संख्या. पी-63013/181/01/2023/मोड-।/सीसुबल/1917-20 भारत सरकार, गृह मंत्रालय महानिदेशालय सीमा सूरक्षा बल (रसद निदेशालय: आधुनिकीकरण सैल) (Email-comdtord@bsf.nic.in) (Fax: 011-24367683)

> ब्लाक संख्या . 10, सीजीओ काम्पलैक्स, लोधी रोड, नई दिल्ली-03

दिनांक 26 जून 2023

वरिष्ठ तकनीकी निदेशक

The Senior Technical Director

राष्ट्रीय सूचना–विज्ञान केन्द्र, नोर्थ ब्लाक, गृह मंत्रालय, नई दिल्ली NIC, North Block, MHA New Delhi (द्वारा ई–मेल)

(ई-मेल पता : mpsugandhi@nic.in) Request for comments of stakeholders/OEM on draft QRs. Sub:

कृपया गृह मंत्रालय के पत्र संख्या IV-24011/12/2011-Prov-I(part)(CFN 3300890)-1710 दिनांक 31st Aug 2015 के सन्दर्भ में।

2. उपरोक्त विष्यान्तर्गत यह सूचित किया जाता है कि तकनीकी विशेषज्ञों के उप समूह द्वारा "Weapon Locating Radar" के गुणातमक आवश्यकता / परीक्षण निर्देशों का प्रारूप दिनांक 30 अगस्त 2022 में आयोजित सभा के दौरान तैयार किया गया था जिसको इस आश्य से प्रेषित किया जा [56/2023 रहा है कि उक्त गूणातमक आवश्यकता/परीक्षण निर्देश को गृह मंत्रालय की वैबसाईट पौर 15 दिन के लिए अपलोड करने का श्रम करें।

संल्गनः उपरोक्तनुसार

प्रतिलिपि :-

- 1. SO (IT), North Block, MHA (Through E-mail) (E-mail address: soit@nic.in)
- 2. IT Wing, FHQ BSF
- : उपरोक्त गूणातमक आवश्यकता का मसौदा आपके सूचनार्थ एवं अग्रिम कार्यवाही हेत्।
- i) उपरोक्त गुणातमक आवश्यकता⁄परीक्षण निर्देश का मसौदा सीमा सुरक्षा बल की वैबसाईट पर 15 दिन यानि 10 जुलाई 2023 तक अपलोड करने के लिए प्रेषित की जा रही है। उक्त मसौदे को सीमा सुरक्षा बल की वैबसाईट से दिनांक 11 जुलाई 2023 को हटाने का श्रम करें। आपसे अनुरोध है कि उक्त मसौदे को निम्नलिखित पतों पर ई-मेल करने का भी श्रम करें:-(a) Technical Director, NIC, North Block, MHA

(E-mail: mpsugandhi@nic.in)

- (b) SO (IT), North Block, MHA
- (E-mail : soit@nic.in)
- 3. **OPS Dte (NIIE Cell)** : For information w.r.t your U.O No.12499 dtd 07.06.2023

26 (दिगेन्द्र सिंह पॅवार) उप कमाण्डेंट (मोड) भारत सरकार, गृह मंत्रालय महानिदेशालय सीमा सुरक्षा बल (रसद निदेशालय: आधुनिकीकरण सैल) ब्लाक संख्या . 10,सीजीओ काम्पलैक्स,लोधी रोड, नई दिल्ली–03 (Email-comdtord@bsf.nic.in) (Fax: 011-24367683)

संख्या. पी-63013/181/01/2023/मोड-।/सीसुबल

दिनांक 26 जून 2023

विषय : <u>"Weapon Locating Radar"</u> के गुणातमक आवश्यकता/परीक्षण निर्देशों पर हितधारकों / निर्माताओं / विकेताओं की टिप्पणी के लिए अनुरोध।

- 1. "Weapon Locating Radar" के गुणातमक आवश्यकता और परीक्षण निर्देशों को परिशिष्ट 'ए' के रुप में संलग्न किया गया है। हितधारकों / निर्माताओं / विकेताओं से अनुरोध किया जाता है कि वे उस उत्पाद की विस्तृत एवं स्टीक जानकारी दें। साथ ही प्रत्येक पैरामीटर के अनुरुप अपने उत्पाद के सही विवरणों को प्रस्तुत करें । सिर्फ 'अनुपालना' या ' अनुपालना नहीं' वाली टिप्पणी स्वीकार नहीं की जाएगी।
 - क्या आप मूल उपकरण निर्माता / विकेता हैं?
 - यदि विकेता मूल उपकरण निर्माता का विवरण देता है।
 - मूल उपकरण निर्माता से प्राधिकरण प्रमाण पत्र।
 - उत्पाद की मूल सूची।
 - उत्पाद ब्रोशर एवं साहित्य रचना का ब्यौरा
- आवश्यक <u>जानकारी/विवरण</u> 10 जुलाई 2023 तक निम्नलिखित पते पर भेजे जा सकते हैं।

रसद निदेशालय, सीमा सुरक्षा बल लेवल–8, ब्लाक–10, केन्द्रीय कार्यालय परिसर, लोधी रोड, नई दिल्ली–110003 ईमेल:– comdtord@bsf.nic.in

3. शीघ्र प्रतिकिया का अनुरोध किया जाता है।

(दिगेन्द्र सिंह पॅवार) उप कमाण्डेंट (आधुनिकीकरण)

Government of India Ministry of Home Affairs Directorate General Border Security Force (Prov Dte: Mod Cell) Block No.10, CGO Complex, Lodhi Road, New Delhi-03 (Fax: 011-24367683, Email-comdtord@bsf.nic.in)

No. P-63013/181/01/2023/Mod-I/BSF/

Dated, the D June 2023

Subject : <u>Request for comments of stakeholders/OEM/Firms on QRs</u> (Qualitative Requirements) & TDs (Trial Directives) of "Weapon Locating Radar".

1. The revised QRs/TDs "Weapon Locating Radar" is attached as Appendix 'A'. The OEMs/Vendors are requested to forward information of the product, which they can offer and also forward correct specifications of their system against each parameter. Only complied or not complied remarks will not be accepted. The firms are also requested to furnish the following details:-

- Whether you are OEM/Vendor?
- If vendor details of OEM.
- Authorization certificate from OEM.
- Original catalogue of the product
- Brochure/Literature of the product

2. The required information/details may please be forwarded at the following addresses by 10.07.2023.

Directorate General BSF, Level-8, Block No. 10, CGO Complex, Lodhi Road, New Delhi-110003 Email: <u>comdtord@bsf.nic.in</u>

3. An early response is requested.

W 6 / 56 /2023

(Digendra Singh Panwar) Dy. Commandant (Mod)

QRs & TDs OF WEAPON LOCATING RADAR

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S No.	Specification	Trial Directives	Result Expected/Desired	Complied/Not Complied	
1.	a) Weapon Locating Radar system should operate on Standalone platform able to be fixed on pole & tower.	The RADAR system be physically checked for mounting on standalone platform, pole, or tower.	Must be as per specification		
	b) RADAR should be easily deployable with ease of dismantling.	System be physically checked for easy deployability, handling and ease of dismantling.	Must be as per specification		
2.	Active Electronic scan array (AESA)	Firm will provide certificates from NABL accredited or DRDO or ILAC accredited laboratory about stated parameter.	Must be as per specification		
3.	Ruggedized (RADAR & its components) as per JSS 55555/Mil Std 810G in respect of temperature (high & low), dust, humidity, rain impact, bump and vibration and EMI/EMC as per Mil Std 461 F	Firm will provide certificates from NABL accredited or DRDO or ILAC accredited laboratory about stated parameter.	Must be as per specification		
4.	Ability to communicate through Network with LAN/ Ethernet port, USB and via secured IP.	To be Physically Checked by the BOO	Must be as per specification		
5.	Reliability MTBF > 10000 hrs	Firm must submit OEM certificate in this regard.	Must be as per specification		
OPERATIONAL CAPABILITY					
6.	Should be able to detect & classify all kinds of Rockets, Artillery, Mortar, Gun/ Howitzers threats.	Install the system and physically check the detection capability for each Mortar as per the detection capability.	Must be as per specification		
a)	Mortars of Caliber 51mm or larger				
	i) 51 mm Mortar HE : ≥ 800 mtr	To be Physically Checked by the BOO	Must be as per specification		
	ii) 81 mm Mortar HE : ≥ 05 km	To be Physically Checked by the BOO	Must be as per specification		
b)	Free Fire Rockets ≥ 06 km	Firm must submit OEM certificate in this regard.	Must be as per specification		
c)	Guns/ Howitzers 100mm or larger:≥ 06 km	Firm must submit OEM certificate in this	Must be as per		

S No.	Specification	Trial Directives	Result Expected/Desired	Complied/Not Complied
		regard.	specification	
7.	a) The system should give the location of Point of Origin (POO) and the Point of Impact (POI) of the shell.	To be Physically Checked by the BOO	Must be as per specification	
	b) The Point of Impact should appear on the console well before the shells hit the target/ground.	To be Physically Checked by the BOO	Must be as per specification	
8.	a) Height Difference: The system must be able to locate weapons where the height difference between the radar and the weapon system is \pm 1000m.	To be Physically Checked by the BOO	Must be as per specification	
	b) The system must be capable of interfacing with the GIS or digital maps for height corrections automatically as well as with operator assistance.	To be Physically Checked by the BOO	Must be as per specification	
9.	Probability of Location & Accuracy: a) Probability of detection: The radar should give 90% probability of location (For example if 100 rounds have been fired, the radar should give minimum 90 locations)	To be Physically Checked by the BOO	Must be as per specification	
	 b) Accuracy of Location: i) CEP for 50% of Target Locations: (aa) Guns & Mortars: The radar should locate 50% of detected locations within a CEP of 35m or 0.35% of range whichever is greater (For example the radar should give 50% of 90 locations i.e. 45 locations within 35m or 0.35% of range, whichever is greater). 	To be Physically Checked by the BOO	Must be as per specification	
	(ab) Rockets: The radar should locate 50% of detected rocket locations within a CEP of 70m or 0.4% of range whichever is greater (For example the radar should give 50% of 90 locations i.e. 45 locations within 70m or 0.4% of range, whichever is greater.	Firm must submit OEM certificate in this regard.	Must be as per specification	
	ii) CEP for 90% of Target Locations:	To be Physically Checked by the BOO	Must be as per	

S No.	Specification	Trial Directives	Result Expected/Desired	Complied/Not Complied
	(aa) Guns & Mortars: The radar should locate 90% of detected locations within a CEP of 90m or 0.9% of range whichever is greater (For example the radar should give 90% of 90 locations i.e. 81 locations within 90m or 0.9% of range, whichever is greater).		specification	
	(ab) Rockets: The radar should locate 90% of detected rocket locations within a CEP of 175m or 1% of range whichever is greater (For example the radar should give 90% of 90 locations i.e. 81 locations within 175m or 1% of range whichever is greater.	Firm must submit OEM certificate in this regard.	Must be as per specification	
10.	Coverage Angle: Azimuth : <u>+</u> 90 degree (180 degrees) (Upgradable to 360 degrees) Elevation : -5 to +75 degree	To be Physically Checked by the BOO	Must be as per specification	
11.	Target Velocity: 1000 mtr/sec (Max) or better : 70 mtr/Sec (Min) or better	System will be physically checked by the BOO. Firm will provide Govt Lab/NABL Certificate in this regard.	Must be as per specification	
	Weapons firing in both low & high angle	System will be physically checked by the BOO.		
12.	No of Tracks: 10 Nos Simultaneously or more	To be Physically Checked by the BOO	Must be as per specification	
13.	Threat Alert: Time taken to produce a location at the system console should not exceed 10 seconds after the projectile enters the radar beam.	To be Physically Checked by the BOO	Must be as per specification	
14.	Audio & Visual alert capability.	There should be distinct visual alert with graphical representation on display Unit regarding Caliber and POO & POI.	Must be as per specification	
15.	Auto Registration of own position and northing during initialization	The BOO will physically match the locational coordinates from ground.	Must be as per specification	
16.	The system must incorporate Built In Test Equipment (BITE)	To be Physically Checked by the BOO	Must be as per specification	200-201

S	Specification	Trial Directives	Result Expected/Desi	red	Complied/Not
17.	Altitude: - Complete system must be suitable for use and storage at heights up to 5000 meter above mean sea level at full rated performance	To be Physically Checked by the BOO	Must be as specification	per	complied
18.	Electronic Counter Counter Measure (ECCM): System should be resistant to ECM, with built in survivability feature.	Firm will provide Govt Lab/ NABL Certificate in this regard.	Must be as specification	per	
Oper	ator Console Unit				
19.	The Console should get interface with RADAR over IP Ethernet interface for all control	To be Physically Checked by the BOO	Must be as specification	per	
20	Console should be portable with a hand Grip	To be Physically Checked by the BOO	Must be as specification	per	
21	Should have ruggedized, sunlight readable OLED backlit colour display of more than 15-inch size	To be Physically Checked by the BOO. Firm must submit OEM certificate regarding ruggedization and OLED display.	Must be as specification	per	
22.	The system should have sufficient lighting arrangements and marking of controls to enable night operations. A proper blackout system for night operation should be provided for the console.	To be Physically Checked by the BOO.	Must be as specification	per	
23.	All the data required to determine the location of hostile weapons should be presented to the operator at the display unit in terms of bearing, range, and coordinates (Easting, Northing & Height). It should also be capable to provide data of hostile weapon in lat/ long format Screen should be capable to display area coordinate with selected target range, azimuth, elevation, and coordinates	To be Physically Checked by the BOO.	Must be as specification	per	
24.	The system should have.				
a)	Facility to integrate with any C4I system and other radars/ sensors using standard Ethernet interfaces and through secure/ private IP network at user remote location.	To be Physically Checked by the BOO and the Firm must provide OEM certificate regarding integration of API/ SDK with any C4I system.	Must be as specification	per	

S No.	Specification	Trial Directives	Result Expected/Desired	Complied/Not Complied
b)	The system should also be able to operate stand- alone and as a part of a large-scale surveillance system.	To be Physically Checked by the BOO	Must be as per specification	
c)	The system should have ability to set to work as a stand-alone system, so that it can be provided with a System Control Computer, which is a standard semi-ruggedized laptop with the radar C2 application.	To be Physically Checked by the BOO	Must be as per specification	
d)	Operator Action: There should be no operator action required in the projectile acquisition or location computing process. The system should automatically detect projectiles, compute weapon locations, and store date/ time stamped target data in the computer memory and must have the capability to transfer this data automatically and manually to C2.	To be Physically Checked by the BOO	Must be as per specification	
25.	The system should have auto storage of the tracks detected by the system and the ability to replay the alerts and tracks as recorded and stored in system. Recording of radar operation for offline debriefing. Recording includes weapons, impacts, Friendly registration targets etc.	To be Physically Checked by the BOO	Must be as per specification	
26.	Permanent Storage of Targets: 500 or better	To be Physically Checked by the BOO	Must be as per specification	
27.	The system should incorporate an in-built IRNSS compatible GPS and North finding system. Facility to manually override data should exist. A DGPS (Differential GPS) be provided for the same.	To be Physically Checked by the BOO	Must be as per specification	
28.	The system should have user friendly GUI with facility to display the location of system, targets and Point of Impact on GIS maps or maps provided by user	To be Physically Checked by the BOO	Must be as per specification	
29.	The system should have the facility to display and	To be Physically Checked by the BOO	Must be as per	

S No.	Specification	Trial Directives	Result Expected/Desired	Complied/Not Complied
	store the co-ordinates Lat/Long and IGRS as selected by the user and range of selected target		specification	
30.	Transportation Case: - Should have a ruggedized container along with pressure equalizer valve compliant to IP-65 and Mil Std 810 G	The firm must submit national/international accredited lab certificate/report in respect of the same.	Must be as per specification	
31.	Operating Temp:30° C to +55° C Storage Temp :40° C to +65° C	The firm must submit national/international accredited lab certificate/report in respect of the same.	Must be as per specification	
32.	POWER SOURCE : The system should operate on maintenance free rechargeable batteries, AC mains (110V-270V, 50Hz) and on generator supply	The system be physically checked for operation on Batteries and AC mains/ generator supply.	Must be as per specification	
33.	Battery performance:		AND DEC. AND DEC.	
	(a) The battery(s) should be able to run the system for 3 hours or more in operation mode on single charge.	To be Physically Checked by the BOO.	Must be as per specification	
	(b) Rechargeable battery(s) must run the system for 12 hours or more in operational mode on single charge with set of not more than 4 batteries.	To be Physically Checked by the BOO.	Must be as per specification	
34.	Suitable battery charger: Suitable battery charger to work with in the range of AC (110 v to 270 v, 50 Hz) charging time max 08 hrs for fully charging of battery with full charge indication.	Switch 'ON' the charger on 50 Hz variable AC mains supply and check the out-put voltage by varying the In-put voltage from 110 v to 270 volts. Check the charger for 'Charger ON' and 'Charge complete' indications. Charge a fully discharged battery with charger and note down the total time to	Must be as per specification	
25	Camouflage:	Tully charge the pattery.	Must he as par	
55.	The system should be painted in camouflage pattern using InfraRed (IR) paint.	To be Physically Checked by the BOO.	specification	

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S No.	Specification	Trial Directives	Result Expected/Desired	Complied/Not Complied
36.	MISCELLANEOUS: a)02 Nos additional batteries	To be Physically Checked by the BOO	Must be as per specification	
and the Balancian and a	b) Operating manual	To be Physically Checked by the BOO	Must be as per specification	
	c) Technical manual with technical specifications of radar	To be Physically Checked by the BOO	Must be as per specification	
	d) Illustrated Spare Part List (ISPL) list with Cat Part No.	To be Physically Checked by the BOO	Must be as per specification	
	e) Tools for minor repair and maintenance	To be Physically Checked by the BOO	Must be as per specification	
1.01400	f) Copy of operating software (CD/DVD) required for the system should be provided.	To be Physically Checked by the BOO	Must be as per specification	
37.	Training: - a) Base workshop level training to minimum 05 technicians at OEM premises on full-fledged running testing, diagnostic and calibration set up.	An undertaking in this regard will be obtained from the firm.	Must be as per specification	N
	b) Operator level training should be imparted to minimum 10 persons @ 01 RADAR	An undertaking in this regard will be obtained from the firm.	Must be as per specification	

तकनीकी विशेषज्ञों के उप समूह द्वारा यह निश्चित किया गया है कि उक्त गुणातमक आवश्यकता को अधिक बेहतर बनाने के लिए गृह मंत्रालय एवं सीमा सुरक्षा बल की वैबसाईट पर विकेताओं/फर्मों के सुझाव प्राप्त करने हेतु 15 दिनों के लिए अपलोड किया जाए।

नोट - सभी विकताओं / फर्मों से निवेदन है कि अपने सुझावों के साथ निम्नलिखित कागजात भी संत्यान करने का श्रम की

- 1. उत्पाद की वास्तविक विवरण पुस्तिका।
- 2. उत्पाद की साहित्यिक रचना का ब्यौरा।
- 3. गुणातमक आवश्यकताओं के उपर व्यापक टिप्पणीयाँ।

(दिगेन्द्र सिंह पँवार) उप कमांडेण्ट (आधुनिकीकरण)