire mesh guard of 10 gauge wire dia and 25 mm openings. Wire mesh guard is also to be provided on head and other lights of the vehicle. All glasses including windshield shall be provided with removable protective wire mesh screen.

The cab and body shall be of composite construction with sufficient rigidity and strength. Square pipe MS sections 32 x 32x 16mm shall be used for the super structure members. Aluminum sheets of 16 gauge shall be used for paneling outside. For paneling locker's insides 16 gauge aluminum sheet shall be used. Chequered plates shall be of weather proof and self -draining to release all water following a wash down etc.

Lockers shall be provided for the stowage of all the equipments given in the list of equipment at appendix "A". The locker shall be provided with internal automatic lighting arrangement with master switch in the cab. The locker shall be of weather proof and self -draining to release all water following a wash down etc.

A second control panel shall be provided in the driver's cabin in front of crew leader's seat and would include the following to the controls /gauges provided by the chassis manufacturer.

- a) Pressure gauge calibrated to 20 Km/cm².
- b) Water level indicator to read 0, ¼, ½, ¾ and full.
- c) Pneumatically operated control for the following:-
 - i) Tank to pump
 - ii) Controls for cannons with manual overrides.
 - iii) Control for front and rear spray nozzles.
 - iv) Control for ink an irritant tank to indicator.
 - v) Control for pump engine stop.
 - vi) Master switch for locker lights.
 - vii) Switch for siren, cannon search lights etc.
 - viii) Throttle control for pump engine.
 - ix) Switch for cabin light/blinker light, beacon light etc.
 - x) Engine starter and throttle for pump engine.
 - xi) Indicators/ gauges to show location of cannons at any instant.
 - xii) Selector valves for ink & irritant in cabin.
 - xiii) Pump hour meter.
 - xiv) Selector valves for ink & indicators to read 0, ¼, ½, ¾ and full.

Instruments and controls

The following controls shall be provided at the pump panel.

- i) Cooling water valve.
- ii) Pump suction connection.
- iii) Engine throttle.
- iv) Pump delivery outlet with female instantaneous connections two nos. with ballvalve controls.
- v) Control for tank to pump
- vi) Priming lever
- vii) Pump to tank valve.
- viii) Pressure gauge calibrated to 20 kg/cm².
- ix) Compound gauge
- x) Pressure from 0 to 7 kg/cm².
- xi) Vacuum from 0 to 760 m of mercury.

Compressed air cylinder: Air supply for pneumatic shut of devices shall be provided by additionally installed compressed air cylinder.

Stability: Under fully equipped and loaded conditions (equivalent weight of crew to be loaded in lieu of the crew) the stability of the appliance shall be such that if the surface on which the appliance stands is tilted to either side, the point at which over turning occurs is beyond 27 degree from the horizontal.

Workmanship and finish: The standard of workmanship and finish of all mechanical and other parts shall be such that the parts normally required to be replaced can be supplied and will fit correctly. The appliance shall be suitably painted as per the requirements. The vehicle is required to be painted in 'United Nations (UN)' White Colour and Superscripted with UN. Under chassis shall be painted black. Necessary anti-corrosion and priming coat shall be applied before painting.

Literature Accessories and equipments:-

- a) User hand book: With illustration both for operating and normal maintenance procedure for the appliance.
- b) Illustrated part identification: it shall include an item wise and illustrated spare parts list giving reference number such that parts are made easily available when necessary.

Accessories:

The following accessories shall be provided in addition to those normally fitted on modern commercial vehicle.

- a) Electric siren
- b) Fog lamps (Two)
- c) Reversing light (One set)
- d) Twin Amber Blinker Light (One)
- e) Trafficators (One Set)
- f) Search light
- g) Inspection lamp with bracket (One)
- h) Trickle type battery charger
- i) Cab instrument panel and locker lights
- j) Battery operated amplifier system with control in the driven cabin and loud speaker on the driver's cabin roof.
- k) A TFT monitor will be provided & suitably located in the driver's cabin to view the activities of the mob at the rear of the vehicle. The video camera will be mounted on a stand provided inside the rear door of the vehicle. The video camera & TFT will be capable of operation through 12V DC vehicle battery.

Tools:

Tools which are required for normal maintenance of the appliance.

Documents:

The following documents (hard copy 2 sets & soft copy) will be provided along with the equipment.

- a) User hand book and technical/maintenance manual with illustration both for operating and normal maintenance procedure for the appliance.
- b) Illustrated parts identification list: ISPL should include each part and related sub assembly total system along with master list of drawings.
- c) CCES & Equipment Dossier.

Acceptance Test: The following tests will be carried out before accepting the vehicle. These will be carried out at the manufacturer's premises or a place to be mutually agreed upon.

Load Distribution:

- i) Gross Vehicle weight : Not to exceed 25000 kgs
- ii) Front Axle Weight : 6,000 kgs.
- iii) Rear Axle Weight : 19000 kgs.
- iv) Overall Length : 9350mm
- v) Overall Width : 2470mm
- vi) Min. Road Clearance : 336mm.

- a) Stability Test: To check the fulfillment of requirement as per specifications.
- b) Pump Test:
 - The pump casing & impeller will be subjected to a hydro test at a pressure of 28 kg/cm² to detect any leakage.
 - Performance test would be carried out as per specifications.
 - The pump will be run for a period of 4 hrs. Non-Stop to check the rated output at varying pump pressure with 3 M suction, using 100 mm dia. suction hose. The test will be conducted after mounting the engine & pump on the chassis at our works. During the test the water will not be replenished for the cooling system & the temp. of engine oil will not exceed 1150 C or 90% of the oil manufactures rated temp. (whichever is less). Engine will show no signs of defects during the test. The temp. of cooling water (radiator water) will not exceed 850c.
 - Tests will be made to check the fulfillment of the requirement laid down in specifications.
 - All pipe lines will be subjected to a hydraulic pressure of 28 kg/cm⁰.
- c) Primer test: the lift for the primer test will be measure from the center of suction eye to the water level & will be carried out to check the fulfillment of requirement laid down in specifications.
- d) Front & Rear Spray Nozzles: the tests will be conducted to check the requirement laid down in specifications.
- e) Water Tank, Ink & Irritant Tanks: The tank will be subjected to hydraulic pressure of 0.3 kg/cm². The tanks would with stand the pressure without any leakage/bulging.

Equipment: Equipment as per Appendix - 'A' shall also be supplied.

Manufacturer's Certificate and Guarantee

The manufacturer shall furnish a guarantee for the material, workmanship and performance of the appliance for a period of one year from the date of receipt of equipment.

The manufacturer shall give a certificate regarding the fulfillment of the requirements laid down in this specification.

The manufacturer shall be responsible for replacing any part which may become unserviceable due to use or defective or sub standard material or bad workmanship during the period of guarantee free of all charges.

Marking

The appliance shall be clearly and permanently marked with the following preferably on a metal plate attached in the driver's cab and also at the pump operating control panel.

- i) Manufacturer's name or trade mark.
- ii) Year of manufacture.
- iii) Capacity of pump (in LMP). Water Tank. Tank Irritant Tank and indelible ink (in liters).
- iv) Engine and chassis number.
- v) Pump number.
- vi) A brass plate with operating/maintenance instructions suitably engraved on it should be provided on the pump operating panel for easy reference to the operator.

Inspection clause:

Inspections of the vehicle shall be carried out in below mentioned three phases:-

1. Inspection during fabrication before painting and finishing.
2. Final pre-dispatch inspection.

The following accessories shall be supplied along with the vehicle.

- i) Low level suction strainer for use with 100 mm suction hose as per IS:
- ii) Armored section hose in 2.5 m length with internal diameter of 100 mm with Standard round thread coupling as per IS: 902/2410-04 nos.
- iii) Suction wrenches as per IS: 2642-01 pair.
- iv) 100 mm x 63 mm hydrant to suction Gun Metal adapter -01 no.
- v) Basket strainer of above as per IS: 3582-01 no.
- vi) Suction collecting head 3-way Gun Metal -01 no.
- vii) Light alloy branch pipe with 19 mm and 25 mm nozzles -02 sets.
- viii) RPL hose 63 diameter and 30 m long with Gun Metal instantaneous couplings as per BIS 636 type II and IS 903-02 nos.

Disaster Management and Other Miscellaneous Equipment



5.1 70 Ltrs Capacity Water Proof Rucksack

Purchased by: ITBP

Year of Purchase: 2008-09

Name of Supplier:

- M/S G.M. Trading & Company, Delhi Road, New Delhi.

Names of Vendors who participated in the Tender:

- M/S G.M. Trading & Company, New Delhi.

Price Rs 1,940/-

Lead Time: 6 Months

5.2 Apparatus Cable Laying (ACL) Machine

Purchased by: ITBP

Year of Purchase: 2009-10

Name of Supplier:

- M/S Applied Commn.& Controls, 109, Shiva Market, Madhuban, Pitam Pura, New Delhi-110034

Names of Vendors who participated in the Tender:

- M/S Applied Commn.& Controls, New Delhi-110034
- M/S Dhruav Enterprises, RAR-2208, Rajendra Arihant tower, 50/51, B-Block, Community Center, Janakpuri, New Delhi-110058
- M/S Asha General Engineering Works A.B Road, Industrial Area, Shivpuri (MP)

Price Rs. 2,940/-

Lead Time: 2 Months

TECHNICAL SPECIFICATION

S/No.	Particulars	Specifications
1.	CROSS BRAOES	Two cross Braoes of 80 Cms length each of quality galvanized Iron pipe 1.6 mm thickness and 130 mm diameter with supporting straps.
2.	SPINDLE	The spindle should have cast iron rod of 25 mm square and a length of 80 cms. The spindle rod should be made round to seat in break unit for easy rotation of spindle.
3.	HANDLE	A handle to be attached with spindle with bend 20 cms and holder length 20 cms.
4.		The cross Braoes supported with middle joint by G.I pipes of length 50 cms and diameter 60 mm and the supports are cross chained to avoid misalignment of apparatus.
5.	WEIGHT	Appx. Weight of ACL should be ≤ 16 Kg.

5.3 Auto Analyzer

Purchased by: CRPF

Year of Purchase: 2007-08

Name of Supplier:

- M/s Chemi Health Diagnostics, 2nd floor, Chaudhary Building, Sarwal Chowk, Jammu Tawi

Names of Vendors who participated in the Tender:

- M/s Chemi Health Diagnostics, 2nd floor, Jammu Tawi
- M/s Jay Ess Scientific Agencies, 846-A, Krishna Nagar, opp. Commerce College, Canal Road, Jammu Tawi.
- M/s A.K Enterprises, Hari Singh Nagar, Rehari Colony, Jammu.
- M/s Moditech International sector -17A, Chandigarh

Price Rs. 2,37,250/-

Lead Time: Four Weeks

TECHNICAL SPECIFICATION

1. Optical System Principal :-
Monochromator or with interferential filters wave length range 340-1000nm Wave Length selection automatic 9 position.
2. Cuvette System :-
Two way cuvette system on metallic microflow cell 30-10mm light with temperature control by peltier System Standard 10mm x 10mm holder for macro or semi macro cuvettes useful for coagulation tests and special methods.
3. Aspiration System:-
Built in peristaltic pump driven by stepper motor Programmable reversible for sample recovery reaction volume variable 100 to 500 per test.
4. Operators Interface:-
Membrane Key Board with 25 keys for functions and numeric entries.
5. Data Presentation:-
Graphic LCD Display 20 x40 Characters with back light
6. Printer:-
Thermal graphic 24 characters with back with back light.
7. Programme:-
100 open system tests 30 non linear calibration curves printer control variable Aspiration rate and sample recovery Automatic Calibration and tests mode. Quality Control.
8. Analysis Modes:-U
Absorbance/concentration end point with and without blank sample and reagent blank standard or factor .Factor storage in all methods Non Linear calibration mode Enzyme kinetics with or without sample blank.Two points kinetics Incubation up to 10 minutes .Measure time from 15 to 600 seconds Direct coagulation reading in cuvette by turbidimetric variation.Absorbance point for accurate threshold determination. Direct observation of the coagulation rate. Biochromatic operation.
9. Interface : Rs 232 C
10. Power Requirements : 110-230 VAC 50/60Hz, 50 VA
11. Dimensions (W x D x H) : 32 cm X 38 cm X17 cm
12. Weight : 06 Kg.

5.4 Diesel Generator-320 KVA

Purchased by: CISF

Year of Purchase: 2008

Name of Supplier:

- M/s Germinal Technologies (India),709, International Trade Tower, Nehru Place, New Delhi-110019

Names of Vendors who participated in the Tender:

- M/s Puspa Generator & Hire, New Delhi
- M/s Germinal Technologies (India), New Delhi.

Price Rs. 46,56,940/-

Lead Time: 15 Days

TECHNICAL SPECIFICATION

1. DIESEL ENGINE

- a) An engine suitable for 320KVA GENSET, turbo charged,
- b) Water cooled, electric start, 1500 RPM, four stroke, multi-cylinder diesel engine.
- c) Conforming to IS: 10000/ISO 3046/BS 5514 with 10% overload available in excess of specified output for 01 hour in any 12 hours of continuous operation in standard operating.

2. COOLING SYSTEM

- a) Heavy duty radiator with fan
- b) cooling water centrifugal pump
- c) Coolant should be used mixed with additive.

3. EXHAUST SYSTEM

- a) Exhaust gas turbo charger
- b) Exhaust manifolds
- c) Flexible Connection
- d) Exhaust Silencer
- e) Suitable designed exhaust pipe with flexible for carrying the exhaust gases out with minimum back pressure on engine.

- f) Suitable designed pipe for connecting silencer with stack, so that the back pressure on engine is minimum.
4. FUEL SYSTEM
- a) Engine driven Fuel pump
 - b) Fuel Injectors
 - c) Fuel filters
 - d) Fuel hoses
5. LUBRICATING OIL SYSTEM
- a) Lube oil pump
 - b) Lube oil filters
 - c) The lubricating oil system should be designed in a manner that when engine starts after a long shutdown lubrication failure should not occur.
6. INTAKE AIR SYSTEM
- a) Air intake manifold
 - b) Heavy duty Air cleaner with replaceable elements-inner/outer.
 - c) Vacuum Indicator
7. GOVERNER
- a) It should be a self contained unit capable of monitoring speed.
 - b) Electronic Governor of class A 1 as per ISO 3046/BS 5514 with actuator.
 - c) The engine speed shall be so maintained that the frequency variation at constant load including no load shall remain within a band of 15 of fated frequency.
8. STARTING SYSTEM
- a) Electric starter- Comprising of necessary set of heavy duty batteries 12/24 Volts DC (as per manufacturer standard)
 - b) A timer in control panel to protect the starter motor from excessively long cranking runs should be integrated with the engine protection system.
 - c) Battery charging alternator complete with transformer, rectifier, charge rate selector, switch, indicating Ammeter & Voltmeter etc. Connections between battery and charger with suitable copper leads with lugs.
9. COUPLING ARRANGEMENT
- a) Flywheel to suit single bearing alternator
 - b) Flywheel housing
 - c) Inbuilt AVM pads to reduce vibrations and eliminate misalignment of engine and Alternator.

10. SAFETY CONTROLS

- a) High water temperature
- b) Low lube oil pressure
- c) Over speed, Over Crank

11. ENGINE INSTRUMENT PANEL (ENGINE MOUNTED)

- a) Starting switch with OFF/ON/START KEY
- b) water temperature display
- c) lube oil pressure display
- d) RPM display
- e) Tachometer with, hour meter

12. MANUALS

- a) Engine operation and maintenance manual
- b) Alternator manual with parts catalogue
- c) Engine maintenance schedule
- d) Warranty card
- e) Engine routine test certificate
- f) Spare part list of diesel engine
- g) test certificates of diesel engine and alternator

13. ALTERNATOR

- a) Synchronous single bearing alternator, rated at 320 KVA, suitable for continuous operation at 1500 rpm generating 415 volts at 0.8 power factor (lag) suitable for 50 Hz, 3 phase, 4 wire system.
- b) The alternator shall be brushless, self excited, self regulated, foot mounted fitted with ball and/or roller bearing
- c) Exciter unit should be mounted on the control panel or on the alternator assembly.
- d) The alternator shall be suitable for tropical climate and shall conform to BS: 2613/IS: 4722 & IEC: 34 as amended up to date.
- e) The class of insulation shall be "F/H" type.
- f) Temperature rise within F/H limits at rated load.
- g) The alternator should be self ventilated air cooled.
- h) Degree of protection -IP-23 or better.
- i) Voltage Regulation (+/- 1%) in static condition.
- j) Frequency variation (+/-1%) as defined by the engine governor.

- k) Automatic Voltage Regulator unit of electronic type should be provided.
- l) Permissible overload of 10% for one hour in 12 hrs of operation.
- m) Faulty tripping: In the event of any fault the AVR should remove the excitation voltage to the alternator. An emergency tripping should also be provided.

14. BASE FRAME

Heavy duty base frame of sturdy design made of M.S steel or iron with necessary reinforcement and pre-drilled holes, to support the DG set and enclosure.

15. VIBRATION INSULATION

Anti -vibration mounts for vibration insulation should be used between engine/alternator and base frame.

16. FUEL TANK

Base fuel tank of sheet metal (14 SWG), having a capacity of min. 500 litres, duly fabricated and painted, complete with drain valve, air vent, level indicator, inlet and outlet connection, locking arrangement to avoid theft of oil, and housed in the base frame.

17. BATTERIES

Two numbers batteries of capacity 180 AH, electric system 12/24 volts or as required for starting each in dry and uncharged condition with initial charging, connecting leads and Terminals, Copper cable size should be selected in such a way that voltage drop does not exceed 2V.

18. COUPLING AND MOUNTING ARRANGEMENT

The engine and alternator shall be directly coupled and mounted through in built AVM pads on a heavy duty steel base frame, there shall be no change of miss-alignment of the DG set and the vibrations of the DG set shall not get transmitted to the base -frame and to the enclosure.

19. CONTROL PANEL

The control panel body shall be fabricated out of 1.6 mm MS sheet. Panel shall be floor Mounted, totally enclosed, dust, damp and vermin proof free standing floor mounted type and front operated. No mixing of control, power, DC & AC functions and should be sufficiently segregated except where their bunching is necessary. Control cable of copper of 2.5 sq. mm should be used. Degree of protection required will be IP-42 confirming to IS:2147. The panel shall be equipped as follows:

(a) Metering

- i) one voltmeter with selector switch
- ii) one Ammeter with selector switch
- iii) one frequency meter
- iv) fuel level gauge

(b) Set of push buttons, selector switches and indicating lamps

- i) Push button for engine start
 - ii) push button for engine stop
 - iii) indicating lamps for "Load On" and "Set Running"
 - iv) Master selector switch for auto/manual/test/off
 - v) Push buttons for test, reset and acknowledge
 - vi) indicating lamp for " Set fails to start"
- (c) Audio and visual annunciation of engine shutdown for
- i) Low lube oil pressure
 - ii) High cooling water temperature
 - iii) Engine over speed
- (d) Audio and Visual annunciation of Alternator protection for
- i) Over load
 - ii) Shot circuit
 - iii) Over Voltage
- (e) Battery charger consisting of
- i) Transformer of suitable rating
 - ii) Rectifier
 - iii) Charge rate selector switch for "Trickle" or "Boost"
 - iv) DC Ammeter and DC Voltmeter
 - v) An indicating lamp for battery being charged
20. The D.G set should comply with the noise limit of 75 db (A) at 01 m from the enclosure surface and G.S.R. 371, dated 17.5.02 issued by Minister of environment and forest, GOI and certified as per norms of GOI already notified.
21. The diesel engine shall comply with the emission limits given in G.S.R. 371, dated 17.05.02 (irrespective of the date of implementation given in the notification) and certified as per emission norms of GOI already notified.
22. ACOUSTIC ENCLOSURE
- a) Acoustic enclosure should be integral part of the Genset.
 - b) The acoustic enclosure should be modular construction with the provision to assemble and dismantle easily as per site condition.
 - c) There should be no protruding parts.
 - d) The enclosure should be fabricated out of CRCA sheet of 14 SWG.
 - e) The sheet metal components should be sip seven tanks pretreated.

- f) To have long life of the enclosure it should be P.P based powder coated (inside as well outside).all nut and bolts hardware's be zinc coated or stainless steel.
- g) There should be provision for filling the fuel from outside as in the case of automobiles with locking arrangement.
- h) Battery should be accommodated in a separate tray in the enclosure.
- i) There should be provision for drain plugs for draining Mobil oil/diesel from out side the enclosure.
- j) The doors to be provided with high quality EPDM gaskets to avoid leakage of sound. The lockable type door handles should be provided.
- k) Sound proofing of enclosure to be done with high quality rock wool conforming to IS 8183, of minimum 100mm thickness and density of 48-64 kg/m³.
- l) The rock wool should further be covered with fiber glass cloth and perforated galvanized MS sheet.
- m) A special critical grade silencer is required to be provided to control exhaust noise. (minimum 25dBA insertion loss)
- n) Specially designed attenuators are required to be provided to control sound at air entry to the enclosure and exit from the enclosure.
- o) To make the system vibration free, engine and alternator should be mounted on specially designed anti-vibration pads.
- p) Adequate ventilation is required to be provided to meet air requirement for combustion and heat removal. A blower should be used to meet total air requirement, air changes, air changes, if required.
- q) Temperature inside enclosure should be exceed beyond 70^o C of ambient temperature.
- r) A provision for emergency shut down from outside the container should be made.
- s) Control panel should be mounted outside the enclosure.
- t) Engine should carry warranty of respective manufacturer for diesel generating set in enclosure.
- u) The acoustic enclosure shall be rain/water proof.

23. FUEL CONSUMPTION

Engine should be capable of providing fuel consumption of 4 units/lit. of diesel, between 80 to 100% load as per BS 5514.

24. INSTALLATION COMMISSIONING AND TESTING: The DG sets is to be installed and commissioned at 5th Reserve Battalion, CISF, Ghaziabad for testing propose to be run continuously for 48 hours.

25. Operation and maintenance.

The Company/supplier should provide separate rates for installation with material,

commissioning, operation and maintenance for above silent DG sets for period of six months and extendable to further six month at HAITI (Central American Caribbean Island) capital - Port-au-Prince.

- Each DG sets should be along with following material for installation as under:-
 - a) 300 sq. mm, Aluminum, 3.5 Core, Power cable -100 mtr.
 - b) 630 Amp Change over Switch.
 - c) GI Plate earthing material as per IER Rule -4 sets.
 - d) Lungs and Glands for 6 sets of termination.
- Each DG sets should be along with following material for operation and maintenance as under:-
 - a) Regular Service spare for 5000 working Hours.
 - b) Critical spares for 5000 working Hours.

5.5 Contamination Monitor

Purchased by: CISF

Year of Purchase: NA

Name of Supplier:

- M/s Pulsecho Systems (Bombay) Pvt Ltd.,107 /110, Nirmal Industrial Estate, Sion Fort, Sion, Mumbai -400 022

Names of Vendors who participated in the Tender:

- M/s Anjali Incorporated, Mumbai.
- M/s Electronics Enterprises (India) Pvt Ltd., Kota
- M/s Pla Electro Appliances Pvt Ltd., Mumbai
- M/s Nucleonix Systems Pvt Ltd., Hyderabad
- M/s ECIL, Hyderabad
- M/s Pulsecho Systems (Bombay) Pvt Ltd., Mumbai
- M/s Speck Systems Limited, Hyderabad

Price Rs. 13,898/-

Lead Time: 2 Months

TECHNICAL SPECIFICATION

1.	Radiation to be detected	Alpha
2.	Detector	Built in Zns with PMT
3.	Scintillation window	Circular/square window of 10-12 cm dia.
4.	Efficiency	Better than 22% better than 25% at the center
5.	Background	< 0.5 CPM
6.	Counting capacity	0.9999 Countes
7.	Display	4 digits LCD, 0.5
8.	High voltage	500 V-1000 VDC
9.	Power	7.5 v dc: 1.5 V x 5, R 14, size batteries
10.	Over Range and Low Battery	LDC Dot, when battery falls below 5.5 V and count exceeds 9999
11.	Timer	Controlled by start/ stops switches (manual mode) starts with switch/stops itself after 1 min (auto mode). To reset Scalar and Timer (resets).

5.6 Battery Operated Air Sampler with Filter Paper (along with accessories)

Purchased by: CISF

Year of Purchase: NA

Name of Supplier:

- M/s Electronic Enterprises (India) Pvt Ltd., Karmbhoomi, 129-A, Shakti Nagar, Kota 321 009 Raj.

Names of vendors who participated in the Tender:

- M/s International Environment Consulting, New Delhi
- M/s Electronic Enterprises (India) Pvt Ltd., Kota
- M/s Swan Environmental Pvt Ltd., Hyderabad
- M/s Anjali Incorporated, Mumbai
- M/s Envirtech Instruments Pvt Ltd., New Delhi

Price Rs. 53,696/-

Lead Time: 5 Months

TECHNICAL SPECIFICATION

1. Hand held, portable, light weight, Rechargeable battery operated.
2. Instantaneous flow reading.
3. Indoors and outdoors use.
4. Variable motor special control
5. Maximum flow rate (with loading): 1 to 3 LMP Filter Holders.

5.7 Fiber Reinforced Plastic Boat with Motor (RIBs)

Purchased by: CRPF

Year of Purchase: 2008-09

Name of Supplier:

- M/s Fibroplast, C-30, SECTOR-58, Noida, Gautam Budh Nagar, U.P.

Names of Vendors who participated in the Tender:

- M/s Gee Pee Reinforced Products Pvt. Ltd., Manesar, Gurgaon
- M/s Fibroplast, Gautam Budh Nagar, Noida
- M/s Craftway Engineers Ltd., Mumbai.
- M/s Sure Safety Solutions, New Delhi.
- M/s Poly Glass Fiber Industries, New Delhi
- M/s Calcutta Commercial Corporation, New Delhi

Price Rs. 93,82,824/-

Lead Time: 6 Months

TECHNICAL SPECIFICATION

<u>Principal Particulars</u>	
Length overall	5.0-5.4 M
Length inside	4.14.-4.22 M
Beam Overall	2.15-2.8 M
Draught	0.4 M
Type of Engine	<u>Suzuki / Yamaha / Mercury / Mariner/ OBM</u> of suitable HP
Carrying Capacity	<u>12 persons</u>
Speed	Maximum 30 Knots <u>with 04 people.</u>
Endurance	4 to 5 hours <u>with 04 people.</u>
Seating	Seating arrangement for <u>12 Persons.</u>
Maximum Load	1500 Kgs.
General Arrangement Drawing	The GA drawing showing the proposed boat shall have been <u>approved by IRS before submission of tender.</u>
Sponsons on Dia	0.4-0.5 M
<u>Hull / Deck and Under Deck</u>	
1.	The hull shall be of BRP / FRP construction with <u>orange pigmented</u> colored gel coat forming the out surface. The exterior surface of the hull shall be free of deflections and of bright smooth finish.
2.	The hull shall have a compartmentalized under deck construction with flood control design in the event of any damage and fracture of the outer hull.
3.	The hull shall incorporate adequate hull stiffeners compliant with the requirement of the certification authority –IRS. <u>All requirements for Building certificate to be complied with. IRS charges to be borne by the builder.</u>
4.	All under deck surfaces shall be resin sealed and flow coated.
5.	A bow towing eye shall be provided.
<u>Sponsors</u>	
1.	Shall be of 0.4-0.5 M
2.	Material Hypalon / Neoprene (Not less than 1500 GSM /1670 Dtex) <u>Fabric type Orca -866- Panel fabric(as used in Naval RIBs) (Imported fabric with LSA & BSMA approval)</u>
3.	The collar shall have a minimum of 5 individual airtight compartments, each with an Inflation Valve <u>& relieve valve both with closing caps.)</u>
4.	<u>Inflation Valves</u> a) Shall be positioned so as not to allow debris or water to collect in the valve.

	b) The valve seal shall be of a type that can easily be changed.
5.	<p>Durability & Protection <u>The collar shall be provided with :</u></p> <p>a) A rubbing strake around the entire outer edges b) Additional protection / cladding to the bow/nose section c) Additional topside, outer and inner collar surface double skinning Hypalon wear patches to the aft quarter to midship section of collar Topsides of collar to be protected by a flat rubber wear strake d) Suitable relief valves to be provided for each compartment.</p>
6.	Lifelines to be provided – internal and external.
7.	A bow fairlead to be fitted for guiding the anchor rope.
8.	1.0M of collar material to be supplied for damage repair.
Propulsion & Engine Instrumentation	
1.	The Boat shall be powered by a single Mercury/ <u>Yamaha / Mariner / Suzuki</u> Four stroke outboard engine. With electric start – power trim & tilt and a suitable propeller.
2.	The engine shall be controlled by remoter Single Lever (Gear & throttle combined) control unit.
3.	Instrumentation 1) Tachometer 2) Speedometer 3) Temperature Gauge 4) Fuel Gauge 5) Voltmeter
<u>Additional Equipments & Accessories</u>	
1.	A steel transport and stowage cradle
2.	A manual bilge pump permanently mounted at the transom with overboard discharge pipe.
3.	Mooring Bollard x 1
4.	Collar repair Kit
5.	Inflation valve cores and relieve valves x 7
6.	<u>SOLAS Life Jackets x 12</u>
7.	<u>SOLAS</u> Life Buoys x 2
8.	Anchor -15 Kg with 2 meters of chain and

9.	Loose 5 gallon fuel tank x 1
10.	SOLAS first aid box x 1
11.	Boat hook x 1 mounted in secure stowage straps
12.	Mooring rope 32 meters
13.	Large stowage locker in forward face of console with waterproof door
14.	Stowage lockers under Jockey seats x 8
15.	Boat operation and maintenance manual
16.	Engine operation manual
17.	Spare propeller and propeller nut and washers x 1
18.	Stainless steel Guard rail all round the front console
19.	Space shall be provided for :-
20.	Console with clear vision screen with two pilot seats in the front along with remote controller arrangement.

5.8 Inflatable Motor Rescue Boats Big (20 seated) (Boat Assault Universal Type with OMB 50 HP)

Purchased by: CRPF

Year of Purchase: 2009-10

Name of Supplier:

- M/s Fibroplast, C- 30, Sector 58, Noida Gautam Budh Nagar, UP,- 201301, India

Names of Vendors who participated in the Tender:

- M/s P.K. Himatsinghka & Co., New Delhi
- M/s Fibroplast, Noida, Gautam Budh Nagar
- M/s Bengal Tools Limited, Kolkata
- M/s DCM Hyundai Limited, New Delhi
- M/s Shiva Engineering Works, Kolkata
- M/s Raksha Polycoats Pvt. Ltd., Pune

Price Rs. 5,86,040/-

Lead Time: 6 Months

TECHNICAL SPECIFICATION

1	The FRP rescue boat will be designed for carriage 10 persons plus a crew of two i.e a carriage capacity of 12 men or 1200 kgs.The weight of the boat should not exceed 350 kgs excluding weight of OBM & accessories .the freeboard at full load should not be less than 12 inches .The length ,breadth ,and height of the boat should not be less than 15 feet ,six feet and 2.5 feet respectively.
2	Provenness of the hull shall be supported by documentation showing line plan, stability calculations, trial reports and satisfactory operation certificates from previous purchasers of the same design. The hull will be constructed in centrally air conditioned FRP shop with humidity and temperature control process controls ,on line parametric controls and records shall be approved by the classification society(international association of classification societies) and necessary certificate will be submitted by tenderer for evaluation.
3	The engine of OBM shall be 40 HP four stroke OB,40 HP OBM of reputed international make (Honda/mercury/Yamaha/Johnson/penta/mariner)with brackets and attachment which permits easy installation /removal and lifting in case of low depth of water. The fuel tank must provide running time of six hours .The OBM will be quoted for separately and will be treated as a separate item in the tender.
4	Colour of boat shall be orange .
5	Seats shall be provided all around and sufficient space for a lying person must remain in the boat after all are seated .A neoprene fender diameter must be fitted all around the boat with 10 mm diameter polypropylene ropes fitted all around lifelines should also be provided all around .
6	The shape of the hull should permit nesting of the boats during transportation by land. Sea or air .Hooks of adequate strength for lifting by cranes will also be provided.
7.	The ignition system shall be electronic digital inductive type
8	The starting if the engine shall be electrical type
9	There shall be alternator of 18 Amp & 223 WATTS
10.	The steering system shall be remote type with console at the front

TECHNICAL SPECIFICATION

1	Make -fibroplast
2	Model –LOTUS-420
3	The boat shall be inflatable with air pressure by foot pump and electric pump(12 volts DC)
4	The boat shall be suitable for 7-10 (seven to ten) persons ,or for 2000 lbs weight
5	The boat shall have reinforced strips under air chamber and keel rubbing strake for extra strength under the main air chamber
6	The design of the boat shall be such that ,it shall have minimum four separate air chambers ,out of which three air chamber shall be in main hull ,and fourth air chamber ,shall be in the inflatable keel
7.	The hull, air tubes (chambers),keels shall be made from Hyplon with 1670 DENIER the fabric to carry an approval of BSMA(British standard manufacturer association)16 or IMO(International Maritime Organization)LSA (life saving appliances)regulation or equivalent.
8	The boat shall be provided with plastic coated Transom to form a water proof cocoon.
9	The exterior size of the boat shall be min 4200mm x 1800 mm
10	The interior size of the boat shall be min 2925mm x 1000mm
11	The deflated size hull shall be approx 1150 x 650 x 350mm ,and floor board shall be 775 x 1000x 150mm
12	The diameter of the tube shall be min ,19”
13	Three shall be inflatable keel of 7” diameter for stability in sea and swift water rescue
14	The seams of the boat shall be quadruple overlap
15.	The air valves shall be one way type of approves type and make
16	There shall be 5/8” grab line along sides for safety.
17.	The weight of boat without floor board & OBM shall not be more than 187 lbs.
18.	The floor board shall be inter locking type of polyethylene material/marine plywood with fibre glass reinforced plastic coating with carry bag
19.	The boat shall have round /conical pontoons for rapid planning
20.	There shall have built in oarlocks for easy rowing
21	There be two stainless steel “D” rings for towing .
22	The boat shall have four carrying handles ,and front lifting handle
23	There shall be strake around hull and under keel for extra protection.
24	There shall be two layers of material on lower tubes for better abrasion and puncture resistance
25	There shall be two self bailing drain valves
26	The design of the hull shall be wide beam type for better stability
27	The boat shall be supplied with carrying bag
28	The boat shall be supplied with Bow storage bag and repair kit.
29	The boat shall have quick attachment for OBM
30	There shall be two paddle provided for emergency rowing
31	The colour of boat shall be orange

TECHNICAL SPECIFICATION

S/NO	Specification
1	Make MERCURY MARINE
2	Model 25 HP four stroke
3	The boat shall be provided with outboard motor which can be quickly attached whenever required
4	The OBM shall be of reputed make
5	The engine of the out board motor shall be four strokes ,three cylinder in line gasoline engine
6	The capacity of OBM should be developing 25 HP
7	The RMP of the engine shall be 5000-6000
8	The engine shall have electronic fuel injection system
9	The engine cooling system shall be water cooled type with thermostat
10	The gear ratio shall be 2:1 or better
11	The trim system shall be manual type
12	The exhaust system shall be through prop
13	The lubrication system shall be wet sump with pressure
14	The engine shall be ultra low emission ratings
15	The length of engine shaft shall be 15-20”
16	The engine and drive line shall be fitted in enclosed housing to protect fro sea water
17.	The dry weight shall not be more than 75 kgs

5.9 Life Buoys

Purchased by: CRPF

Year of Purchase: 2009-10

Name of Supplier:

- M/s Bharat Traders, Mumbai

Names of Vendors who participated in the Tender:

- M/s Bharat Traders, Mumbai
- M/s Unicare Emergency Equipments Pvt. Ltd., Mumbai

Price Rs. 2197/-

Lead Time: 2 Months

TECHNICAL SPECIFICATION

General :

It should be useful in Deep sea, in case of Flood, Safety measures for sea vessels & sea Mishap. It should be totally moisture proof and non-inflammable.

Specification :

It should be manufactured from durable High visibility orange synthetic material, which requires no maintenance. The Retro reflective Tape used should be SOLAS approved, which helps to identify victims in distress. Its inner diameter should be at least 45 Cms, and outer diameter should be at least 70 cms. Having width: at least 10 cms.

Floatability: more than 17 Kgs.

Testing :

It should be prototype Tested i.e. Flotation Test, Strength Test. It should be 24 hrs water Immersion tested.

Weight: 2.3 Kg to 3.5 Kgs.

Weight test : 50Kg.

5.10 Boot Hard Toe Steel Shank

Purchased by: CISF & ITBP

Year of Purchase: 2008-09

Name of Supplier:

- M/s System 5S Pvt. Ltd., # 105, Nyniappa Naieken Street, Chennai- 600 003
- M/s Joytech Engg. & Marketing, New Delhi

Names of Vendors who participated in the Tender:

- M/s Joseph Leslie & Co., Mumbai
- M/s System 5S Pvt. Ltd., Chennai
- M/s Brijbasi Fire Safety System Pvt. Ltd., New Delhi
- M/s Joytech Engg. & Marketing, New Delhi

Price Rs. 3,150/- (ITBP) & Rs. 3,421/- (CISF)

Lead Time: 3 months

TECHNICAL SPECIFICATION

Sl. No.	Name of article – Boots with Hard Toe Steel Shank
1.	The fire fighters boot shall be CE market and designed to meet the requirements of EN 345 or equivalent international standard.
2.	Boots should have an outer shell of Flame retardant rubber/ leather and shall have lining for better insulation and heat resistance.
3.	Loops for assisting the wearing shall be provided.
4.	Boots shall meet the requirement of the standard specified and certificate to this effect from an independent laboratory/ test house of international repute shall be furnished alongwith the technical offer.
5.	The size of boot shall be provided at the time of supply order.

5.11 Brick Making Machine

Purchased by: ITBP

Year of Purchase: 2008-09

Name of Supplier:

- M/S A.P. Enterprises, A-1/121, Pachim Vihar, New Delhi-63

Names of Vendors who participated in the Tender:

- M/S A.P. Enterprises, New Delhi
- M/S Natraj Fabricator Pvt. Ltd., Sahibabad, Ghaziabad (UP)
- M/S Ramnath industries, Delhi

Price Rs 1,10,000/-

Lead Time: 3 Months

TECHNICAL SPECIFICATION

S.No.	Nomenclature	Specification
1.	Energy source	Electric,3 Phase/single phase 440 Volt
2.	Size of Machine	900x600x1600mm
3.	Size of Brick/Block/Tile	Brick: 228x110x70mm (Amended-228x107x70mm) Tiles: 228x107x40mm Block:225x107x150mm(Amended 225x107x150mm)
4.	No. of Block per Cycle	04 Nos
5.	Type	Portable
6.	Energy Transmission	High Amplitude vibrations
7.	Manpower	Skilled:01 Unskilled:04
8.	Power Requirement	2 HP (ISI Mark) (Amended 2 HP, ISI Mark, single phase
9.	Compaction By	Vibro compaction
10.	Compressive strength	40-100 Kg/cm ² (compressive strength is directly linked to the type of material used)

5.12 Bukhari Improved Version

Purchased by: ITBP

Year of Purchase: 2009-10

Name of Supplier:

- M/S Supertherm, Neelkamal Chowk, Srinagar (J&K)

Names of Vendors who participated in the Tender:

- M/S Supertherm, Neelkamal Chowk, Srinagar (J&K)
- M/S Yashir Enterprises Indra Shopping Complex, Srinagar (J&K)
- M/S Warm Kraft sidco Industrial Estate Shalteng Srinagar (J&K)
- M/S Amer traders, Uttam Nagar New Delhi
- M/S Safety Syndicate, Shahdara, Delhi
- M/S AV Traders, Sunder Nagar, New Delhi

Price Rs. 12,497/-

Lead Time: 1 Month

5.13 Carbide Tipped Chain Saw

Purchased by: ITBP

Year of Purchase: 2009-10

Name of Supplier:

- M/S Brijbasi Fire Safety System Pvt. Ltd., A-28,,Hauz Khas, New Delhi-110016

Names of Vendors who participated in the Tender:

- M/S Brijbasi Fire Safety System Pvt. Ltd., New Delhi
- M/S Aska Equipments Ltd., New Delhi
- M/S Sharpex Engineering Works, Ahmedabad

Price Rs. 1,18,000/-

Lead Time: 3 Months

TECHNICAL SPECIFICATION

Carbide Tipped Chain Saws are petrol engine driven saws designed to cut through different building material like timber, masonry, metal sheets, FRP, PVC etc (not concrete). These are extremely useful for first responders for inspection, ventilation and obtaining access to victims during CSSR and for other tasks relating to extrication and recovery during natural and man made disasters.

1.	Engine	Two stroke, single cylinder, air cooled petrol engine,
2.	Displacement within 100 cc Generating Power	Between 5 to 6.5 HP
3.	Engine speed	Between 10000 to 14000 RPM at no load.
4.	Chain speed	Between 25 to 30 m/s.
5.	Ignition system	Electronic with easy preferably one button start up (to be specified)
6.	Gaurd bar length	16 Inch- one piece construction
7.	Cutting chain	Carbide tipped with locking key and solid bullet raker gauge (Now amended as CARBIDE TIPPED) of size 404 pitch .063 gauges with heavy duty tie straps and tempered rivets. Fully automatic and adjustable chain lubrication system. Automatic chain broke system for quick stoppage when required. Arrangements for adjusting chain tension should be available.
8.	Provision for setting	Should have provision for setting and adjusting depth of cut.
9.	Operator safety and comfort	Full wrap handle and arrangements for reducing vibrations to be specified.
10.	Weight	With in 12 kgs.
11.	Noise level	Less than 110dB @ 1 meter
12.	Depth of cut	6 to 8 "
13.	Fuel tank capacity	0.70 to 1 Ltr.

NOTE :-

1. The firm will specify the following for technical evaluation.
2. Details of ignition and starting system.
3. Details of carburetor drive system and air filtration.
4. Details of cutting chain.
5. Certifications if any, BIs, ANSI.
6. Vendor will provide appropriate carry case, operation manuals, and maintenance tools.
7. The firm will supply one complete equipment with spare carbide tipped chain.

5.14 Diamond Chain Saw

Purchased by: ITBP

Year of Purchase: 2009-10

Name of Supplier:

- M/S Aska Equipments Ltd., Aska House, “Garashraya”,193, Deepali, Deepali Chowk, Pitampura, New Delhi

Names of Vendors who participated in the Tender:

- M/S Aska Equipments Ltd., New Delhi.
- M/S Brijbasi Fire Safety Systems (P) Ltd., New Delhi
- M/S Sharpex Engineering Works, Ahmedabad

Price Rs. 4,19,000/-

Lead Time: 3 Months

TECHNICAL SPECIFICATION

GENERAL

Diamond Chain saw suitable for cutting reinforced concrete at least 300 mm

Thickness and with built in reinforcement up to 12 mm dia, Masonry, bricks Natural Stone or other similar Material.

TECHNICAL SPECIFICATION /DATA

1. Engine - 2 strokes petrol driven, air cooled , power shall be not less than 5 H.P.
2. The starter shall be shielded from the dust & water. It shall have electronic ignition protected from water and single spring clutch proofed from water and concrete
3. Fuel Capacity : 1 liter (Approx)
4. The noise level should not exceed 102 dB at 01 mtr.
5. It shall be fitted with a diamond chain, which runs over the guide bar. The chain saw shall be capable of cutting RCC up to 360 mm thick and iron rod up to 12 mm dia.
6. The water supply required by the chain while cutting shall not exceed 10 lts/Min
7. The chain saw shall also be provided with measures/attachments for reducing the force required during cutting operation in order to reduce fatigue on operator.
8. It shall also be provided with foam covered full wrap handles, momentary contact on-off switch, water pressure guage, 360 degree swivel hose connector, sprocket side cover and guard flap for operator safety.

9. Weight - Not more than 20 Kgs.
10. Cutting rate - 10 to 25 " per min or more

Technical Evaluation/Inspection

The technical parameters specified above shall be checked at the time of inspection. The supplier at his own cost shall provide all tools/equipments/materials and facilities required for testing inspection.

Accessories

1. A spare diamond chain.
2. Water Pump : Water Pump coupled with petrol engine self powered for compatible supply of water. Qty. : 01 No
3. Suction Hose : Of compatible diameter, minimum length of 3 meter
4. Foot Valve : Qty. 01 No
5. Delivery Hose : Compatible with the equipments , length not less than 15 meters with appropriate connection to pump outlet. Qty.-01Nos.
6. Reducer : If required.
7. Tool Kit : Tool Kit with necessary required tool.
8. Packing Box : Qty. 01 No.
9. Foldable water tank.

5.15 Combination Cutter and Spreader

Purchased by: CRPF

Year of Purchase: 2009-10

Name of Supplier:

- M/s Brijbasi Fire Safety Systems Pvt. Ltd. New Delhi

Names of Vendors who participated in the Tender:

- M/s Newage Industries, Mumbai
- M/s Resq Technologies Ahmedabad
- M/s Wada Body Builders Ahmedabad
- M/s Brijbasi fire Safety Systems Pvt. Ltd. New Delhi

Price Rs. 5,20,182/-

Lead Time: 06 Months

TECHNICAL SPECIFICATION

PURPOSE

Combination tools are double acting hydraulic tools primarily for cutting and spreading but may be used, with suitable attachments as necessary for pushing, pulling and pressing or squeezing. They are used for rescue work following vehicle, tanker or rail accidents, in factories or construction site accidents and in natural disasters particularly for collapsed shelter search and rescue. Although specialist and heavier individual function cutters and spreaders are available combi-tools offer a solution providing multiple functions in a single piece of equipment and its versatility makes it useful in post disaster rescue work.

Scope of Supply

Each Combi tool set will be supplied with a power unit and accessories and spares indicated later.

Specifications of Combi-tool

- General- The combi-tool should have a light weight, balanced and ergonomic design with anti slip twist grip handle and safety control. The blades should be made of tempered tool steel. They should be straight, serrated, regrindable and easily exchangeable. The cylinder body and housing could be made of high strength aluminium alloy or equivalent material. Pigtail(s) should be fitted with anti-kink springs or some form of kink protection, have quick connect couplings and automatic locking.
- Working Pressure 630 to 720 bars
- Opening (spreading) width More than 300 mm
- Minimum spreading force at 2.5cm from tip of blades 35 KN
- Spreading force at 630 to 720 bars More than 100 KN
- Cutting force at 630 to 720 bars More than 200 KN
- Weight Not more than 17 Kgs without hoses.
- Should cut round steel bars (as per current EN Standard or equivalent) More than 25 mm diameter
- The hoses should be of 10 m length and of different colours, if two hoses are to be used. Factor of safety should be of the order of four
- Operating Temperature -20 to + 80 degrees Celsius.

Specifications of Pump

- Engine type Four stroke petrol engine
- Pump type two stage radial piston or alternative equivalent design with max output exceeding 2 liters per minute.

-
- Operating pressure 630 to 720 bars
 - Fuel Tank Capacity Adequate for minimum three hours running.
 - Oil Tank Capacity Minimum 2 liters
 - Weight Not more than 16 Kgs.
 - Operating temperature -20 to + 80 degrees Celsius
 - Sound level Less than # 70 dB at 1 m distance.

Accessories to be Supplied :

- Maintenance set
- Set of spare blade arms and tips
- Toolkit to change blades
- Set of pulling chains
- Set of pulling adaptors
- Carry case for combi-tool.
- Carry box for power unit.

5.16 Conventional System and Washer Extractor

Purchased by: ITBP

Year of Purchase: 2007-08

Name of Supplier:

- M/S Spectrum Garments Finishing Equipments, 295, Phase-IV, Udyog Vihar, Gurgaon (Haryana)

Names of Vendors who participated in the Tender:

- M/S Spectrum Garments Finishing Equipments, Gurgaon (Haryana)
- M/S Lucky Engineering Works, New Delhi-110008 (India)
- M/S Fabcare Garments & Textile Machinery (P) Ltd., New Delhi

Price Rs 7,68,000/-

Lead Time: 2 Months

TECHNICAL SPECIFICATION

1. CONVENTIONAL SYSTEM

- I. Washing Machine Industrial type, front loading open pocket electrically heated:
- i) Capacity: 25 Kg and above dry weight of 100% cotton charge.
 - ii) Stainless steel front & door. Spring loaded stainless steel door latch
 - iii) Main body should be made out of steel plates and channel base frame.
 - iv) Outer drum should be made of stainless steel at least 1.5 mm thickness.
 - v) Inner cylinder should be made of perforated stainless steel not less than 1.5mm thickness. Back and plate should be reinforced with appropriate material.
 - vi) Controls: Auto timer, Auto digital temperature control and automatic water level controls should be provided.
 - vii) Basket Size: Atleast 900x500 depth
 - viii) Basket Volume: Not less than 300 ltrs
 - ix) Main Door Opening: Not less than 500 mm.
 - x) Water inlet: Not less then 25mm (1" BSP)
 - xi) Drain : Not less than 75mm (3" BSP)
 - xii) Wash Motor : 0.75 KW (1 HP)
 - xiii) Heating : Not less then 12 KW
 - xiv) Net Weight: Should not exceed 750 Kg.
- II Hydro Extractor (15 Kg.) :
- i) Capacity : Upto 15 Kg of dry weight of 100% cotton in wet condition per charge.
 - ii) Main body should be made out of steel plates and channel base frame.
 - iii) Outer drum should be made of stainless steel at least 2mm thickness.
 - iv) Inner cylinder should be made of perforated stainless steel not less than 1.5mm thickness. Statically and dynamically balanced.
 - v) Basket Size: Atleast 550x300 depth
 - vi) Basket volume : Not less than 70 ltrs
 - vii) Basket final speed: Not less than 1000 RPM
 - viii) Drain : Not less than 65mm (2.5" BSP)
 - ix) Motor: 2.25 KW (3HP)
 - x) Net Weight: Should not exceed 400 Kg.
- III Electrically operated tumble dryer front Loading, open pocket automatic.
- i) Capacity: 25 Kg. and above dry weight of
 - a. 100% cotton charge.
 - ii) Stainless steel inner basket

- iii) Double walled air gap/glass wool insulation
 - a. outer body
- iv) Inner cylinder should be made of perforated
 - a. stainless steel not less than 1mm thickness. Back
 - b. end plate should be reinforced with appropriate
 - c. material.
- v) Controls: Auto digital timer for drying and cool down time, auto digital temperature control.
- vi) Basket Size: Atleast 950x850 depth
- vii) Basket Volume : Not less than 600 ltrs
- viii) Drive Motor: 0.75KW (1HP)
- ix) Blower motor: Not less than 0.75 KW
- x) Heating : Not less than 24 KW
- xi) Drying Cycle : Not more than 40 minutes for 30 Kg dry weight of 100% cotton with 40% moisture content at an ambient temperature of 25 degrees C.
- xii) Net weight : should not exceed 600Kg.

IV Flat bed press pneumatic

- i) Pneumatic operated bed with moisture and timer for bed releasing of pneumatic head with push button raising and lowering of the head.
- ii) Electrically heated
- iii) Head and bed size: 1500mmx750mm.
- iv) Electric load : 18 KW
- v) Net weight : Not to exceed 600kg.

2. WASHER EXTRACTOR SYSTEM

I. Washer Extractor high spin suspended, front loading electrically heated:

- i) Capacity : 15 Kg. and above dry weight of 100%
 - i. cotton charge.
- ii) Full Stainless steel of thickness not less than 1.2mm body including front, sides, top and back. Spring loaded stainless steel door latch
- iii) Outer drum should be made of stainless steel at
 - i. least 1.6 mm thickness
- iv) Inner cylinder should be made of perforated stainless steel not less than 1.6 mm thickness. Back end plate should be reinforced with appropriated material.
- v) Controls: Fully programmable microprocessor based controls with not less than 30 customized programmes/preset processes. Auto timer, auto digital temperature control and automatic water level controls should be provided.
- vi) Soap dispenser: Built in soap dispenser with independent solenoid valve and pressure jet.

- vii) Basket Size : Atleast 720x380 depth
 - viii) Basket volume : Not less than 150 ltrs
 - ix) Extract speed : Not less than 900rpm for 0 720
 - x) Moisture retention after final extract on 100% cotton: Not more than 50%
 - xi) Water inlet : Not less than 20mm (3/4" BSP)
 - xii) Drain : Not less than 75mm (3" BSP)
 - xiii) Motor : 1.5 KW (2HP)
 - xiv) Heating : Not less than 9KW
- II Electrically operated tumble dryer front loading, Pocket Automatic.
- i) Capacity 15 Kg. and above dry weight of 100% cotton charge
 - ii) Double walled air gap/glass wool insulation outer body.
 - iii) Inner cylinder should be made of perforated stainless steel not less than 1mm thickness. Back end plate should be reinforced with appropriate material
 - iv) Double motor drive: separate motors for drive and
 - a. suction blower
 - v) Controls: Auto digital timer for drying and cool down time Auto digital temperature control
 - vi) Basket Size: Atleast 800x600 depth
 - vii) Basket volume : Not less than 300 Ltrs.
 - viii) Drive Motor: 0.37 KW (1/2HP)
 - ix) Blower Motor: Not less than 0.37KW
 - x) Heating : Not less than 12 KW
 - xi) Drying Cycle: Not more than 40 minutes for 15 Kg dry weight of 100% cotton with 40% moisture content at an ambient temperature of 25 degrees C.
- III Vacuum Finishing Table
- i) Size : 1250mm x 750mm
 - ii) Main body: Formed of steel sheets/plates.
 - iii) Table top: Aluminum plate of minimum 2.5 mm thickness perforated flat top padded with high porosity & heat resistant silicon padding.
 - iv) Suction blower: Heavy duty 0.5 HP centrifugal blower driven by independent blower motor activated by spring loaded foot pedal.
 - v) Exhaust: Extended exhaust duct with lighting device
 - vi) Heater: full stainless steel in built heater of minimum 1 KW capacity thermostatically controlled.

5.17 Disaster Management Kit

Purchased by: CRPF

Year of Purchase: 2008-09

Name of Supplier:

- M/s Joseph Lisle & Co., Mumbai

Names of Vendors who participated in the Tender:

- M/s B.L Health & Safety Pvt. Ltd., New Delhi.
- M/s Joseph Lisle & Co., Mumbai

Price Rs. 1,27,968/-

Lead Time: 6 Months

TECHNICAL SPECIFICATION

GENERAL

The Disaster Management Kit is a handy and easily carrying toolbox containing multi utility tools/equipments .The Disaster Management kit should have following tools along with the quantity of each equipments mentioned against each:-

a) Multi purpose tools: A set of versatile combination of following tools.

- | | | |
|-------------------------|---|--------|
| (i) Axe (Medium) | : | 01 No. |
| (ii) Hydrant key | : | 01 No |
| (iii) Spanner Wrench | : | 01 No. |
| (iv) Pry bar | : | 01 No. |
| (v) Vise Grip | : | 01 No. |
| (vi) Gas shut -off gear | : | 01 Set |

Emergency Kit for handling chlorine leakages in toner as well as cylinder comprising of:-

Sr.No	Particulars	No
1	Big Hood with vent valve	1
2	Rubber Gasket (OD-15mm-ID-90mm)	3
3	Tie Rod Assembly	2
4	Tie Rods	2
5	Tie Rods Washers	8
6	Tie Rods Pieces	4
7	Angles	2
8	Stud with welded handle	1
9	Small Hood	1
10.	Yoke	1
11.	Stud	1
12.	Rubber Gasket(OD-15mm-ID 60MM)	3
13	Blind Fiber Gasket(1")O	3
14	Fiber Gasket (1.25" OD-0.75"ID)	3
15	Cap Nut	1
16	Steel Patch Plate	1
17	Rubber Gasket (150mm x 80mm)	2
18	Round Yoke Plate	1
19	Cap Screw	1
20	Chain(96"long)	2
21	Drift Pins(in 2 Sizes)	2
22	Hammer	1
23	Valve Cap	1
24	Youke Clamp	1
25	Flexible Copper Tubing to draw machine	1
26	Nozzle	1
27	Teflon Tape	1
28.	Canister Gas mask	1
29	PVC Hand Gloves –Pair	1
30	PVC Apron	1
31	Gas Tight Rubber Goggles	1
32	Ammonia Solution Bottle	1
33	Valve Spindle(10mm square)	1
34	Spanner -30x32 mm	1
35	Spanner -3/4"x5/8"BS	1
36	Instruction Sheet	1
37	Steel Box	1
38	Fiber Gasket (1"OD-1/2"ID)	3
39	Fresh Airline Respirator	1
40	Base Plates	2
41	Universal Ring	1

- b) Utility Holster: This should be rugged, water resistant. The utility holster should have large front pockets, two elastic loops, D ring and protective cover flap with hook and loop closure to accommodate most of the barrel-shaped mini flashlight.
- c) Overall chemical Suits (PVC) EN Complaints - 03 Nos
- d) Gloves for rescue job (Soft leather) EN Complaints - 03 Pairs
- e) Gloves for handling hazardous chemical (PVC) EN Complaints - 03 Pairs

NOTE TO TENDERER

1. The tenderer shall indicate the make /model in their offer.
2. The tenderer shall furnish the clause-by clause compliance statement. In case there is any deviation the same should be clearly brought out in the offer.
3. They shall furnish the relevant EN compliance certificate of the product offered. The DM kit is commercially available off the shelf item. Specifications of individual item in the kit are not necessary. The kit is required to be complaint to European Norms (EN) and it will be for the tenderer to produce necessary certification to this effect.
4. Technical manual comprising of servicing details shall be supplied with system.

5.18 Fire Fighting Equipments : Ventilator/Air Tube & Exhaust Fan

Purchased by: ITBP

Year of Purchase: 2008-09

Name of Supplier:

- M/S MGM Associates, Lok vihar, Apptt. Vikaspuri New Delhi

Names of Vendors who participated in the Tender:

- M/S MGM Associates, New Delhi
- M/S Shree Lalita, Mumbai

Price:

Ventilator/Air Tube : Rs. 64,500/-

Exhaust Fan : Rs. 3,800/-

Lead Time: 5 Months

TECHNICAL SPECIFICATION

Nomenclature	Specifications as per T/E.
Ventilator and air tube with mortar, length 7 M, D 12.	i. Motor having at least 0.5 hp motor. ii. Exhaust pipe- 300 mm dia. iii. Flexible corrugated pipe with push back folding arrangement 20-22 mtrs long. iv. Provide ventilation/ Exhaust of air from confined spaces or outside environment and vice-versa.
Exhaust Fan 12”	i. Size-12” z (30 cm). ii. Motor- Single phase. iii. Power- 2 hp.
Water Jet Blankets (8’x6’)	i. Appearance- Off-white ii. Translucent iii. Odor- Characteristic. iv. Specific gravity- 0.988-1, 046, PH- 4.0, - 6.0. v. Multi- purpose product for emergency burn care, and fire protection. vi. Size- 8’x6’ vii. Packing- Blanket inner bag extruded polyethylene/ knife cut mark on top at each side of bag. viii. Canister- High density polyethylene. ix. Blanket pouches (Foil)-A combination laminated printed web consisting of 48 gauge polyester.
	x. 100 % virgin wool. xi. Double intercellular with woven 2” square pockets. xii. Treatment-kroy. xiii. Canisters/ attached labels-tested for weathering low temp resistance and ultra violet resistance. xiv. Helps lower skin temperature & ease of pain burns while protecting wounds from contamination.

5.19 Floating Pump

Purchased by: CRPF

Year of Purchase: 2008-09

Name of Supplier:

- M/s New Age Industries, Mumbai.

Names of Vendors who participated in the Tender:

- M/s ResQ Technologies, Ahmedabad
- M/s Unicare Emergency Equipment Pvt.Ltd. New Delhi
- M/s New Age Industries, Mumbai

Price: Rs. 1,17,000

Lead Time: 6 Months

TECHNICAL SPECIFICATION

GENERAL

For the purpose of fire fighting and rescue operations. Light weight, reliable, self priming pump that floats, discharges water @ at least 180 ltr/min.

The pump is having suitable cooling system to permit the pump to run continuously.

Easy to start by one person.

The pump is that of centrifugal type & direct coupled to the engine

PUMP & ENGINE SPECIFICATIONS

Casing : Anodized Aluminum

Impeller : Bronze impeller

OTHER STANDARD PUMP EQUIPMENT

Water resistant air cleaner and muffler.

ENGINE SPECIFICATION

6 to 8 hp or more, air cooled.

Recoil starter with handle

Solid state ignition

Use unleaded gasoline /petrol and oil mixed

Minimum 2 years parts and service warranty

Automatic float controlled throttle

Compression release valve for easier starts

FUEL TANK

Appropriate for continuous run of at least 1 hrs.

FLOAT ASSEMBLY

High density polyethylene shell filled polyurethane foam(closed cell)

WEIGHT

Dry weight not more than 30 kgs.

NOTE TO TENDERER

1. The tenderer shall indicate the make model in their offer.
2. The tenderer shall furnish the clause -by-clause compliance statement .In case there is any deviation the same should be clearly brought out in the offer.
3. They shall mention the relevant BIS/EN/DIN/UL certificate of the product offered.
4. Technical manual comprising of servicing details shall be supplied with system
5. Relevant test certificate s shall be provided from govt. approved laboratory or from the manufacturer, along with their offer.

5.20 Folding Stretcher for Ambulance

Purchased by: ITBP

Year of Purchase: 2009-10

Name of Supplier:

- M/S Surgicon Medequip Pvt. Ltd., 1701-04, HSIDC, Industrial Estate, Rai, Sonapat (Haryana)

Names of Vendors who participated in the Tender:

- M/S MGM. Associates, New Delhi
- M/S Surgicon Medequip Pvt. Ltd., Sonapat (Haryana)
- M/S Bafana Health Care Pvt. Ltd., Faridabad
- M/S Surgichem Pharma, Delhi

Price: Rs. 23,500/-

Lead Time: 3 Months

TECHNICAL SPECIFICATION

i)	Alphacot or equivalent.
ii)	Product size (LxWxH)- 190*x54*x90* cm (Amended – Not less than 190*x54*x80* cm)
iii)	Net weight- 40 Kg
iv)	The bearing pressure:-159 Kg.
v)	Dimension of the packing box- 200*x65*x30* cm
vi)	Gross weight- 50 kgs.
	* When the stretcher rolls into the ambulances, the leg should fold under the stretcher automatically.
	*when the stretcher is shifted out from the ambulances the leg should support the stretcher and can be locked in certain position: when the stretcher is going to be unloaded, the locking system of front and back legs should be unlocked separately by the left and right joysticks.
	*The leg with protective wear – resistance belt should be able to resist slipping and ensure smooth moving of the stretcher when getting on and off the ambulance.

5.21 Hammer Drill Concrete

Purchased by: ITBP

Year of Purchase: 2009-10

Name of Supplier:

- M/S Hilti India Pvt. Ltd., F-90/4, Okhla Industrial Area, New Delhi

Names of Vendors who participated in the Tender:

- M/S Hilti India Pvt. Ltd., New Delhi

Price: Rs. 12,000/-

Lead Time: 2 Months

TECHNICAL SPECIFICATION

GENERAL

The hammer drill concrete is designed for drilling inspection hole in the concrete surface and for making stitch hole for breaking. The hammer drill should have speed control, shock absorbing handle with variable speed.

TEHCNICAL DATA

Power Input	:	Not more than 750 Watt on variable speed
Nominal Speed	:	0-900 (Right rotation - 900) (Left rotation not less than 400)
Impact Rate	:	Not less than 2J
Electrical cord	:	5 mtr in length with 15 amp plug
Weight	:	Not more than 3.5 Kg.
Accessories	:	Adjustable bits of different diameter. 5 mm And 10 mm for concrete, 10 mm & 15 mm for steel and 20 mm,30 mm, & 40 mm for wood.

5.22 Hedge Cutter

Purchased by: ITBP

Year of Purchase: 2009-10

Name of Supplier:

- M/s Primco Power, 46, GB Road, Delhi-6

Names of Vendors who participated in the Tender:

- M/s Primco Power, Delhi

Price Rs. 25,500/-

Lead Time: 1 Month

TECHNICAL SPECIFICATION

S.No.	Specification of Hedge Cutter	
1.	Cutter Type	2 Blade Cutter
2.	Overall Length * (mm)	1900 to 1940 mm
3.	Cutter dia (mm)	300 to 310 mm.
4.	Operating Weight (Kg)	8.5 Kg. max.
	Engine:-	
5.	Engine Type	4 stroke, Over head Cam single cylinder.
6.	Displacement	35.8 cc (2.2 cu-in)
7.	Maximum horse power	1.5 HP to 1.75 HP.
8.	Cooling system	Forced Air.
9.	Ignition system	Transistorized Magneto Ignition.
10.	Air Cleaner	Semi-dry type.
11.	Oil capacity	0.1 ltr.
12.	Starting system	Recoil starter.
13.	Fuel	Unleaded Gasoline.
14.	Fuel Tank capacity	0.5 Ltr to 0.75 Ltr
15.	Fuel Consumption	700 ml/hr (max)
16.	Accessories	Nylon cord Role-1 along with each unit.
17.	Equipment should be capable and all round incline without affecting the performance.	

5.23 High Pressure Breathing Air Compressor Model-PACIFRIC P-250 400/50 3A

Purchased by: CISF

Year of Purchase: NA

Name of Supplier:

- M/s Joseph Leslie Drager Mfg Pvt Ltd., 87-C, Prof.V.S. Agashe Road, Dadar (W) Mumbai-400 028

Names of Vendors who participated in the Tender:

- M/s Vijay Sabre Safety Pvt Ltd., Mumbai
- M/s Joseph Leslie Drager Mfg Pvt Ltd., Mumbai
- M/s Brijbasi Fire Safety Systems Pvt Ltd., New Delhi
- M/s Joytech Engineering & Marketing Consulting
- M/s Goenka Engg. & Industrial (P) Ltd., New Delhi
- M/s Core Energy Systems Pvt Ltd., Thane

Price: Rs. 4,98,690.37/-

Lead Time: 1 Month

TECHNICAL SPECIFICATION

1. OBJECTIVE

Portable BA compressor is required for the purpose of refilling BA Cylinders (300 Bar) for fire fighting as well as underwater BA set cylinders (200 bar) for use by NDRFs. The set should be capable to fill 330 bar (10% maximum efficiency)

2. MAIN COMPONENTS OF EQUIPMENT

- i) The compressor should be oil lubricated using splash or pumped lubrication.
- ii) Filtration system should be at intake and at final point of use to ensure highest level of purity of air delivered and to ensure that the quality of breathing air is as per EN 12021 or CGA-E or any equivalent international standard for breathing Air. The fir should furnish test certificate from Govt. Approver/international or equivalent.
 - a) Provision for full range of automated control devices to monitor both compressor and working conditions should be provided. The compressor should have noise level up to 85 dB at 1m distance. The control panel on the compressor should have the START, STOP and EMERGENCY STOP button. The panel should have pressure switch where the user can select Standard 300 Bar DIN adaptors for charging fire fighting BA cylinder and 200 Bar INT adopter for refilling under water driving BA cylinder.
 - b) International and final pressure safety valves and pressure gauges.
 - c) Two charging hoses (on each with adopter for 200 & 300 bar) for refilling the cylinder one at a time.
 - d) Repair kit/tool kit
 - e) The compressor should be Trolley mounted having sufficient road clearance and wheels locking arrangement so as to avoid movement while during operations.

3. GENERAL DIMENSIONS:-

- i) The set should be lightweight, rugged & trans-portable (with lockable wheels) & weight up to 175 kg.
- ii) Operating pressure 300 to 200 bar and should be able to fill cylinders at 300 bar as well as 200 bar (or any pressure setting on a pressure switch on the compressor)
- iii) Charging rate to be 9 cfm (+/-5%) for standard international filling norm.

4. GENERAL FEATURE:-

- i) To be compact, robust, machine should not require any foundation.
- ii) Design should ensure minimum wearing of components and ease of maintenances.
- iii) Level of pressure at which he wants to fill the cylinders. The compressor should stop when desired pressure is reached i.e. the compressor should have the feature of AUTO STOP. The compressor should also have feature of AUTO DRAIN of the moisture in the system and it should get drained at regular intervals. The disposal of the drain should be pollution free in a tank. The compressor should have inter stage control device and final stage. Pressure gauge for the operator to monitor. The compressor should also have OIL LEVEL INDICATOR.
- iv) Eco friendly condensate collection.
- v) Machine should be electric driven suitable for 3 phase 400-440 V 50 HZ supply.

5. SAFETY FEATURES

The equipment must have adequate safety features to ensure complete safety during handling.

6. SPARES

- i) Each compressor to be supplied with spares parts including Two sets of filter cartridges and one oil refill.
- ii) List of one year on Board Spare to be provided.
- iii) List of five year spare to be provided.

7. DOCUMENTATION

- i) General arrangement drawing giving overall and all important dimensions with sufficient details so that all standard equipment can be identified.
- ii) Operational Manual giving details of maintenance and repair instructions.
- iii) Test and trail report, if any, along with inspections certificate.

8. STATUS

The present status of the system (that is, whether it is in service in the firm's country, or is in the service abroad, or is at developmental stage) be stated.

9. MTBF & MTTR

Mean time Between Failures and mean time to repair figures of the system, as also its major sub units are to be stated.

10. COMMISSIONING

The compressors are to be commissioned by the company at site and also provide training on use, operation, maintenance, trouble shooting etc to the users.

5.24 Jumbo Oxygen Cylinders

Purchased by: ITBP

Year of Purchase: 2009-10

Name of Supplier:

- M/S Bafana Health care Pvt. Ltd., Plot No.-5 Sector -6 Mathura Road, Faridabad (Haryana)

Names of Vendors who participated in the Tender:

- M/S Bafana Health care Pvt. Ltd., Faridabad (Haryana)
- M/S Anecdote Overseas, New Delhi

Price: Rs. 9,600/-

Lead Time: 1 Month

TECHNICAL SPECIFICATION

A) FOR MEDICAL OXYGEN CYLINDER (MADE OF ALUMINIUM)

S.No.	Specification
1.	The Medical oxygen Cylinder should be made of high quality strength Aluminium alloy with heat sensitive coating and duly approved and certified by the department of Explosives Nagpur. The CCE approval should be provided with the technical bid.
2.	The capacity of the cylinder should be not less than 620 liters
3.	Since portability of the cylinder is vital, the filling pressure of the cylinder should be minimum 139 Bar having test pressure of 225 Bar. Test certificates of the cylinders from the cylinder manufacturer should also be provided.
4.	The length of cylinder should not be more than 640 mm outside diameter should not be more than 115 mm.
5.	Empty weight should not exceed 3.5 Kg. without valve.
6.	The valve fitted on top of the medical cylinder should be as per IS: 3745-1978 so as to make sure that the cylinder is easily refilled anywhere in India so that there is no need for extra custom made connector.
7.	All fitting of medical oxygen cylinder should be leak proof and there should be no chances of leakages.
8.	Medical oxygen cylinders and all other fittings should be hygienic and there should be no chances of contamination.
9.	There should be a certification from the cylinder manufacturer ensuring after sales service & periodic testing of cylinders required as per Gas cylinder rules 1981.
10	The supplier should have a cylinder periodic testing facility and approval from the Chief Controller of Explosives to provide the same.

B) FOR REGULATOR AND FLOW CONTROL WITH FLOW METER

S.No.	Specification
1.	High pressure regulator and flow control valve attachment should have pre-set flow control knob and should be compatible with valve made as per IS: 3745-1978.
2.	The control valve should be designed to provide calibrated flow of gaseous oxygen at specific pressure.
3.	The regulator should have built in pressure regulator up to 3000 PSI operating pressure or equivalent reading in Kg/cm ²
4.	The flow rate should be between 0.5 to 15 liters per minute (LPM) with accuracy and easily readable numbers on the regulator body.

C) The system must be accompanied by carry bag & nasal canula /mask.

D) Suitable filling hose to transfer gas from Mother Cylinder to Portable Cylinder.

5.25 Kerosene Based Water Heating Systems

Purchased by: ITBP

Year of Purchase: 2009-10

Name of Supplier:

- M/s Kapri Engineering Works, 14/7, Mathura Road, Faridabad

Names of Vendors who participated in the Tender:

- M/s Kapri Engineering Works, Faridabad

Price: Rs. 41,000/-

Lead Time: 2 Months

TECHNICAL SPECIFICATION

S. No.	Nomenclature	Specifications
1.	Model	K- 1500-4
2.	Size	L x W x H 1785 x 525 x 425
3.	No. of Pipes (Stainless Steel)	4 Nos
4.	No. of Burners	4 Nos
5.	Fuel tank (10 Ltrs each)	2 Nos
6.	Fuel	Kerosene
7.	Wick/Burner	9 Nos
8.	Fuel Consumption	500 ml/burner

5.26 Mains Battery Charger Heavy Duty

Purchased by: ITBP

Year of Purchase:2008-09

Name of Supplier:

- M/S Dhurv Enterprises, Rajendra Arihant Tower, 50/51, Janakpuri, New Delhi

Names of Vendors who participated in the Tender:

- M/S Dhurv Enterprises, New Delhi
- M/S Dass Electronics, Dehradun (Uttarakhand)

Price: Rs 9,720/-

Lead Time: 3 Months

TECHNICAL SPECIFICATION

I.	Input Voltage	:	160 to 250 V AC Single Phase 50 Hz
II.	Out Put Voltage	:	6 to 48 V DC in 6 Volt Steps
III.	Out Put Current	:	0 to 10 Amp
IV.	Ripple	:	Minimum
V.	Efficiency	:	Better than 80%
VI.	Rectifying Element	:	Full Wave bridge rectifier with zero ripple
VII.	Charging Current adjustment	:	Adjustable
VIII.	Metering	:	An Ampere meter and volt meter should be provided on front panel.
IX.	Protection	:	The Unit should be protected against over load and short circuit.
X.	Reverse polarity Protection	:	The charger should be protected reverse polarity connection with indication.
XI.	Output terminal	:	A pair of heavy duty output terminals should be provided on front panel.
XII.	Controls	:	All the controls should be on front panel.
XIII.	Cabinet	:	The bty charger should be housed in mild steel heavy gauge, well ventilated and robust built to resist transit shocks proof cabinet.
XIV.	Fuses	:	AC and DC fuse should be provided may be in back side with adequate approach and protection.
XV.	Other Requirements	:	(i) A pair of charging leads should be Provided for bty charging with crocodile clips indicating the polarity. (ii) An operating instruction with circuit diagram and component layout should be provided. (iii) Minimum one year of guarantee should be provided from the date of put in use.

5.27 Multi Cable Winch

Purchased by: CRPF

Year of Purchase: 2009-10

Name of Supplier:

- M/s Aegis Health Care, Guwahati

Names of Vendors who participated in the Tender:

- M/s SHMMA Mercantile Co., Guwahati
- M/s Aegis Health Care, Guwahati
- M/s Resq Technologies, Ahmedabad

Price: Rs. 2,29,500/-

Lead Time: 6 Months

TECHNICAL SPECIFICATION

The Multi Cable Winch should be required for small rescue work, the 4 to 5 hp rated Motor, which should provide at least pulling power of 5 tons. It should have line retrieval speed not less than 6 meters/ minutes at full pull. This compact winch shall complete with handle/mounting system for a class III two inch receiver, hawse fairlead, remote control with minimum 3.6 meters, free spool clutch and battery cable with mounting kits.

NOTE OF TENDERER

1. The tenderer shall indicate the make/model in their offer.
2. The tenderer shall furnish the clause by clause compliance statement. In case there is any deviation the same should be clearly brought out in the offer.
3. They shall mention the relevant BIS/EN/DINUL certification of the product offered.

Technical manual comprising of servicing details shall be supplied with system

5.28 NBC Permeable Suit MK-IV

Purchased by: CRPF

Year of Purchase: 2009-10

Name of Supplier:

- M/s Shri Laxmi Cotsyn Ltd, Kanpur

Names of Vendors who participated in the Tender:

- M/s Naveen Textile Agencies, Kanpur
- M/s Calcutta Commercial Corporation, New Delhi
- M/s Sunshine Fabrics, Kanpur
- M/s Shri Laxmi Cotsyn Ltd., Kanpur
- M/s Vijay Sabre Safety Pvt. Ltd., Mumbai

Price: Rs. 7,900/-

Lead Time: Two years

5.29 Oxygen Concentrator

Purchased by: ITBP

Year of Purchase: 2009-10

Name of Supplier:

- M/S Moditech International, Chandigarh (UT)

Names of Vendors who participated in the Tender:

- M/S Moditech International, Chandigarh (UT)
- M/S BPL Limited, New Delhi
- M/S Nidek medical India Pvt. Ltd., New Delhi
- M/S Recorders & Medicare System (P) Ltd., Chandigarh

Price: Rs. 30,900/-

Lead Time: 2 Months

TECHNICAL SPECIFICATION

GENERAL:

1. ABS injection-moulded cabinet
2. Size should not exceed 65 cm x 45 cm x 45 cm
3. Weight should not exceed 35 kgs.

TECHNICAL:

1. Oxygen-flow should be adjustable for rate of flow between 0-5 LPM
2. Should have built-in atomizing devise for nebulisation therapy. Atomising pellet should be more than 0.5 ml/min
3. Delivery of more than 90% pure oxygen
4. Delivery pressure should be between 4.35 - 10.15 PSI
5. Noise level should be less than 52 db (A)
6. Gross Particle Cabinet Filter; Compressor Intake Filter & Bacterial Filter should be available
7. In-built alarms for low pressure, high pressure and power failure
8. Should work on 220 +/- 10% VAC; 50 Hz 2 amps
9. Power consumption should not exceed 500 W
10. Should be able to work continuously and capable of being stored at temperatures ranging from 00 to 400 and relative humidity less than 85%
11. Accessories will include Humidifier Bottle - 2 nos. and Nasal Canula with extension tubing - 2 nos.

DOCUMENTATION:

Operating manual will be supplied alongwith the equipment.

MISCELLANEOUS

Besides above, the tenderers shall submit Company Certificate from the manufacturer Firm must be ensured, as per the Proforma mentioned as below:-

"We the manufacturer of the Equipment will provide servicing/defective parts/AMC, as and when will be required by the Organization".

5.30 Photo Developing Module

Purchased by: ITBP

Year of Purchase: 2007-08

Name of Supplier:

- M/S Eastern Photographic Co., New Delhi

Names of Vendors who participated in the Tender:

- M/S Eastern Photographic Co., New Delhi

Price Rs. 41,76,563/-

Lead Time: 2 Months

TECHNICAL SPECIFICATION

Name of item	Description of Stores with QRs
Photo Developing Module	<p>(A) Digital Enlarger with workstation</p> <p>a. Photo Colours requirement: Colour & Black & White</p> <p>b. Enlargement Sizes: To enlarge from any digital input to sizes up to 50x60cm on RA-4 Photo colour or B/W paper</p> <p>c. Digital LCD Exposure panel: 16 Mega pixels or more Digital LCD Exposure panel with operating module Stabilized Power Supply & Control Electronics</p> <p>d. LED Light booster: Light source with LED Booster High Intensity Light Source.</p> <p>e. Other Specifications: Pentium-4 PC Min. 1 GB Ram, 80 GB or more Hard disk, 17" TFT Monitor, DVD-R/DVD-RW, Multi media Card Reader, Windows XP, Keyboard & Mouse, DVD-R/DVD-RW Drive Digilab Controller Operating Software & Job Manager, Bench Model with Minimum 24"x24" Baseboard (600cmsx600cms), with wheel drive for sizing & focusing, 3-switch operating Module with screen on-off focus & Expose switches complete with 50mm Lens preferably of Rodenstock or equivalent, & Densitometer.</p> <p>f. Scanner: A-4 Size Flatbed Scanner, Complete with compatible Enlarger Chassis, Column & Baseboard.</p> <p>g. Warranty: Min one year from date of installation on turnkey basis including training & demonstration at site</p> <p>h. Training: Enlarger to be established on comprehensive terms inclusive of Training to be clarified in detail.</p> <p>(B) Automatic Processing System</p> <p>a. Requirement: Processing System shall be suitable for all B&W and compatible with RA-4 colour papers.</p> <p>b. Features: Keyboard control panel with Integrated Computer to automatically Control functions such as Temperature, Speed, Wash Water, Replenishment, all functions should be user programmable, with bath design.</p> <p>c. Tank volume: Tank Volume of 5 Litres or more,</p> <p>d. Dryer: Must have Built in Dryer, Dry to Dry time Approx. 225 Seconds, Frame: Robust non-corrosive Frame</p> <p>e. Temp Control: The temperature control should be accurate to within 0, 1° C</p> <p>f. Electrical rating: Electrical Rating 230V: 50Hz/3KW with compatible Indigenous Voltage Stabilizer:</p> <p>g. Dark room safelight and blade spec: Processor shall have Darkroom Safelight: for Colour Negative/Positive/B&W processes and Circular Blade Paper Safety rotary Trimmer with Cutting Length of 20.1".</p> <p>h. Warranty and Training: Min One Year from date of installation on turnkey basis including training & demonstration at site.</p>

5.31 **Portable Ultra Sound Machine**

Purchased by: ITBP

Year of Purchase: 2008-09

Name of Supplier:

- M/s Manchanda Medicos, AL-17, Shopping Center, Shalimar Bagh, Delhi

Names of Vendors who participated in the Tender:

- M/s Manchanda Medicos, Delhi

Price Rs 5,87,545/-

Lead Time: 3 Months

TECHNICAL SPECIFICATION

Sl.No.	Specifications
1.	Should have AC Mains adaptor/battery charger
2	It should have in built full alphanumeric keyboard
3.	Latest Technology all-Digital Hand Held Ultrasound System suitable for adult & Pediatric ultrasound.
4.	Should have Broad Band Frequency Transducer Technology.
5.	Should have B Mode, M-Mode, and Ultrasound angio.
6.	Should have a very high System Dynamic Range of at least 125 dB.
7.	Should have inbuilt rechargeable Lithium Ion Battery and the system should operate for at least 90 minutes on battery
8.	should have integrated display screen size of at least 5 inches
9.	Should have high frame rate of more than 90 frames/sec
10.	Should have standard calculation package
11.	Should have image storage facility for at least 100 images.
12.	Should have cineI memory. Power Doppler
13.	Should be light weight system weighing less than 4 kg for hand carrying
14.	System should be supplied complete with the following.
15.	60 mm broadband 5-2 MHz curved array for general purpose. Abdominal, obstetric. and gynecologic applications transducers.
16.	B/W Thermal Printer.
17.	System should have the capability to be upgraded to higher frequency Broad Band.
18.	probe having a frequency range of 4 to 7 MHz for Pediatric Echocardiography
19.	Applications.
20.	<u>System</u> should also have the capability to be upgraded to a Linear Broad Band Probe
21.	Having a frequency range of 5 to 10 MHz for vascular Imaging.
22.	Upgradeable to Pulsed Wave Doppler Mode, Continuous Wave Doppler Mode of Imaging.

5.32 Render Safe Procedure (RSP) Tool Kit

Purchased by: ITBP

Year of Purchase: 2009-10

Name of Supplier:

- M/S Security Instruments, New Delhi

Names of Vendors who participated in the Tender:

- M/S Security Instruments, New Delhi

Price: Rs 43,312/-

Lead Time: 1 Month

TECHNICAL SPECIFICATION

1. Doctors Stethoscope
2. BP Handle 6" \pm 1" with BP Blade set
3. Scissors 6",7",8" & \pm 1"
4. Dental Mirrors 6" \pm 1", 10" \pm 1"
5. Scalpel 8" \pm 1"
6. Artery Forceps 6",7",8",9" \pm 1"
7. Torch with two pencil cells
8. Torch medium with two cells
9. Hammer Sledge and ball pane (2 Kg \pm 10%) with claw hammer
10. Pipe Wrench 10" \pm 1"
11. Hand Vice Grip 6" \pm 1"
12. Magnifying Glass
13. Nipper Cutter
14. Tin Cutter
15. Nose Plier
16. Knife 80 mm Blade
17. C Clamp 4" \pm 1"
18. Spanner Adjustable 15 mm \pm 5 mm
19. Spanner Adjustable 0 mm \pm 5 mm
20. Hack Saw 7" \pm 1" with blade set
21. Screw Driver set consisting of :-
 - a) Flat 2mm \pm 1mm blade width

- b) Flat 4mm \pm 1mm blade width
 - c) Flat 6mm \pm 1mm blade width
 - d) Flat 8mm \pm 1 mm blade width
 - e) Flat 10 mm \pm 1mm blade width
 - f) Flat offset 6mm \pm 1mm blade width
 - g) Flat offset 7mm \pm 1mm blade width
 - h) Flat offset 10 mm \pm 1 mm blade width
 - i) Cross point 75mm \pm 10 mm
 - j) Cross point 150 mm \pm 10 mm
 - k) Cross point 200 mm \pm 10mm
 - l) Cross point 250 mm \pm 10 mm
22. Hand drill with drill bit set
 23. Spanner 10 piece metric set
 24. Spanner 10 piece imperial set
 25. Soldering iron 6" with soldering paste & solder wire 50 gms
 26. Sponge holder 10" \pm 1"
 27. Can opener 6" \pm 1"
 28. Tape Cello
 29. Tape black
 30. Tape paper
 31. Punch 5" \pm 1"
 32. Cold Chisel 6" \pm 1".
 33. Cold chisel 8" \pm 1"
 34. Screw Driver Set (watch maker)
 35. Screw Driver alignment
 36. Super Glue Adhesive
 37. Pliers cutter with grip long point nose
 38. Pliers cutter / Grip combination
 39. Pliers flat jaw
 40. Pliers round jaw
 41. Cutter side 160 mm \pm 10 mm
 42. Cutter side 120 mm \pm 10 mm
 43. Flash line with hook
 44. Tweezers
 45. Probe (straight & angular)
 46. Wire brush
 47. Swiss Army Knife
 48. Tape measuring 4 mtr \pm 1 mtr
 49. Non metallic probe

50. Hand Gloves
51. Fire Extinguisher (BCF Type) 600 gm \pm 100 gm
52. Bar Lever Spike & cranked chisel ends 445 mm \pm 10mm
53. Bar lever cranked form & wedge ends 260mm \pm 10 mm
54. Square driver socket set
55. Pick 560 mm \pm 10 mm head
56. Pry bar
57. Thermal Cutter
58. Shovel round nose
59. Folding ladder (optional- subject to requirement of the user)
 - a) Should be made of ruggedised material
 - b) Should be foldable and capable for storage in a backpack
 - c) Minimum length 12 feet
 - d) Minimum width 1 foot
 - e) Weight- maximum 15 Kgs
 - f) Capacity-85 Kgs \pm 10 Kgs.
60. Miscellaneous- The firm should be able to provide the following, as applicable, along with the equipment: -
 - a) Cleaning Kit, wherever applicable.
 - b) User's Hand Book.

All the above tools should be packed in a suitcase type carrying case with proper stowage.

All the above tools should be ISI marked/ manufactured by standard and reputed companies.

5.33 Self Monitoring, Analysis and Reporting Technology (SMART) Equipment with Essential Accessories

Purchased by: ITBP

Year of Purchase: 2008-09

Name of Supplier:

- M/s Bharat Electronics Limited Govt. of India, MOD Enterprises, P.O. Kotdwara-246149, Pauri Garhwal (Uttarakhand)

Names of Vendors who participated in the Tender:

- M/s Bharat Electronics Limited Govt. of India, MOD Enterprises, P.O. Kotdwara-246149, Pauri Garhwal (Uttarakhand)

Price: Rs 2,05,000/-

Lead Time: 3 Months

TECHNIAL SPECIFICATION

Sl. No.	Specifications.	Required Specifications
1.	General	
a)		
	Character Keys	40 alphanumeric keys in conventional "QWERTY" format.
	Function Keys	15 color code keys which control the Transmit, scan, edit and print modes.
b)	Display	24 character alphanumeric display.
c)	Status indicators	4 LED display indicates various operating condition
	Transmit memory	Eight pages each of 1000 characters plus 92 background pages each of 1000 characters
	Receive memory	Eight pages each of 1000 characters plus 92 background pages each of 1000 characters.
2.	Printer interface	
a)	Teleprinter printer (through Teleprinter interface unit)	RS232 interface, 50, 75, 100 & 200 Baud
b)	ASCII Printer	RS232 interface, 110, 300, 600, 1200, &2400 Baud
c)	Computer interface	
i)	Interface	RS232 interface, 2400 Baud
ii)	Setup parameter of SMART	Configurable through PC.
iii)	Transmission and reception of message	Up to 1000 characters available from PC to remote PC, PC to remote SMART & SMART to remote PC.
iv)	Transmission of message	More than 1000 characters available from PC to remote PC.

3.	Radio Interface (HF Link)	
i.	Type	FSK
ii)	Data rate	50(low), 100(medium)& 200(high)
iii)	Out put level	Greater than 30mV peak to peak across 150 Ω
iv)	In put level	50mV to 2000mV peak to peak across 300 Ω
4	Line interface	
i)	Out put	Greater than -3dbm across 600 Ω
5.	Base Band Digital Interface	
i)	Type	RS232
ii)	Data rate	50, 100, 200, 300, 600, 1200, 2400 & 4800 Baud
iii)	Out put level	± 6v to ± 14v (normal)
iv)	In put level	± 5v to ± 20v
6.	Mode of operation	OFF-Line, Burst mode
7.	Type of transmission	Synchronous
8.	Synch Scheme	Correlation detection
9.	Error control Type	Forward Error Control (FEC)
i)	Algorithm	BCH (127, 78, 7)
ii)	Type of interleaving	Block
10.	Operating mode	Clear/secure
11.	Built-in Test (BITE)	Indicates faulty module with error code when BITE function is selected
12.	Battery	
i)	Voltage	+10.8v to +13.6v DC
ii)	Current	0.5A (max) at 12v
	OR	
i)	Voltage	+21.6v to +27.2V DC (with EBAB)
ii)	Current	0.25A (max) @ 24V
	OR	
	Mains (with MAU)	
i)	Voltage	180V to 270V, 50Hz
ii)	Current	250mA rms (max) @ 230V

5.34 Synthetic Life Jackets

Purchased by: CRPF

Year of Purchase: 2009-10

Name of Supplier:

- M/s Shri Lakshmi Cotsyn Limited, Kanpur

Names of Vendors who participated in the Tender:

- M/s NCFD, 16/97 The Mall, Kanpur
- M/s Texplus Fibres Pvt. Ltd., Noida Gautam Budh Nagar
- M/s Calcutta Commercial Corp., New Delhi
- M/s Shri Lakshmi Cotsyn Limited, Kanpur
- M/s Fin Enterprises, New Delhi

Price: Rs. 675/-

Lead Time: 6 Months

TECHNICAL SPECIFICATION

1. Nature of fibre/filament : Nylon 6 filament IS: 667: 1981 & IS 2005:1988
2. Nature of coating: Polyurethane
3. End/dm: $400 \pm 5\%$ IS 1963:1981
4. Picks/dm: $300 \pm 5\%$ IS 1963:1981
5. Mass g/m² : $80 \pm 5\%$ IS 1964 : 1970
6. Mass of de-proofed fabric, g/ m²: $70 \pm 5\%$ IS 1964 : 1970
7. Breaking strength, Newton (Minimum):
600- Warp-wise
450- Weft-wise
(5 x 20 cm fabric between grips)
IS 7016 Pt II:1981
8. Tearing Strength, Newton (Minimum):
60- Warp-wise
40- Weft-wise
IS 7016 Pt III:1981, Method A-1
9. Colour fastness to Washing:

- Change in colour- 4 or better
 - Staining on adjacent fabric- 4 or better
- IS 764 : 1979
10. Colour fastness to Perspiration
- Change in colour- 4 or better
 - Staining on adjacent fabric-4 or better
- IS 971:1983
11. Colour fastness to Rubbing
- Dry-4 or better
 - Wet-4 or better
- IS 766:1988
12. Colour fastness to sea water
- Change in colour-4 or better
 - Staining on adjacent Fabric-4 or better
- IS 690:1988
13. Colour fastness to Light- 4 or better IS 2454:1985
14. Dimensional Change due to relaxation, both directions, percentage, maximum 2.0 IS 2977:1989
15. Resistance to accelerated ageing at 70°C±1°C for 168 hrs in air circulating oven No sign of cracks, wrinkle or flaking should be observed. IS: 7016 Pt. VIII: :1975
16. Resistance to damage by flexing (after 30,000 cycle) No sign of cracks, softening or signs of brittleness should be observed IS: 7016 Pt. IV: :1987
17. Flame Retardancy
- a) After flame, second- Nil
 - b) After glow, second- Nil
 - c) Occurrence of flaming debris- Nil
- IS 11871: 1986 (Method A)
18. pH value of aqueous extract 6.0-8.0 IS 1390(Cold method) :1983
19. Water repellency (face side- uncoated) Spray rating Min. 80 IS 390: 1975
20. Water proofness (face side- uncoated) No percolation of water through the fabric or wetting of the outer surface
- IS: 7016 Pt VII: :1986 Low pressure method water pressure 30 cm for 30 minutes
21. Bending length, cm (Maximum)
- Warp-wise-3.5
 - Weft-wise-3.3
- IS: 6490: 1971
22. Separation of Polyurethane (PU) film On fraying threads in warp and weft directions up to 5 mm after cutting the fabric from any portion, there shall not be a continuous PU film on the areas where from where the threads have been removed.

5.35 VIOI Aerial Kits

Purchased by: ITBP

Year of Purchase: 2009-10

Name of Supplier:

- M/S Raj Engineering Co., Nazafgarh, New Delhi

Names of Vendors who participated in the Tender:

- M/S Raj Engineering Co., Nazafgarh, New Delhi

Price: Rs 4,850/-

Lead Time: 2 Months

TECHNIAL SPECIFICATION

S.No.	Specifications
1.	Two Nos. Aluminium poles of 20 feet height each collapsible into five section of superior quality anodized aluminium pipe 1.6 mm thickness having the following additional fitting. (i) Section Nos. 2 and 3 are linked with outer/ inner coupler hollow type same material grip having the length of 30 cms outer dia 4.8 cms inner dia 4.5 cms. (ii) The penetrating portion of the main pipe is lesser in the dia meter so that the coupling area could be properly griped.
2.	<u>BASE SECTION</u> : the base section should have base plate of 5 cms square and the angles are slightly bend so that this portion could be griped with earth during installation. It is outer dia should be 3.9 cm and inner dia 3.8 cm.
3.	<u>SECTION NO. 2 FROM BASE</u> : Having one outer coupler with length of 30 cm.
4.	<u>SECTION NO. FROM BASE</u> : Has one side outer coupling of length of 30 cm to be fitted in to pole No. 2
5.	<u>SECTION NO. 4 FROM BASE</u> : Should have one side, inner coupling with slot to be fitted outer coupler of Pole No. 3, the inner coupler having outer dia 3.4 cm., inner dia 3.3 cm.
6.	<u>TOP SECTION</u> : Has one side inner coupling to be fitted in to Pole No. 4 on the other side one assembly to hold triangular plates for guys with retaining hooks and pulleys for aerial wire. An insulator having 4.6 cm. Thickness is to be fitted below the aerial pulley so that the aerial could be isolated from earth.
7.	6 Nos. stakes with ropes, aluminium adjustable and spring loaded locking.
8.	2 Nos. halyards and clamps.
9.	2 Nos. pulleys (aluminium)
10.	01 No. aerial wire 30.5 meter made of tinned copper wire of 12 strands to 20/30 SWG with reel.
11.	1 No. lead in wire 10 meters with one reel.
12.	1 No. canvas carrying harness for the aerial kit along with all materials.
13.	2 Nos. hammers of 2lbs each.
14.	1 No. measuring tape 50 meters.
15.	Approx. Weight of the kit is 15 Kg.

5.36 Victim Location System with Breaching System

Purchased by: CRPF

Year of Purchase: 2008-09

Name of Supplier:

- M/s Jyotech Engineering & Marketing Consultants, New Delhi

Names of Vendors who participated in the Tender:

- M/s Brijbasi Fire Safety Systems Pvt. Ltd., New Delhi
- M/s SDS Electronics Pvt. Ltd., Panchkula, Haryana.
- M/s Jyotech Engineering & Marketing Consultants, New Delhi

Price: Rs. 6,03,845

Lead Time: 6 Months

TECHNICAL SPECIFICATION

Purpose

Victim location systems to be acquired are designed for location and rescue of victims trapped under debris during natural calamities or in mine collapses or confined space disasters. They enable insertion below the debris of a telescopic probe which mounts, at its head, a sensitive articulable video camera, supported by appropriate illumination, whose images can be viewed by the operator and other rescue personnel on remote display monitors. The system also integrates a two-way audio system which can pickup life sounds from the victim and also permits the passage of spoken instructions or assurances to him from the rescue team. Since a rigid telescopic probe has limitations on how far it can be inserted, the camera, light and sound system can also be mounted on one end of a cable which can be used to reach greater depths.

The required breaching system is a heavy duty drill used for making an entry hole for the probe of the victim location system through debris at the disaster site, or other overlaying material required to be breached to enable the search camera to access underlying void spaces .It should allow rescue teams to breach most common construction materials with only one system. It caring bits, carbide tipped diamond studded should be able to bore through wood, nails, sheet metal and roofing material and reinforced concrete. The system should have a collar for attachment of coring bits as well as cooling water to be delivered to the spinning carbide tipped diamond studded bits when used.

Capabilities Required (Victim Location System)

- The system's primary configuration will be based on a video camera mounted at one end of a rigid telescopic probe which can be reach out in to depths and void spaces up to a distance greater than 9ft.

- The colour video camera should be minimum, 1/3" double scan colour CCD with 4,70,000 pixel or more with low light sensitivity to better than 0.1 lux. The camera head should have travel articulation of 180 degree total, right to left, with viewing area not less than 120 degree. Illumination to be provided by a 16 element LED/xnon lamp integrated in to the camera head which can illuminate up to 6m or more in total darkness
- The system will be provided with two display monitors, one at the operator level and the second for remote viewing by other rescue personnel at a distance not less than 20 m from the operator position. The monitors should be flat screen LCD active matrix of minimum size 6" measured diagonally.
- The system will be provided with a two-way audio system. Maximum Gain will be better than 90 dB. The camera will also house a speaker. The operators' headset will incorporate noise attenuating earphones and a boom microphone through which messages or instructions may be passed to the victim through the speaker housed in the camera piece.
- The system should not require more than two persons to operate, one operator to handle and control the probe and the second operator for the system function, as well as viewing of the monitor. The probe operator will be provided ergonomic controls.
- The probe should not weigh more than 5 kgs.
- Two rechargeable dry batteries and a charger should be provided. The batteries should enable 3 hours continuous use and the charger should recharge these to 90% in less than two hours.
- The system should be capable of operation in a temperature range of -100 to 500 C.
Storage temperature -00 - (4 0 to 36 0)
Humidity -10 % to 90% relative
Water resistant - High water resistant

Capabilities Required (Breaching System).

- Power head weight-not more than 12 kgs.
- Boring speed -not less than 5 Cms per minute in standard construction grade concrete. Breaching depth -150 cm
- Bits- carbide tipped diamond stubbed bits (min.dia-52mm) capable of coring holes of minimum diameter of 55 mm.
- Cooling- pressurized water can, 2 gallon capacity with not less than 3 m hose with quick connect fittings.
- Field service kit- Canvas storage pouch, spare fuel tank cap, starter recoil assembly, allen key set for starter assembly, spare spark plug, spark plug wrench, copper washer, garden hose to water collar adaptor.

Scope of Supply

- Complete victim location system with camera mounted on rigid telescopic frame extendable to length > 6 m along with video display monitor, two-way audio system incorporating search

microphone and communication speakers in camera housing and under-helmet headset with earphones and boom microphones, operator consoles all packed in an appropriate water tight, dust proof carry case.

- Separate remote hard-wired display monitor with extension cable to 20 m.
- Two batteries and charger.
- Complete Breaching System in appropriate carry case with two additional diamond and coring bits each.

NOTE TO TENDERER

1. The tenderer shall indicate the make/model in their offer.
2. The tenderer shall furnish a clause-by-clause compliance statement. In case there is any deviation the same should be clearly brought out in the offer.
3. The tenderer may recommend additional accessories and spares separately along with their costs.
4. They shall produce the relevant BIS/EN/DIN/UL certificate of the product offered if applicable.
5. Technical manual comprising of servicing details shall be supplied with system.

5.37 Water Bottle Light Weight with Protective Carrier

Purchased by: CISF

Year of Purchase: NA

Name of Supplier:

- M/s. Audo Viso Pvt. Ltd., E-48, (2nd Floor) Connaught Place, New Delhi-110 001

Names of Vendors who participated in the Tender:

- M/s Audo Viso Pvt. Ltd., New Delhi
- M/s Texplus Pvt Ltd, Gautambudh Nagar (UP)
- M/S P.K.Kansil & Co., New Delhi

Price: Rs. 3037/-

Lead Time: 3 months

5.38 Solar Charge Controller and Mounting Structure

Purchased by: ITBP

Year of Purchase: 2009-10

Name of Supplier:

- M/S Applied Communication & Controls, # 109, Shiva Market, Near Madhuban Chowk, Pitampura, New Delhi

Names of Vendors who participated in the Tender:

- M/S Applied Communication & Controls, New Delhi
- M/S Easy Photovoltaic Pvt. Ltd., Ghaziabad
- M/S Sunali International, Secundrabad(AP)
- M/S Anu Solar Power Pvt. Ltd., Bangalore
- M/s Bharat Electronics Limited, Govt. of Defence Enterprises, Jalahalli Post, Bangalore

Price: Rs. 1795/- (for solar charge controller) Rs. 200/- (for mounting structure)

Lead Time: 1 Month

TECHNICAL SPECIFICATION

1.	Nominal Voltage	12 V
2.	Nominal SPV Power	150 W (12 V)
3.	Self Consumption	< 6 AMP
4.	Battery Charging Current	10 AMP MAX.
5.	Charging Method	CC- CV
6.	Charge Control	PWM
7.	Over Load Current	>10 AMP
8.	Max Load Current	3 X RATED CURRENT
9.	Display Indications	LED (Low Battery, Charging, Over Load)
10.	Connection	Screw Type Connector for 4 Sq. mm wire
11.	Installation	Table/ wall Mounting
12.	Box	MS Sheet box with Non weatherproof power coating
13.	Luminary Degree of Protection	IP 20
14.	Cooling	Natural Air Cooled
15.	Ambient Temperature	-20 °C to + 50 ° C
16.	Temperature Compensation	-.005 V/ Degree/ Cell

5.39 Water Purification Plant

Purchased by: BSF

Year of Purchase: 2007

Name of Supplier:

- M/S Hi-Tech Sweet Water Technologies Pvt. Ltd., Surat (Gujarat)

Names of Vendors who participated in the Tender:

- M/S ATZ SSS Corp. (Regd), Pahar Ganj, New Delhi
- M/S Perminonics Membranes Pvt. Ltd., Vadodara (Gujrat)
- M/S Fontus Water Ltd., New Delhi
- M/S Hi-Tech Sweet Water Technologies Pvt. Ltd., Surat (Gujarat)
- M/S Wacorp Hyundai India Pvt. Ltd., Noida (UP)

Price: Rs. 5,11,718/-

Lead Time: 6 Months

LIST OF IMPORTANT TELEPHONE NUMBERS

BPR&D

Name	Designation	Tel (O)
Sh Vikram Srivastava	Director General	24361849
		Fax-24362425
	ADG	24360032
Sh S P Vaid	Dir (Admn)	24364838
Sh Radhakrishna Kini	Dir(Res)	24363054
Dr Ish Kumar	Dir(NPM)	24361679
Sh M K Chhabra	Dir (Mod)	24360923
Smt Vanita Yadav	SSO(E)	24360308
Dr N S Pandey	SSO(W)	24361238
Dr Ravi Ambast	Dy SP (M)	24360371 Ext-284
Sh Y K Sharma	Dy SP(W)	24360371 Ext-254
Sh M M Gosal	Dy SP(T)	24360371 Ext-254

MINISTRY OF HOME AFFAIRS

Name	Designation	Tel (O)
Sh S Suresh Kumar	Joint Secretary (PM)	23383827
Sh M H Ansari	Dy. Director (Procurement)	23381069
Control Room		23092885, 23093897
		23092923, 23093054

CPMEs

ASSAM RIFLES

Name	Designation	Tel (O)
Sh Maj General J P Nehra	Director General	0364-2536188
		Fax-0364-2230146
Liasion Officer at Delhi		23094924
		25693520/3786
Control Room		03642230222

BSF

Name	Designation	Tel(O)
Sh Raman Srivastava	Director General	24362181
		Fax-24360016
Sh A K Surollia	IG (Prov)	24361355
Sh S K Srivastava	DIG(Prov)	24360397
Control Room		24360922

CISF

Name	Designation	Tel(O)
Sh N R Das	Director General	24361125
		Fax-24361125
Sh H V Chaturvedi	IG(Admn/Prov)	24362553
Sh J J Singh	DIG(Prov)	24307708
Control Room		24362866