

Defense and Law Enforcement and Security and Safety Equipment and Supplies,UNSPSC CODE:-46								
Military weapon and ammunition disarmament and disposal equipment and related products,UNSPSC CODE:-4622								
Demining equipment and related products,UNSPSC CODE:-462215								
Deep Search Mine/Metal Detector as Per MHA QRs, UNSPSC CODE:-46221599								
S. No	Parameter	Field type	Field Category	LOV			REMARKS	UNIT
<b>CONFORMITY</b>								
1	Conformity to technical requirements	Enumerable	Mandatory	As Per QR/Specification and TDs for "Deep Search Mine/Metal Detector", Prepared by Police Modernization Division, 26, Mansingh Road, Jaisalmer House, New Delhi and approved by MHA as per letter No IV-17017/13/2006 - PROV-I Dated on 27th September,2006 and Letter No. IV-17017/13/2006/Prov-I-7023 Dated on 4th August 2014.				
2	Availability of QR/specification for 'Deep Search Mine/Metal Detector'	Enumerable	Mandatory	Yes				
3	QR/specification has been seen, read and understood	Enumerable	Mandatory	Yes				
4	Scope of supply of 'Deep Search Mine/Metal Detector' covers all components complete as per governing QR/specification	Enumerable	Mandatory	Yes				
<b>ADVANCE SAMPLE / FIELD TRIAL</b>								
1	Demo offered at consignee's place	Enumerable	Golden	Yes		No		
2	Agree to provide Advance Sample(s) for buyer's approval / Field Trial before commencement of supply	Enumerable	Mandatory	Yes				
3	Number of days required to provide Advance Sample to the buyer (from the date of placement of order)	Enumerable	Mandatory	within 15 Days				
<b>WARRANTY</b>								
1	Warranty	Measurable	Mandatory	2			Year	
2	Minimum Period for which manufacturer Undertakes to Provide Spares	Measurable	Mandatory	10			Year	
<b>TEST REPORTS</b>								
1	Availability of Test Reports from Central Govt / NABL approved / ILAC accredited Lab to prove conformity to the MHA QR/specification	Enumerable	Mandatory / Filter	Yes		No		
2	If Yes, Test Report to be furnished to the Buyer on demand	Enumerable	Mandatory / Filter	Yes		NA		
3	Test Report No. and Date (hint:- May indicate 'NA' if Test Report is not available)	Enumerable					AKBNV	

4	Name of the Lab and Address (hint:- May indicate 'NA' if Test Report is not available)	Enumerable			AKBNV	
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**AKBNV: Allow Key But Not Value**

**Creator**  
**JITENDER-TA**

**Modifier**  
**AD-GRKP**

**Moderator**  
**DCEO-SKJ**

**Approvers**  
**ACEO-HRS / ACEO-PS**

No. IV-17017/13/2006-Prov-I-7023  
भारत सरकार/Government of India  
गृह मंत्रालय/Ministry of Home Affairs  
पुलिस आधुनिकीकरण प्रभाग /Police Modernization Division  
संभरण-I डेस्क /Prov.I Desk  
\*\*\*\*\*

26, Man Singh Road, Jaisalmer House,  
New Delhi, the 04<sup>th</sup> August, 2014.

To,

DsG<sup>V</sup> AR (through LOAR), BSF, CISF, CRPF, ITBP, SSB, NSG & BPR&D.

**Subject : Trial Directives for Deep Search Mine/Metal Detector (DSMD).**

*Dir (S),*

The Trial Directives in respect of Deep Search Mine/Metal Detector (DSMD) as per the Annexure have been accepted by the Competent Authority in MHA.

2. Henceforth, all the CAPFs should trial evaluate the above items strictly as per the laid down Trial Directives and Technical Specifications/QRs issued vide letter of even number dated 27-09-2006.

Yours faithfully,



(M. K. Chahar)

Under Secretary (Prov-I)

Encl.: As above.

Copy to : SO(IT), MHA : with the request to host the Trial Directives (soft copy being sent through email) on the MHA website (under the page of Organizational Set up-Police Modernization Division) alongwith QRs for Deep Search Mine/Metal Detector (DSMD).



(R K Soni)

Section Officer (Prov.I)

Copy to : Dir(Procurement), MHA.

**TRIAL DIRECTIVE FOR DEEP SEARCH MINE/METAL DETECTOR**

S No	PARAMETER	SPECIFICATION	Procedure suggested for trial for Board of Officers	Result expected / desired	Complied / Not Complied
01	Physical characteristic	The detector and its accessories should be lightweight and made of non-corrosive (exceptionally corrosion protected) material, Aluminium, Carbon fiber, Glass fiber etc. Material should have proven reliability and durability.	The firm should submit national or international accredited Lab test report in support to the material used, its reliability and durability at the time of evaluation.	The detector and its accessories should be made of non-corrosive (exceptionally corrosion protected) material Aluminium, Carbon fiber, Glass fiber etc. Material should have proven reliability and durability. The material used and its reliability & durability will be verified through the national or international accredited lab report.  In case of any doubt in the Lab test report, the veracity of the same may be checked from the concerned lab.	
02	Weight and Dimensions	<b>(a) Length of Telescopic rod:-</b> 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	Should be checked physically and also Check the equipment by using it in kneeling, standing and lying position with minimum and maximum possible extension.  Length of the equipment shall be measured by keeping the search head on flat surface and the telescopic pole kept perpendicular to it.	The length of telescopic rod (connected with a Search head )should be  1) Collapsed 700mm ( $\pm 10\%$ ) 2) Extended 1600 mm ( $\pm 10\%$ )  The equipment should be easily handled by the operator without causing undue fatigue for minimum and maximum possible extension in kneeling, standing and lying position.	

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	<p>of telescopic rod should be:</p> <ul style="list-style-type: none"> <li>i) Collapsed 700 mm (<math>\pm 10\%</math>)</li> <li>ii) Extended 1600 mm (<math>\pm 10\%</math>)</li> </ul>			
	<p><b>b) Weight :-</b></p> <ul style="list-style-type: none"> <li>(i) Telescopic pole and search head (maximum) - <b>2Kgs</b></li> <li>(ii) Electronic control unit (maximum) - <b>2 Kgs</b></li> <li>(iii) The maximum operating weight of the equipment including telescopic pole, search head and electronic control unit - <b>4 Kgs</b></li> <li>iv) Bag weight including accessories of detector - <b>4.5 Kgs (maximum)</b></li> <li>v) Total weight of the equipment including carrying case (maximum) - <b>11 Kgs</b></li> </ul>	<p>Measure the weight with the help of weighing machine as mentioned in the QRS.</p>	<ul style="list-style-type: none"> <li>(i) Weight of Telescopic pole and search head should not exceed more than <b>2 Kgs.</b></li> <li>(ii) Weight of Electronic control unit should not exceed more than <b>2 kgs.</b></li> <li>(iii) The maximum operating weight of the equipment including telescopic pole, search head and electronic control unit should not exceed more than <b>4 kgs.</b></li> <li>(iv) Bag weight including accessories of detector should not exceed more than <b>4.5kgs.</b></li> <li>(v) Total weight of the equipment including carrying case should not exceed more than <b>11kgs.</b></li> </ul>	

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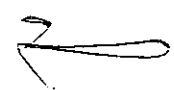





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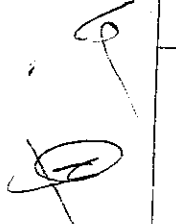
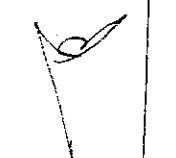

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	<p><b>c) Search Head:</b> The search head may be in any shape, i.e. circular, oval, rectangular etc. However, the total area of search head should be between 210 Sq cm to 710 Sq cm.</p>	<p>Measure the search head with the help of measuring tape and calculate the area by standard mathematical formula.</p>	<p>Search Head: The search head may be in any shape. However, the total area of search head should be in between 210 Sq cm to 710 Sq cm.</p>	
03	<p>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.</p>	<p>Should be checked physically. The electronic components used in the PCB should be hermetically sealed by any of the transparent insulating material to avoid contact of the components to the external environment like moisture etc. It should also be checked that the batteries used is kept separated from the electronic circuit. The firm should submit a national/international accredited lab test report for the same.</p>	<p>The electronic circuit must be hermetically sealed and Separate from batteries so that in case of battery leakage the electronic circuit is not damaged. Check the national/international accredited lab test report for the same. In case of any doubt in the test report, the veracity of the same may be checked from the concerned lab.</p>	

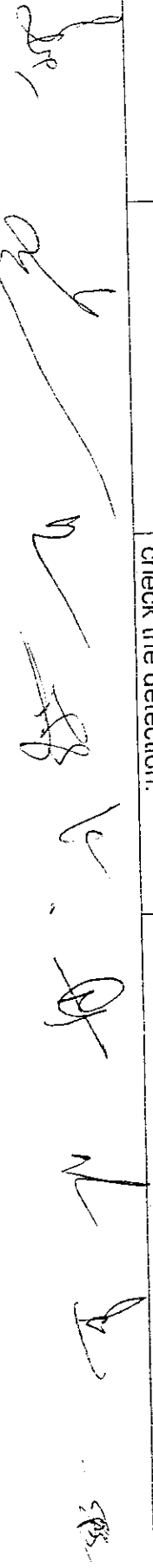










04		<p>Detector design should allow its use both with and without earphone. The equipment must have volume control facility. Detector must give detection sound when operated without earphone. If earphone is used the detection sound should not be heard in open but only in earphone.</p>	<p>Operate the detector and keep it in detection mode. The detector must give detection sound. Now connect the ear phone with the detector then sound must not be heard in open but only in earphone. Check the detector for the facility of volume control.</p>	<p>The detector should have both the facilities to get detection sound with or without earphone. It must be ensured that when earphone is connected, detection sound must be heard in earphone only. The facility of volume control must be provided in the detector.</p>	
05		<p>Must have a power control and sensitivity control to detect all type of ferrous /non ferrous metals.</p>	<p>Operate the detector and test the detection for ferrous (iron, tin etc.) and non ferrous (Aluminium, copper etc.) metals by changing/controlling the power and sensitivity of the detector.</p>	<p>The detector must have a power control and sensitivity control to detect all type of ferrous / non ferrous metals.</p>	
06		<p>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 handgrip or on search head).</p>	<p>Operate the detector and go to the detection mode, check the visual indication of detection and proximity of the target metal. The LEDs location should be checked in the detector. The whole process should be in the sun light in open ground.</p>	<p>The detector must have a visual display to indicate detection &amp; proximity of target metal through LEDs provided (preferably) on the handgrip or on search head. The brightness of the LEDs should be enough to be visible in day light.</p>	

Dr.      

07		<p>Must have self-compensating capability to detect the metals in different types of terrain/soil/water (including saltwater). Certification to this effect will be provided by the manufacturer from a recognized laboratory.</p>	<p>Operate the detector in different types of terrain, soil, water &amp; saltwater. The firm should also submit national or international accredited Lab test report for the same.</p>	<p>There should be no need to adjust the detector for using it in different types of terrain/soil/water (including saltwater). Check the national/ international accredited lab test report for the same. In case of any doubt in the test report, the veracity of the same may be checked from the concerned lab.</p>	
08	<p>Detection Capabilities</p>	<p>a) Should detect all ferrous and non-ferrous metals. b) Must be capable of detecting buried mine/metals in:- I. All types of soils including laterite (Ferrous and aluminium oxides) (certification required from approved testing facilities). II. Under water 1 feet.</p>	<p>Operate the detector and check the detection for ferrous (iron &amp; tin etc.) and non ferrous (copper &amp; Aluminium etc.) metals.  The firm should submit national or international accredited Lab test report for the same.</p>	<p>The detector should detect ferrous and non ferrous metals.  Check the national/ international accredited lab test report for the same. In case of any doubt in the test report, the veracity of the same may be checked from the concerned lab.  The detector must detect the test target under water 1 feet depth.</p>	


  
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	<p>III. In all weather, condition from arid to pouring rain. The equipment should meet international standard IP 67.</p>	<p>The firm will submit the national or international accredited lab test report in r/o IP 67. To simulate the rain condition, keep the system under shower for 30 minutes to check the capability of detector for detecting buried mine / metals.</p>	<p>The system must function properly after the shower test. Check the national/ international accredited lab test report in r/o IP67. In case of any doubt in the test report, the veracity of the same may be checked from the concerned lab.</p>	
<p>IV. Over the temperature range of -20° to +55°C. Compliance (certification reqd from approved testing facilities).</p>	<p>The firm will provide the national or international accredited lab test report in r/o capability of detector for detecting buried mine / metals over the temp range of -20° to +55° C.</p>	<p>Check the national/ international accredited lab test report for the same. In case of any doubt in the test report, the veracity of the same may be checked from the concerned lab.</p>		
<p>V. <u>Metal near metal:</u> - The equipment should be able to differentially detect two detonators No.27/33 placed at a distance of 01 ft apart.</p>	<p>Operate the detector and detect two detonators (no. 27 or 33) placed at a distance of 1 feet apart.</p>	<p>The detector should be able to differentially detect two detonators No.27/33 placed at a distance of 01 ft apart.</p>		

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09	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.	Switch 'ON' the detector and start the stop watch simultaneously. Stop the watch as the detector set for operation in air / metal free soil. Check the detector for trigger level / threshold control provided.	The detector should be operational and capable of being set for operation in air / metal free soil within 30 seconds of switching 'ON' or trigger to setting switch. Trigger level / threshold control should be provided in the detector.
10	Detection Sensitivity	<p>a) The size and shape of the objects with which the tests will be conducted are as under:-</p> <p>(i) 0.15 gm metal -1 inch x 1 inch tin foil</p> <p>(ii) 50 mm nail - Thickness 03 mm and dia of Head 06 mm.</p> <p>(iii) Salty Water - 03 gm iodized common salt in 01 ltrs of water</p>	Collect or arrange the test objects of mentioned shape & size, clear water salty water. Also arrange a non metallic measuring tape or supporting object like thread or straight wooden stick for measurement of depth during detection.	The size & shape of the test objects should be as per the QRS.
	b) The sensitivity of the detector must meet the following specifications:-	<p>1. <u>In Free Air</u></p> <p>(aa) 0.15 gm metal -</p>	Operate the detector and check the detection of different test objects in free air. Note down the detection distance of all the test objects.	The detection distance for the different test objects must be as per the distance mentioned in the QRS in free air.

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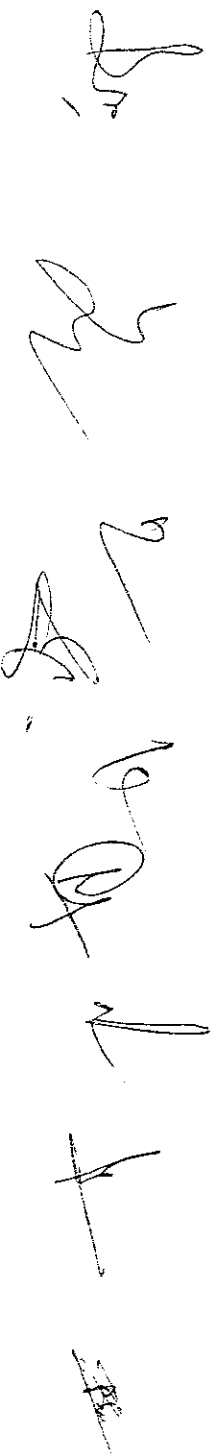
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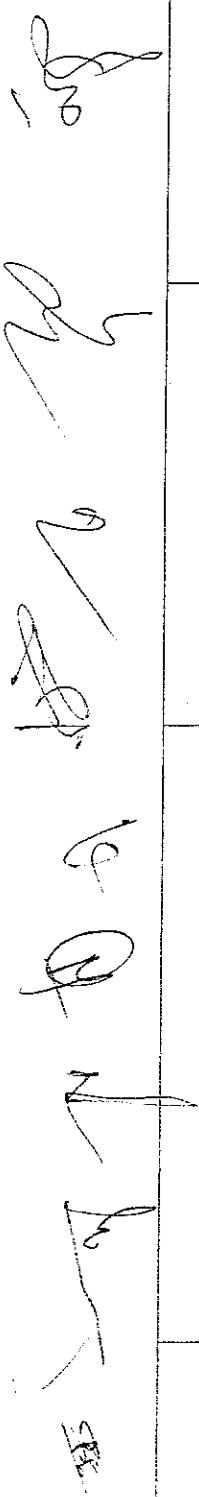
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		<p>15 cm  (ab) 50 mm nail  vertical- 29 cm  (ac) 50 mm nail  horizontal- 23cm</p>			
		<p>II. <u>Under ground</u>  (aa) 0.15 gm metal  - 11 cm  (ab) 50mm nail  vertical - 27 cm  (ac) 50 mm nail  horizontal -  17cm</p>	<p>Operate the detector and check the detection of different test objects underground. Note down the detection distance of all the test objects.</p>	<p>The detection distance for the different test objects must be as per the distance mentioned in the QRs underground.</p>	
		<p>III. <u>In clear Water</u>  (aa) 0.15 gm metal -  11 cm  (ab) 50 mm nail  vertical-28 cm  (ac) 50 mm nail  horizontal-19  cm</p>	<p>Operate the detector and check the detection of different test objects in clear water. Note down the detection distance of all the test objects.</p>	<p>The detection distance for the different test objects must be as per the distance mentioned in the QRs in clear water.</p>	
		<p>IV. <u>In Salty Water</u>  (aa) 0.15 gm metal  - 11 cm  (ab) 50 mm nail  vertical- 28 cm  (ac) 50 mm nail  horizontal - 19cm</p>	<p>Operate the detector and check the detection of different test objects in salty water. Note down the detection distance of all the test objects.</p>	<p>The detection distance for the different test objects must be as per the distance mentioned in the QRs in salty water.</p>	



		<p>c) Detector must be capable of pinpointing detected metal to <math>\pm 5\text{cm}</math> range. The distance will be taken from the centre of the search head to the centre of the object.</p>	<p>Pinpointing capability of <math>\pm 5\text{cm}</math> to be tested in horizontal plane while carrying out trials to ascertain compliance of QRS sub para no. 10 (b) (i) to (iv).</p>	<p>The detector should be capable of pinpointing the detected metal and the distance will be within <math>\pm 5\text{cm}</math> from the centre of the object to the centre of the search head.</p>	
		<p>d) Detection tone should be distinct from the working tone. The instrument should be free from radio and static interference.</p>	<p>Check the detection tone by operating the detector in detection mode.</p> <p>The detector should not be affected or disturbed by the use of radio set or any other static interference like generator or motor etc.</p>	<p>Detection tone should be distinct from the working tone.</p> <p>The instrument should not get affected with radio and static interference.</p>	
11	Electrical Parameter	<p>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.</p>	<p>Switch 'ON' the detector on primary dry cell having full power and monitor till 20 hours continuously. Also monitor the low battery indication.</p> <p>Again switch 'ON' the detector on rechargeable cells (in fully charge condition) and monitor till 12 hours continuously.</p>	<p>The primary dry cell must run the detector for 20 hours continuously. Rechargeable cells must run the detector for 12 hours continuously.</p> <p>The detector must have a facility to indicate low battery.</p>	

			<p>Note: - Serviceability of the detector must be checked repeatedly by detecting metal during 20 hrs &amp; 12 hrs test.</p>		
12	Transport, Storage and Transit	<p>The detector together with its accessories must come in a light weight, durable compact backpack 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</p>	<p>The backpack carry bag provided with the detector must accommodate easily the detector with its accessories. The firm should submit national/international accredited lab test report in r/o the capability of withstanding in all adverse environmental conditions. Measure the weight of the back pack carry bag inclusive of detector accessories.</p>	<p>The detector together with its accessories must come in a durable compact backpack carry bag. Check the national/ international accredited lab test report for the same. In case of any doubt in the test report, the veracity of the same may be checked from the concerned lab. The back pack carry bag weight inclusive of detector accessories must not exceed 4.5 kgs</p>	
13		<p>Weight of the complete detector in its bag and transport box must not exceed 11 kgs. Transport box should be ruggedized 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.</p>	<p>Measure the weight of the complete detector in its bag and transport box on weighing machine. Check the serviceability of the detector and pack in transport box as per the procedure and then drop it on the hard surface from the height of 3 meters vertically &amp; horizontally.</p>	<p>Weight of the complete detector in its bag and transport box must not exceed 11 kgs. The detector should be checked for the proper serviceability and damage after drop test. The transport box body also not gets damaged after the drop test.</p>	



14	Period of warranty of supplied equipment minimum 2 years.	Manufacturer should undertake to provide spares for 10 years.	Not applicable at the time of physical and technical evaluation of tender sample.	NA	
15			Not applicable at the time of physical and technical evaluation of tender sample.	NA	

*[Signature]*  
 (Molal Yashp, DC (exd))  
 CRFC

SIT Randeesh Sharma, Sr. DSF  
*[Signature]*  
 KHANT

SBC - 1N - Cam 3  
 I.T.B. P

*[Signature]*  
 Mr. Singh

MAJ R. P. KHANNA  
*[Signature]*  
 CHIEF SNO  
 DTP

*[Signature]*  
 (S. J. Joshi)

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 (S. J. Joshi, DC/AIA)  
 B.S.G.

*[Signature]*  
 DCA (exd) NSS

Approved/Not approved

*[Signature]*  
 (Subhash Joshi)  
 Director General, NSG

107

No. IV-17017/13/06-Prov.I  
Government of India  
Ministry of Home Affairs

Jaisalmer House, Man Singh Road,  
New Delhi, 27.9.2006

To  
The DGs: Assam Rifles, BSF/CISF/CRPF/ITBP/NSG/SSB/BPR&D

Subject:- Finalization of QRs/specifications for Weaponary/security Equipments

In supersession of this Ministry's letter of even number dated 1.9.2006 and 11.0.2006 forwarding copies of QRs of Deep Search Mine/Metal Detector, a comprehensive revised QR of DSMD is sent herewith. The QR of IWESS will remain unchanged.

2. Henceforth, all the CPMFs should procure the above items required by them to meet their operational needs strictly as per the laid down QRs/Specifications.

*Alok*  
(Alok Mukhopadhyay)  
Under Secretary(Prov-I)

*De*  
27/9/06

- Copy to:-
- DD(Procurement),MHA
- Copy for information to:-
- 1. PS to JS(PM),MHA
- 2. Dir(Prov), MHA

~~IG (HQ)~~  
*28/9/06*

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## QUALITATIVE REQUIREMENTS: DEEP SEARCH MINE/METAL DETECTOR (BSMD)

1. Physical Characteristic: The detector and its accessories should be lightweight and made of non-corrosive (exceptionally corrosion protected) material, aluminium, carbon fiber, glass fiber etc. Material should have proven reliability and durability.

### 2. Weight and Dimensions

(a) 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

- Collapsed: 700mm ( $\pm 10\%$ )
- Extended: 1600mm ( $\pm 10\%$ )

### (b) Weight

(i) Telescopic pole and search head (maximum)	2 kgs
(ii) Electronic control unit (maximum)	2 kgs
(iii) The maximum operating weight of the equipment including telescopic pole, search head and electronic control unit. (maximum)	4 kgs
(iv) Bag weight including accessories of detector.	4.5 kgs
(v) Total weight of the equipment including carrying case (maximum)	11 kgs

(c) 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.

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 shall provide a compliance certificate 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 types 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 types of terrain/soil/water (including salt water). Compliance Certificate shall be provided by the manufacturer for the same.



## 8. Detection Capabilities

- (a) Should detect all ferrous and non ferrous metals.
- (b) Must be capable of detecting buried mine/metals in:-
  - (i) All types of soils including laterite (Ferrous and aluminium oxides)  
Compliance Certificate shall be provided by the manufacturer for the same.
  - (ii) Under water 1 ft.
  - (iii) In all weather condition from arid to pouring rain. The equipment should meet international standard IP-67. Compliance Certificate shall be provided by the manufacturer for the same.
  - (iv) Over the temperature range of  $-20^{\circ}$  to  $+55^{\circ}$ C. Compliance Certificate shall be provided by the manufacturer for the same.
  - (v) Metal near metal. The equipment should be able to differentially detect two detonators No 27/33 placed at a distance of 01 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

- (a) The size and shape of the objects 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 - 03 gm iodized common salt in 01 ltrs of water
- (b) The sensitivity of the detector must meet the following specifications:-
  - (i) In Free Air
    - (aa) 0.15 gm metal - 15 cm
    - (ab) 50mm nail vertical - 29 cm
    - (ac) 50mm nail horizontal - 23 cm
  - (ii) Under Ground
    - (aa) 0.15 gm metal - 11 cm
    - (ab) 50mm nail vertical - 27 cm
    - (ac) 50 mm nail horizontal - 17 cm

(iii) In Clear Water

- (aa) 0.15 gm metal - 11 cm
- (ab) 50mm nail vertical - 28 cm
- (ac) 50 mm nail horizontal - 19 cm

(iv) In Salty Water

- (aa) 0.15 gm metal - 11 cm
- (ab) 50mm nail vertical - 28 cm
- (ac) 50 mm nail horizontal - 19 cm

(c) Detector must be capable of pinpointing detected metal to  $\pm 5$ cm range. The distance will be taken from the center of the search head to the center of the object.

(d) 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.

13. 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.

14. Period of warranty of supplied equipment minimum 2 years.

15. Manufacturer should undertake to provide spares for 10 years.

Schedule of Testing

1. The technical bids would be evaluated to assess the compliance of DSMD offered with the laid down QRs.

2. Successful bidders shall be required to submit their equipment for field trials.

3. Methodology for field testing :-

(a) Weight of the equipment shall be measured by the board of officers using a weight balance.

(b) Length of the equipment shall be measured using a standard measuring tape. The search head will be kept flat on the ground and the telescopic pole kept perpendicular to it. The total length from ground level to top of the telescopic pole will be taken in consideration for both fully folded and fully extended position.

(c) The search head area will be measured using physical measurement and standard mathematical formula.

(d) Use of detector with or without headphones will be checked physically for compliance as per laid down QRs.

(e) Power control and sensitivity control shall be checked visually and operationally.

(f) Visual display for detection and proximity of target metal will be checked visually and operationally.

(g) Detection capabilities shall be physically checked as per laid down QRs.

(h) Detection sensitivity shall be physically checked as per laid down QRs and objects specified in the QRs.

(j) For checking the electrical parameters the bidders shall provide the DSMD with adequate numbers of fresh batteries both commercially available dry cell and rechargeable batteries. The equipment shall be kept in switched on position for the required duration as specified in the QRs. Low battery indication will be checked visually.