

REVISED DRAFT QRs AND TRIAL DIRECTIVES OF BOMB SUIT

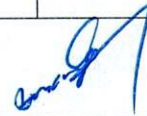
Sr. No.	QR's	Trial directives
1	<p>(a) Bomb Disposal Suit is used to protect the operator/ technician from blast/heat & fragmentation effect of bomb/ IED (Improvised Explosive Device) during handling of bomb/ IED. ✓</p> <p>(b) The Bomb Suit to be NIJ 0117.01 or NATO STANAG 2920 or Mil Standard 662F or NATO AEP 2920 compliant.</p>	<p>OEM to furnish NIJ 0117.01 or NATO STANAG 2920 or MIL Standard 662F or NATO APE 2920 test certificate.</p> <p>To be checked physically by BOO by relevant test certificate from NABL accredited lab/ Indian Govt Lab/International accredited Lab.</p>
1.1	Bomb suit should be designed to protect against IEDs with acceptable standards of ergonomics, optics, head protection, spine protection, fragmentation protection, blast integrity, electrostatic discharge safety, flammability safety and Drag rescue features.	<p>OEM to furnish lab test reports from NABL/Indian Govt Lab/ International accredited lab for protection standards offered by the Bomb Suit.</p> <p>Drag and rescue features to be physically checked by the BOO.</p>
1.2	<p>Protection Against Threats: The Bomb Suit should offer protection against following effects of bomb/IED explosion as per Bowen's criteria/following criteria.</p> <p>(a) Fragmentation.</p> <p>(b) Impact.</p> <p>(c) Blast Over pressure.</p> <p>(d) Thermal effect</p>	<p>OEM to furnish lab test reports from NABL/International lab for protection standards offered by the Bomb Suit.</p>
1.3	<p>Body Protection: Following parts of the body should be protected from the explosion effect of bomb/ IEDs:-</p> <p>(a) Arms.</p> <p>(b) Feet, Lower leg, Knees & Thighs.</p> <p>(c) Chest, Groin & Collar.</p> <p>(d) Spinal cord.</p> <p>(e) Face (with helmet & visor).</p> <p>(f) Head, Thorax, Abdomen and pelvis</p>	





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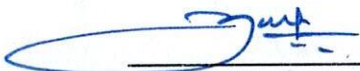



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1.4/	The suit should consist of the following items, which collectively make a complete garment:-	
	(a) Jacket with attached collar & patch chord, with additional plate for enhanced protection of chest, neck and groin	The subject (Bomb Technician) will be made to wear the suit after warming up. The subject should be able to perform the BDD task mandated by BOO. During and after completion of the task all parts must be intact and allow technicians to execute RSP without any hindrance during operations.
	(b) Arrangements to be made available for immediate removal/quick release of the jacket by the wearer.	To be checked physically by BOO.
	(c) The jacket should have pouches/ molle straps for keeping working tools.	To be checked physically by BOO.
	(d) It should have high quality Ballistics inserts for chest protection, groin protection, collar protection, sleeves, flame resistant and anti-static hand gloves arrangements to be made available to remove the ballistics inserts from the jacket.	To be checked physically by BOO.
	(e) Outer cover of jacket to be made in good quality washable material preferably NOMEX IIIA, Silicon blended Kevlar/ Aramid or better fabric.	OEM to submit undertaking regarding details of supplier of outer cover of jacket from whom it has been procured.
	(f) Moulded chest protection plate, groin protection plate and collar protection plate should be provided. Blast plates should be molded from woven roving with added fire retardant polymer/GRP/Composite material or better without metal.	To be checked physically by BOO by relevant test certificate for material composition and fire retardant from Indian Govt Lab/ NABL/ International accredited Lab.
	(g) Velcro/quick release arrangements with adjustment strap may be provided for comfortable fittings.	To be checked physically by BOO.

















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(h)	<p>The Jacket should have ballistics inserts made from Aramid, Kevlar in water resistant pouches.</p> <p>(i) Outer cover. NOMEX/ Kevlar/ Aramid Fire retardant fabric</p> <p>(ii) Weight. Not more than 16 kg (without armor plate)</p> <p>(iii) Colour. Olive green/Desert Tan/ Navy Blue/Black etc. (User to specify)</p> <p>(iv) Size. Should be available in different sizes to suit the user's requirement.</p> <p>(v) Blast plate pouch. 725 Denier Nylon/ Nomex or equivalent and should be water and fire retardant.</p> <p>(vi) Attached system. Nylon webbing & Velcro, Hook & Loops, Acetal.</p> <p>(vii) Soft components. Layered Aramid fiber contained in water and fire retardant fabric.</p> <p>(viii) Rigid component. Polycarbonate, Foam, UHMPE (Ultra High Molecular Weight Polyethelene) or equivalent.</p>	<p>(iv) OEM to provide certificate from NABL/ Indian Govt lab/ International lab.</p> <p>(vi) OEM to provide undertaking of same.</p>
1.5	Trouser	
(a)	Trouser adjustable	The subject (Bomb technician) will be made to wear the suit after warming up. The technician should be able to adjust the trouser as per his fitting and capable of performing the EOD task.
(b)	The trousers should be adjustable catering for different sizes	The subject (Bomb Technician) will be made to wear the trousers and all the parameters mentioned in QR will be physically checked by the BOO.
(c)	Immediate removable/quick release of the trouser should be achievable, break way zip and Velcro tape may be provided for trouser fitments.	To be checked physically by BOO.

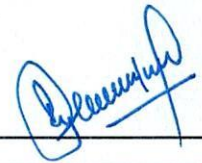






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	<p>(d) The trousers may be designed for thigh protection, leg protection, shoulder strap with buckle and Velcro tape adjustment added with waistband.</p> <p>(e) The Trouser should have ballistics inserts made from light weight multilayered, water and fire retardant, Aramid, Kevlar blend static reducing fibre and shin guard HAP.</p> <p>(i) Outer cover: Kevlar blend fabric, with Kevlar thread or better.</p> <p>(ii) Weight: Not more than 9 kg (without armor plate)</p> <p>(iii) Colour: Olive green/ Desert Tan/ Navy Blue/ Black etc. (To be specified by user).</p> <p>(iv) Size: Should be available in different sizes to suit the user's requirement.</p> <p>(v) Knee & Shin Guard cover: Silicon filled aramid/Kevlar blended fabric.</p> <p>(vi) Attached system: Nylon webbing& Velcro, Hook &Loops, Acetal.</p> <p>(vii) Soft components: Layered Aramid fiber contained in water and fire retardant nylon.</p> <p>(viii) Shin Guard: Polycarbonate, Foam, UHMPE (Ultra High Molecular Weight Polyethelene or better material).</p>	<p>To be checked physically by BOO.</p> <p>To be checked physically by BOO by relevant test certificate from NABL/ International accredited lab.</p>
1.6	<p>Foot protection with the help of boot over shoes or similar arrangement.</p> <p>Capable of providing Front or complete protection as per user requirement (User to specify)</p>	<p>The subject (Bomb technician) will be made to wear the boot over shoes. The subject will be made to walk and run. The subject should be capable of performing the EOD task without any discomfort. The boot over shoes should be capable of providing front or complete foot protection (as specified by user during tendering) from heat blast and fragmentation waves and will be tested with relevant test certificate.</p>



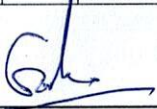


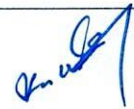



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Sr. No.	QR's	Trial directives
1.7	Helmet. Ballistic EOD Helmet protection performance figures should be NIJ 0117.01/ STANAG 2920/MIL 662F/ NATO AEP 2920 for 17 grain V50 simulator compliant for standards as mentioned below	OEM to furnish min one test report from NABL/ Indian Govt lab/ International accredited lab for protection standards offered by the helmet.
	(a) Visor (Replaceable when damaged). * The visor should have arrangement for opening without getting detached from helmet.	The subject (Bomb technician) will be made to wear the helmet along with complete Bomb Suit. The subject will be made to walk, run and perform the EOD task. The protection parameters will be verified using the test certificates produced. However, operator should be able to execute EOD task without any hindrance and same will be checked by BOO. When the subject is bend and performing the task, the helmet should be intact. OEM to furnish NATO STANAG 2920 or MIL Standard 662F or NATO AEP 2920 test certificate for steel visor in conjunction with regular visor if user has asked for Steel Visor. To be checked physically by BOO by relevant test certificate from NABL accredited lab/ Indian Govt lab/ International accredited lab.
	(b) Same helmet to be capable for various fitting sizes.	
	(c) Visor cover. For protection during storage.	
	(d) Optional facility of Steel Visor For increasing combined protection level of visor to min 1000m/s for 17 grain V50 STANAG 2920/MIL STD 662F/ AEP STANAG 2920 with limited visibility should be provided based on user requirement. Steel Visor should be detachable during operation.	
	(e) Ear protection.	To be checked physically by BOO.
	(f) Balaclava.	
	(g) Weight with visor not more than 6 Kgs (without steel visor)	To be checked physically by BOO.
	(h) Ventilation system with Blower and demisting. Suit/Helmet mounted fan should provide effective ventilation with control unit within easy reach and vicinity of the bomb technician. Should be provided with an integrated effective demisting arrangement.	To be checked physically by BOO.
	(i) The system should have an arrangement for breathing (Face mask with respirator) in a hazardous gas environment. Arrangement is optional as per user requirement.	To be checked physically by BOO.











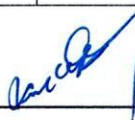






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Sr. No.	QR's	Trial directives
	<p>(k) Two way Communication system. Both wired and wireless:- It should provide a two way communication on radio and on wire between operator and base station up to a min distance of 100 meters wired and 200 mtrs wireless (LOS). Built in microphones and headphones/integrate radio communication in helmet facilitating clear communication between bomb technician and commander without comprising the comfort of the bomb technician.</p>	<p>The subject (Bomb Technician) will be made to wear the complete bomb suit .The subject should be able to clearly communicate with base station and ranges as mentioned in QR will be checked by BOO.</p>
	<p>(i) <input checked="" type="checkbox"/> Wireless hands-free (VOX) Communication without use of PTT (ii) <input checked="" type="checkbox"/> Wireless range of 200 mtrs (Min) (iii) <input checked="" type="checkbox"/> Hard Wire Spool 100 mtrs (Min) for wired communication. (iv) <input checked="" type="checkbox"/> Control Module cum amplifier for communication system. (v) <input checked="" type="checkbox"/> Recording facility for recording live wired communication (Optional for wireless communication). (vi) <input checked="" type="checkbox"/> Head set (vii) Built in microphones and headphones/ integral radio communication in helmet facilitating clear communication between bomb technician and commander without any hindrance in performing EOD task. (viii) <input checked="" type="checkbox"/> Power supply. (ix) <input checked="" type="checkbox"/> Minimum one front facing live video camera. (x) <input checked="" type="checkbox"/> Minimum one front facing search light monochromatic or biometric.</p>	<p>The subject (bomb technician) in the fully equipped bomb suit gear should be carrying out clear communication with commander at the Command post/Control Centre. The communication system should not hamper the technician while performing EOD tasks. The minimum range of communication are as follows :-</p> <p>(a) with wire – 100 mtrs (b) wireless communication – 200 mtrs</p> <p>The components of helmet will be physically checked by the BOO and there after the subject (bomb technician) will be made to wear the helmet along with the complete bomb suit and perform EOD tasks during which all the components should function. The BOO will check the functions of each component.</p>



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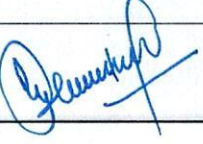









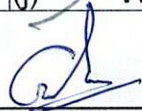
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	(xi) The helmet should have built in microphone and speaker for operator to hear all the conversation taking place in the vicinity and automatic decibel cutout sys (85 to 95db) to protect the ears of the operator.	OEM to furnish test reports from NABL/ international accredited lab for protection standards offered. BOO to be check the certificate.
1.8	Search Light. The helmet must be fitted with min one front facing search light for working in dark condition.	To be checked physically by BOO.
1.9	Live Video Camera Helmet must have min one front facing video camera of min 2 mega pixel configurations for Live Video transmission in 480P or better to base station located at a distance of 200 mtrs LOS and 100 mtrs in BUA (Non-line of sight). The system should be equipped with an electronic system digital transmission so that the feed from the operator can be relayed to the base station in Built up Areas (Non line sight) without any interference. The system should also be equipped with video recording capability. Min 08 inch size of screen with all accessories to be provided for base.	OEM/vendor undertaking along with proof of procurement of camera to be provided. To be checked physically by BOO.
1.10	The system must have hand operatable arrangement for user to operate electronic features including light, audio levels, ventilation, easily.	The system must have hand controlled panel within ergonomical reach of the operator for electronic features including light, audio levels, ventilation. No dangling wires more than 15 cm should be present.
1.11	Provision for water intake facility to be provided.	To be checked physically by BOO.
1.12	Provided with suitable padding arrangement/ other custom fit and chin strap arrangement for the comfort of the wearer.	To be checked physically by BOO.
1.13	Quick release arrangement/mechanism to open and close the visor.	To be checked physically by BOO.
1.14	10 x Spare balaclavas or one spare helmet liner hood (where applicable) should be provided with the bomb suit helmet.	To be checked physically by BOO.
1.15	Flame resistant non-static hand gloves (detachable).	OEM to furnish certificate from NABL accredited lab/Indian Govt lab/ International lab.
1.16	Transit bag :- (a) Soft Carrying Bag(s)for bomb suit, helmet and cooling suit. (b) Hard Cases for bomb suit, helmet & cooling suit.	Bomb suit will be placed in the transit bag and checked for handling during transportation.

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Sr. No.	QR's	Trial directives
1.17	Groin Protection (Integrated/ separate)	The subject (Bomb technician) will be made to wear the groin protection as a part of suit. The subject will perform EOD task and there should not be any hindrance in RSP task.
1.18	Hydration bag – Min 1 ltr	The subject (Bomb technician) will be made to wear the complete suit and functionality of hydration bag will be checked.
1.19	At least three different size (small, medium & large) to be made available by the Firm. (User requirement specified at tendering stage.)	One bomb technician will be made to wear the bomb suit (Suitable size) and perform the EOD tasks. The operators fitting and ability to perform EOD tasks without suit causing any inconvenience will be checked by BOO.
1.20	Back protection with easy adjustment/ custom fitted/integrated as per best fit for bomb technician comfort	The subject (bomb technician) will be made to wear back protectors and BOO to physically check the same.
2.	Cooling Suit	
2.1	<p>The Cooling Suit kit should include-</p> <p>(a) ✓ Cooling Jacket/Long sleeve shirt with cooling tubes sawn into trunk and arms.</p> <p>(b) ✓ Cooling Trouser/Long legged pants with cooling tubes sawn into legs.</p> <p>(c) ✓ Cooling Balaclava for head and face. (Body cooling suit overall having multiple items as above or combined into single piece shall be accepted)</p> <p>(d) ✓ A closed fitted open faced hood for head.</p> <p>(e) ✓ Cooling unit and pouch. Pouch should be on/ over the bomb suit.</p> <p>(f) ✓ Two water bottles</p> <p>(g) ✓ Battery pack and charger.</p> <p>(h) ✓ Carrying bag.</p> <p>(i) ✓ Water Pump.</p>	Each of these items will be physically checked by the BOO. Thereafter the subject will be made to wear the cooling suit along with complete bomb suit and will be ^{made} to perform EOD tasks. The cooling suit should provide effective cooling for at least 30 mins before the next bottle is replaced.










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2.2	(a) <input checked="" type="checkbox"/> Material: Manufactured from a suitable flame retardant knitted fabric. Should have negligible pilling, flexible & very soft & comfortable to wear and can be worn under virtually any outer clothing without encumbrance. It should be available as detachable shirt, pant & hood. The fabric should be washable.	To OEM to furnish self-declaration certificate regarding the material of the suit as per specification. The individual item part of the cooling suit will be inspected by the BOO but the functionally will be checked as integrated suit along with bomb suit to perform EOD tasks.
	(b) <input checked="" type="checkbox"/> The cooling suit should have integrated tubes for circulation of cooling water with a battery-operated pump to mitigate heat stress of the bomb technician.	The tubes will be checked physically. But the functionally will be checked as an integrated suit along with bomb suit to perform EOD tasks.
	(c) <input checked="" type="checkbox"/> The cooling suit should provide effective cooling for minimum 30 minutes.	The subject (Bomb technician) to wear the cooling suit and bomb suit over it. The subject to perform EOD tasks and cooling period of the suit will be checked by the BOO with the help of stop watch while the subject undergoes EOD tasks.
	(d) <input checked="" type="checkbox"/> A powerful battery pack (Rechargeable or Dry or integrated/customized) battery may be provided with the minimum operation capacity of 2.5 hrs.	The subject (Bomb technician) with complete bomb suit worn and perform EOD tasks the capacity of battery pack will be tested from the starting of EOD task till 2.5 Hrs, it should be in functional condition. The time will be noted with the help of stop clock.
	(e) <input checked="" type="checkbox"/> A spare battery pack with charger will be provided with cooling suit.	To be checked physically by BOO.
	(f) <input checked="" type="checkbox"/> Requisite arrangement to be available to attach cooling unit and water bottle to the bomb suit without causing inconvenience and interference to the bomb technician ability to carry operate other eqpt and mobility of the bomb technician.	The subject (Bomb technician) in complete suit with this arrangement will be made to perform EOD tasks. During the same it should not cause inconvenience to bomb technician.





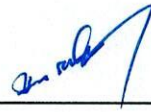




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	<p>(g) Should be available indifferent sizes to suit user's requirement.</p> <p>(h) The peak heat removal rate of full cooling suit should be at least 270 watts or better.</p> <p>(j) The cooling suit pump should be operable on Dry and rechargeable batteries.</p> <p>(k) A second compatible water/Ice bottle should be the supplied with the cooling suit</p> <p>(l) The cooling source should be ice/water.</p> <p>(m) One spare set of connector for water circulation tube should be supplied with cooling suit.</p>	<p>To be checked physically by BOO.</p> <p>OEM to furnish test reports from NABL/ international accredited lab for cooling standards offered by the cooling Suit.</p> <p>To be checked physically by BOO.</p> <p>To be checked physically by BOO.</p> <p>To be checked physically by BOO.</p> <p>To be checked physically by BOO.</p>
3	<p>The suit protection performance should be as per NIJ 0117.01/ NATO STANAG 2920/MIL 662F/ NATO AEP 2920 for below mentioned parameters:</p> <p>(a) Front Chest for - 17 grain V50 simulator - 1100 M/sec or better</p> <p>(b) Front Groin for- 17 grain V50 simulator - 1100 m/Sec or better</p>	<p>OEM to furnish test reports from NABL/ Indian Govt lab/International lab for protection standards offered by the Bomb Suit.</p> <p>To be checked physically by BOO by relevant test certificates.</p> <p>To be checked physically by BOO by relevant test certificates.</p>







 NSI




Sr. No.	QR's					Trial directives
3.1	The suit protection performance figures should be NIJ 0117.01/ STANAG 2920/ MIL Standard 662F/ NATO AEP 2920 compliant and fragment simulator V50 protection levels to be as under-					OEM to furnish test reports from NABL/ international lab for protection standards offered by the Bomb Suit.
	Projectile Mass	Protection Area Description	Velocity	Body Landmarks Medial/ Lateral	V50 Ballistic UML	
2.9g (44gr)		Thorax/ Abdomen-front medial	1100 mtr/ sec	Front throat/ abdomen between bust points	1,100 m/s (3,609 ft/s)	To be checked by BOO
		Pelvis – Front Medial	1100 mtr/ sec	Front pelvis between bust points		
		Neck – Front Medial	1100 mtr/ sec	Front neck between bust points		
1.18 (17 gr)		Face	700 mtr/ sec	Front head (note 1)	775m/s (2,542 ft/s)	To be checked by BOO
1.1g (17 gr)		Head	625 mtr/ sec	Entire head without face area	625m/s (2,050 ft/s)	
1.1 g (17gr)		Thorax/ Abdomen - front lateral	550 mtr/ sec	Front Thorax/ abdomen lateral to the bust points	550m/s (1,804ft/s)	
		Neck-front lateral	550 mtr/ sec	Front neck lateral to the bust points		
		Pelvis – front medial	550 mtr/ sec	Front pelvis lateral to the bust points	550m/s (1,804ft/s)	
1.1g(17gr)		Thorax/ Abdomen - rear	525 mtr/ sec	Rear Thorax/abdomen	525m/s (1,722ft/s)	
		Neck-rear	525 mtr/ sec	Rear neck		
		Legs - lower front	525 mtr/ sec	Front lower legs		
		Arms	525 mtr/ sec	Front & rear arms		







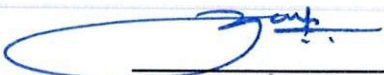



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Sr. No.	QR's	Trial directives
3.2 ✓	The Bomb Suit should offer protection against shock wave and blast overpressure.	OEM to furnish reports from NABL/ international lab for protection standards offered by the Bomb Suit against shock wave and blast overpressure.
4. ✓	Power Pack	
	<p>4.1 Suitable power pack should be provided with the suit which can provide min 2.5 hrs of working time with all systems switched on. There should be an arrangement at the suitable location on the BD Suit to accommodate it, which should not cause inconvenience. Suitable power pack should be provided with the suit which can provide min 2.5 hrs of working time with all systems switched on. There should be an arrangement at the suitable location on the BD Suit to accommodate it, which should not cause inconvenience and interference to the bomb technician ability to carry/ operate other eqpt and mobility of the bomb technician. The power pack should have battery status indicator on it or on the hand worn controller within the clear vision of the bomb technician. The Battery type should be rechargeable and commercially available off the shelf. The powerpack should have outlets:-</p> <p>(a) For all accessories including Helmet.</p> <p>(b) Recharging: - A charger should be provided. Also, a compatible charger for plugging into a 12V-DC source.</p>	To be checked physically by BOO.
5. ✓	The combined weight of the suit along with complete accessories worn by Bomb Technician should not exceed 45 Kgs.	To be checked physically by BOO.
6. ✓	Back Bone Protection The suit should provide a high impact back bone protection arrangement.	OEM to furnish test reports from NABL/ international accredited lab for protection standards offered.





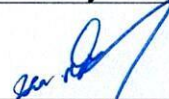


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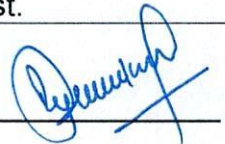






S No	QRs	Trial Directives
7.	Operational Time. The suit with all accessories including cooling suit should take not more than 12 minutes to wear when assisted by a trained technician.	The BOO will use the stop watch to ascertain the time. The subject (Bomb Technician) will be provided with complete suit laid on the table. The subject will be provided with trained technician for assistance. The timings to don the suit will be noted by BOO.
8.	Static Discharge The bomb suit should have protection against static charge	OEM to furnish test reports from NABL/ international accredited lab to this effect.
9	All replaceable items/accessories of the bomb suit that provide protection, should be of the same or better protection levels.	OEM undertaking. To be physically checked by BOO.
10	Drag Rescue feature Drag rescue device should be incorporated in a Bomb Suit for the purpose of moving mobilizing an incapacitated bomb technician.	To be physically checked by BOO.
11	Comfort and fitting. The Bomb suit should be comfortable to wear and should not cause inconvenience and interference to bomb technicians ability to carry/ operate other eqpt and mobility of the bomb technician.	The comfort and fitting of the bomb suit will be tested as enumerated below :- Donning and quick doffing test :- (a) — One sample of bomb suit offered by the supplier shall be submitted for testing. (b) — One subject (Bomb technician) is required to test bomb suit. The test subject selected for bomb suit being tested shall be appropriate based on the supplier sizing chart. (c) — An armless chair is required. (d) — A timer is required. (e) — Test subject initially shall wear loose fitting, nonrestrictive clothing. (f) — The subject shall review and practice the supplier's donning and doffing and adjustment procedures prior to the start of the test.







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S No	QRs	Trial Directives
		<p>(g) ✓ The donning test shall begin with the subject sitting in an armless chair with the bomb suit in front of the subject on the floor and out of the package.</p> <p>(h) ✓ The subject may be assisted by a single donning assistant and the chair may be used during the process.</p> <p>(j) ✓ At a cue from the BOO, the subject shall rise from the chair and begin donning the bomb suit with all accessories as mentioned in ser 1 to 7 above in accordance with the supplier's instructions. Timing shall start when the subject receives the cue from the test administrator to begin donning the bomb suit.</p> <p>(k) ✓ After completely donning the bomb suit, the bomb suit shall cue the test administrator.</p> <p>(l) ✓ Timing shall cease at the cue from the subject. The BOO shall record the donning time.</p> <p>(m) ✓ The quick doffing test shall begin with the subject wearing the properly donned bomb suit and sitting in an armless chair.</p> <p>(n) ✓ At a cue from the BOO, the subject shall rise from the chair and begin doffing the bomb suit in accordance with the supplier's instructions. Timing shall start when the subject receives the cue from the BOO begin doffing the bomb suit.</p> <p>(o) ✓ The subject shall doff the bomb suit unassisted. The chair may be used during the process.</p> <p>(p) ✓ After completely doffing the bomb suit, the subject shall cue BOO.</p> <p>(q) ✓ Timing shall cease at the cue from the subject. The BOO shall record the doffing time.</p> <p>(r) ✓ The subject shall perform donning and quick doffing of the bomb suit in three trials for the appropriate bomb suit size.</p> <p>(s) ✓ The result of the test is the average time of the three trials for donning and quick doffing.</p>








NSG-1




S No	QRs	Trial Directives
		<p>(t) <input checked="" type="checkbox"/> The donning and quick doffing times for bomb suit shall be recorded and reported.</p> <p>(u) <input checked="" type="checkbox"/> The average of the three trials for donning of each suit shall be recorded and reported.</p> <p>v) <input checked="" type="checkbox"/> The suit with all accessories should not take more than 12 minutes for donning assisted by single donning assistant and 5 minutes for doffing when assisted by a single donning assistant.</p> <p>To be <u>physically</u> checked by BOO</p> <p><u>Coin Recovery Test :-</u></p> <p>(a) <input checked="" type="checkbox"/> One sample of the size recommended by BOO of bomb suit offered by the supplier shall be submitted for testing.</p> <p>(b) <input checked="" type="checkbox"/> Bomb suit shall be submitted for testing with all required accessories as mentioned in ser No 1 to 7.</p> <p>(c) <input checked="" type="checkbox"/> One subject (Bomb technician) is required to test bomb suit. The subject selected for each bomb suit size being tested shall be appropriate based on the supplier's sizing chart.</p> <p>(d) <input checked="" type="checkbox"/> A coin, whichever available is required for this evaluation.</p> <p>(e) <input checked="" type="checkbox"/> The subject shall don the bomb suit with all required accessories as mentioned in sr No 1 to 7. A coin is to be placed directly behind the subject at a distance of 30 cm (12 inches) from the back of the heels to the center of the coin.</p> <p>(f) <input checked="" type="checkbox"/> The subject may bend over to see the coin and is allowed one and only one step in any direction. The subject shall turn around and pick the coin up.</p>








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		<p>(g) ✓ While picking up the coin by the subject at the accessories attached to the bomb suit, Velcros, straps, zips and various connectors are required to be intact, unbroken and undamaged. The helmet should not show any evidence of slack and loose fitting. Complete bomb suit alongwith complete accessories should not show any evidence of any hole, cracking, spelling or damage. Protective elements shall remain attached to the bomb suit and maintain shape integrity. No gaps that expose the bomb technician will be permitted.</p> <p>Mobility Test :-</p> <p>(a) ✓ One sample of the size recommended by BOO of bomb suit offered by the supplier shall be submitted for testing.</p> <p>(b) ✓ Bomb suit shall be submitted for testing with all required accessories as mentioned in ser No 1 to 7.</p> <p>(c) ✓ One subject (Bomb technician) is required to test bomb suit. The subject selected for each bomb suit size being tested shall be appropriate based on the supplier's sizing chart.</p> <p>(d) ✓ The subject shall don the bomb suit.</p> <p>(e) ✓ The subject will be made to walk for a distance a 100m. while walking subject will be persistently communicating with the commander.</p> <p>(f) ✓ While walking all the accessories attached to the bomb suit, Velcro's, straps, zips and various connectors are required to be intact, unbroken and undamaged. The helmet should not show any evidence of slack and loose fitting. Complete bomb suit alongwith complete accessories should not show any evidence of any hole, cracking, spelling or damage. Protective elements shall remain attached to the bomb suit and maintain shape integrity. No gaps that expose the bomb technician will be permitted. Loss of communication will also be not permitted.</p> <p>(g) ✓ The subject will again be made to run for a distance a 100m. while running subject will be persistently communicating with the commander</p>



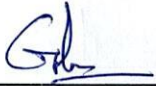





NSBT




S No	QRs	Trial Directives
		<p>(h) ✓ While walking all the accessories attached to the bomb suit, Velcro's, straps, zips and various connectors are required to be intact, unbroken and undamaged. The helmet should not show any evidence of slack and loose fitting. Complete bomb suit alongwith complete accessories should not show any evidence of any hole, cracking, spelling or damage. Protective elements shall remain attached to the bomb suit and maintain shape integrity. No gaps that expose the bomb technician will be permitted. Loss of communication will also be not permitted.</p> <p>(j) ✓ Incapacitated doffing : The subject should wear the complete bomb suit with all its accessories and lie in face up position. One trained assistant shall remove the bomb suit (excluding cooling suit) in less than 3 minutes without injuring the subject. The same test to be conducted in face down position also.</p>
12	<p>Miscellaneous. The firm should be able to provide the following as applicable, along with the equipment: -</p> <p>(a) ✓ One Spare Set of all kinds of rechargeable batteries used in suit including all accessories.</p> <p>(b) ✓ All operator level maintenance tools</p> <p>(c) ✓ Training aids – charts, slides, training brochure, training work model, blow up diagram, video films etc, if any</p> <p>(d) ✓ Physical training in India</p> <p>(e) ✓ Preventive maint schedule to include details of testing and acceptance criteria to be provided by the supplier and manufacturer.</p>	<p>To be checked physically by BOO. The OEM must specify the list of spare parts provided by them with Bomb Suit and the life of rechargeable batteries. The manufacturer must submit list of cleaning kit tools required for Bomb Suit.</p> <p>To be checked physically by BOO, The manufacturer must submit list of special maintenance tools required for Bomb Suit.</p> <p>To be checked physically by BOO, manufacturer to submit training aid list available with them for Bomb Suit.</p> <p>Firm to provide as per Acceptance of Tender.</p> <p>To be physically checked by BOO</p>












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	(f) Technical Manual and user handbook in English giving shelf life and full description of the item	To be checked physically by BOO during technical bid evaluation, manufacturer to give options of providing technical manual in local language. (Hindi, English)
	(g) Specification for packing handling/transportation/ storage	Manufacturer to provide details of for packing handling/ transportation/ storage.
	(h) Cleaning kit tools required for bomb suit.	To be physically checked by BOO and the manufacture must submit list of cleaning kit tools required for bomb suit.
13	Validity and authenticity of lab test reports and certificates	BOOs to check
14	The OEM should also confirm that no product changes related to ballistic rating/ testing or material have under taken in the suit being supplied/offered since the last test.	To be checked physically by BOO.
15	All the test reports and certificates must invariably have the name, address, web site, e-mail address and contact Numbers of the testing agencies/ lab.	To be checked physically by BOO.
16	Warranty – All covered warranty for three years from acceptance of goods.	OEM to provide undertaking for the same, BOO to check the certificate.
17	Shelf Life- Min 05 years.	OEM to provide undertaking for the same, BOO to check the certificates.
18	Optional: - Voice command controlled feature for controlling operating light, Fan, volume etc to be provided as per user requirement.	



Sub Jyoti Prasad Gaur,
DR

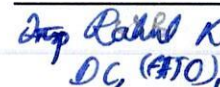

Insp Bhushan Singh, ISBP



Arvind Kumar, Dy Comdt,
CSE


Dinesh Kumar Singh, CSE AC

Raj Kumar Prasad, BSF


Maj Sagar Singh, BD Unit
NSG


Insp Rahul Khara,
DC, (ATO), SSB


Lt Col RS Raval
2IC, WE HQ NSG