


नॉन लिनियर जंक्शन डिटेक्टर (NLJD) के परिशोधित गुणात्मक आवश्यकता (क्यूआर)/परीक्षण निर्देशों (टीडी) के मसौदे पर विक्रेताओं की टिप्पणियों का आमंत्रण

आपको सूचित किया जाता है कि नॉन लिनियर जंक्शन डिटेक्टर (NLJD) के परिशोधित गुणात्मक आवश्यकता (क्यूआर) और परीक्षण निर्देशों (टीडी) के मसौदे पर फर्मों/विक्रेताओं की टिप्पणियां आमंत्रित है। सभी फर्मों से निवेदन है कि नीचे दिए गए प्रारूप में वे अपनी टिप्पणियां भरकर ई-मेल पता scord@nsg.gov.in या gcprov@nsg.gov.in पर भेजें।

गुणात्मक आवश्यकता (क्यूआर)	परीक्षण निर्देश (टीडी)	फर्म द्वारा टिप्पणियां
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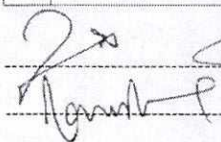
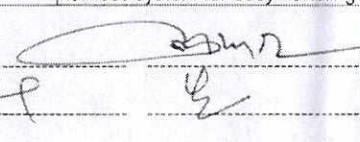
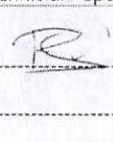

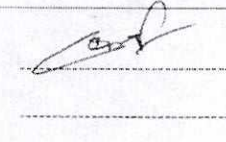
2. आपसे अनुरोध है कि वेबसाइट पर प्रदर्शित होने की तारीख से 15 दिनों के भीतर अपनी टिप्पणियां भेजें। उप समूह कमेटी की बैठक में उपर्युक्त उपकरण/हथियार के गुणात्मक आवश्यकताओं/परीक्षण निर्देशों को अंतिम रूप देने पर विचार किया जा रहा है।

दिनांक : २३ सितम्बर, 2021

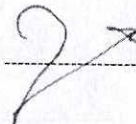

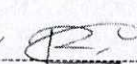



(ब्रिजेश कुमार)
ग्रुप कमांडर

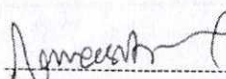

REVISED DRAFT QRs/TDs OF NON LINEAR JUNCTION DETECTOR (NLJD) : 07 SEPTEMBER 2021

S No	Parameters	Qualitative Requirements	Trial Directives
1	<u>Physical Characteristics</u>	(i) The equipment should be light weight and made of non corrosive material/aluminum/ carbon fibre/ glass fibre etc.	For Ser No (i) Firm to provide OEM certificate specifying the composition of the material of the equipment, BOO to physically check the same.
		(ii). The detector and its accessories should be comfortable for handling	BOO to physically check the same
		(iii) Material should have proven reliability and durability.	BOO to physically check the same
2	<u>Transmitter</u>	<u>Frequency</u> : Frequency range to be between 840- 915 MHz.	OEM to furnish test certificate from any national/ international accredited lab. BOO to physically check the same.
		<u>Average Peak Power Output</u> : Should not be more than 4 watts.	OEM to furnish test certificate from any national/ international accredited lab. BOO to physically check the same.
		<u>Power Type</u> : Pulse or Continuous.	OEM to furnish test certificate from any national/ international accredited lab. BOO to physically check the same.
		<u>Different Frequency Channels</u> : Eqpt should be capable of switching min 20 different frequency manually and automatically.	BOO to physically check the same & firm to provide test certificate from any national/ international accredited lab.
3.	<u>Receiver</u>	Should have receiver frequency for 2 nd and 3 rd harmonics (1680-1830 MHz and 2520 to 2745 MHz)	OEM to furnish test certificate from any national/ international accredited lab. BOO to physically check the same.
		Equipment should have sensitivity to be -125 dBm or better	OEM to furnish test certificate from any national/ international accredited lab. BOO to physically check the same.
4	<u>Search Head with Telescopic Extension</u>	<u>Search Antenna</u> : Should have high gain antenna	OEM to furnish self declaration certificate. BOO to physically check the same
		<u>Search Head Light</u> : Should have a LED search light on the search head to carryout search during dark condition.	BOO to physically check the same inside a dark room.
		<u>Cables</u> : No cable and connectors to be seen when the eqpt is in collapsed position and when the eqpt is fully extended. No cables and connectors should also be seen between the search head and the extension arm in any circumstances. All wires to be integrated into telescopic pole. It should not interfere with operators comfort & working.	BOO to physically check the same
		<u>Telescopic Arm</u> : Max length of the telescopic arm when in closed/collapsed/ fully retracted position upto 1.5m (to be measured from front edge of the equipment to the rear edge of the equipment). Complete extension to be in 2-3 steps. One spare Lock for each extension step to be provided by the firm. Telescopic arm should have a hand grip, arm rest and provision for a harness system for easy handling by the bomb technician/ operator.	BOO to physically check the same. OEM to furnish self declaration regarding provision of one spare lock for each extension step.

S No	Parameters	Qualitative Requirements	Trial Directives
5	<u>Detection Alarm</u>	Equipment should give detection alarm by audio, visual and vibrational means. Facility should be provided to use any one type of alarm means and any two types of alarm together also.	BOO to physically check the same
6.	<u>Display:</u>	Eqpt should have LED visual display on the search head. Display to be clearly visible during peak hours of sunlight and during night. The position or the angle of the display should be adjustable/articulated as per the operators comfort for better field of view. Following parameters to be displayed on to the display.	BOO to physically check the same
	(i) Power Selection Status		BOO to physically check the same
	(ii) Volume selection Status		BOO to physically check the same
	(iii) Channel Frequency		BOO to physically check the same
	(iv) Sensitivity		BOO to physically check the same
	(v) Standby Mode status		BOO to physically check the same
	(vi) Harmonic selection status		BOO to physically check the same
	(vii) Search Head Light Status		BOO to physically check the same
	(viii) RFI Cancellation status		BOO to physically check the same
	(ix) Detection Alarm status		BOO to physically check the same
	(x) Low battery indicator (Equipment should indicate low battery when the Equipment battery reaches 25 percent by visual means.		BOO to physically check the same
	(xi) LED bar graph representation of 2 nd and 3 rd harmonics with different colour of lights when eqpt detects suspicious object		BOO to physically check the same

S No	Parameters	Qualitative Requirements	Trial Directives
7	<u>Control Functions</u>	Control function necessary to operate the Equipment should be facilitated on the hand grip for better operator comfort and efficiency. The control functions includes following function that can be selected using different buttons for different functions or using a navigation menu :-	BOO to physically check the same.
		(i) Power Selection Power Selection facility for the operator to select power.	BOO to physically check the same.
		(ii) Volume (Volume adjustment facility for the operator to select volume level.	BOO to physically check the same.
		(iii) Channel Selection (Manual channel selection for selecting different frequencies as per bomb technician/ operators need)	BOO to physically check the same.
		(iv) Sensitivity (Sensitivity Selection facility for the operator to select sensitivity of the equipment)	BOO to physically check the same.
		(v) Standby Mode (Equipment should have a facility to put the equipment on standby mode manually in order to save the battery of the equipment)	BOO to physically check the same.
		(vi) Harmonic Selection (Equipment should have facility to select 2 nd harmonic, 3 rd harmonic and both)	BOO to physically check the same.
		(vii) Brightness Equipment should have facility to adjust the brightness of the display.	BOO to physically check the same.
		(viii) Search Head Light (Equipment should be capable of switching ON/OFF the search light)	BOO to physically check the same.
		(ix) Reset (Equipment should be capable of resetting the complete system. Time for reset should not exceed 60 sec)	BOO to physically check the same.
		(x) RFI Cancellation (Equipment should have RFI cancellation facility)	BOO to physically check the same.

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S No	Parameters	Qualitative Requirements	Trial Directives
8	<u>Audio</u>	With and without bone conduction headphones with auto decibel cut out feature. Different audio tone for different harmonics	BOO to physically check the same. OEM to furnish self-declaration certificate with regard to auto decibel cut out feature.
9	<u>Test Target</u>	Different test targets for 2 nd and 3 rd harmonics respectively provided by firm.	BOO to physically check the same in the following manner. (i) Switch on the Equipment and keep the test target for each harmonics independently at a distance more than 2 m on ground surface. (ii) Bomb technician will sweep the eqpt in the prescribed manner as decided by the BOO (iii) Equipment should give detection alarm visually,, by audio means and by vibration for each test targets differently.
10.	<u>Detection Capability</u>	(i)) Open Space – Min 0.50 m or better	<u>For Open Space</u> (i) Make a search lane for 4x4 m and mark the lane. (ii) Keep a diode in open space on the search lane at any point. (iii) Switch ON the Switch on the equipment and keep the test target for each harmonics independently at a distance more than 2 m. (with max power output/ transmission and max sensitivity) (iv) Start sweeping the equipment in the manner prescribed by BOO. (v) When detection alarm sounds, measure the vertical distance of diode from the bottom of the search head.
		(ii)) Dug underground- Min 0.20 m or better	<u>For Dug Underground</u> (i) Make a search lane for 4x4 m and mark the lane. (ii) Take a diode and place it underground at a depth of 20 cm and cover it with soil recovered .(In the absence of operator/ bomb technician handling or sweeping the equipment) (iii) Switch ON the equipment (with max power output/ transmission and max sensitivity) (iv) Start sweeping the equipment in the manner prescribed by BOO. (v) When detection alarm sounds measure the vertical distance of diode from ground surface to the bottom of the search head.





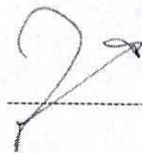


S No	Parameters	Qualitative Requirements	Trial Directives
11	<u>False Alarm Rate</u>	The false alarm to be less than 5 % percent	<p>Trial to be conducted in the following manner:</p> <p>(i) Take 10 Single diodes available with the user</p> <p>(ii) Dug out 20 pits at a distance to be decided by the BOO in a single line.</p> <p>(iii) Put diodes in 10 pits out of 20 pits at a depth of 20 cm and cover it with soil recovered. (In the absence of firm representative handling or sweeping the eqpt)</p> <p>(iv) Enter the record of 20 pits on a paper in a tabular form by BOO</p> <p>(v) The firm representative has to swap 20 pits in sequence as decide by BOO and the record of detection to be maintained.</p> <p>(vi) The false alarm to be less than 5 % percent</p>
	<u>Pin Point Detection</u>	Equipment should be capable of pinpointing detected material to ± 10 cm in open space and underground.	<p><u>For Open Space</u></p> <p>(i) Make a search lane for 4x4 m and mark the lane.</p> <p>(ii) Keep a diode in open space on the search lane at any point.</p> <p>(iii) Switch ON the eqpt (with max power output/ transmission and max sensitivity)</p> <p>(iv) Start sweeping the eqpt in the manner prescribed by BOO.</p> <p>(v) When detection alarm sounds measure the horizontal distance of diode from the centre of the search head to the centre of the diode.</p> <p><u>For Dug Underground</u></p> <p>(i) Make a search lane for 4x4 m and mark the lane.</p> <p>(ii) Take a diode and dug it underground at a depth of 20 cm. (In the absence of operator/ bomb technician handling or sweeping the eqpt)</p> <p>(iii) Switch ON the eqpt (with max power output/ transmission and max sensitivity)</p> <p>(iv) Start sweeping the eqpt in the manner prescribed as decided by BOO.</p> <p>(v) When detection alarm sounds measure the horizontal distance of diode from the center of the search head to the center of the diode.</p>

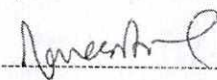
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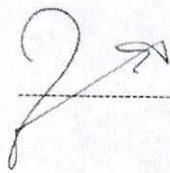
S No	Parameters	Qualitative Requirements	Trial Directives
12	<u>Battery</u>	(a) Dry rechargeable battery to be provided.	(a) BOO to physically check the same
		(b) Operational time to be min 5 hrs.	(b) Operational time (i) Switch ON the eqpt with a fully charged battery in detection mode with power output more than 70 % percent and sensitivity more than 70 % percent (ii) Note down the start time (iii) Observe the eqpt time to time and keep the eqpt in operational condition. (iv) Operational time should be min 5 hrs.
		(c) One set Spare rechargeable battery to be provided	(c) BOO to physically check the same.
		(d) Spare Battery to be provided	OEM to furnish self declaration certificate for the same and BOO to physically check the same.
		(e) Battery to be commercially available in the local market.	(e) OEM to furnish self declaration certificate for the same and BOO to physically check the same.
		(f) Reverse polarity protection to be provided.	(f) The battery should not enter in reverse polarity inside battery slot of the equipment. In case battery does get fitted in reverse polarity equipment should not get damage. BOO to physically check the same
		(g) Battery to be having warranty of min 2 yrs	Firm to provide test certificate. (g) OEM to furnish self declaration certificate for the same
		(h) Full battery charging time to be max 90 minutes (There should be provision to charge all Operational batteries simultaneously in one charger).	(h) The battery should not enter in reverse polarity inside the battery slot of the equipment; in case the battery does get fitted in the reverse polarity equipment should not get damage. BOO to physically check the same. Firm to provide test certificate.



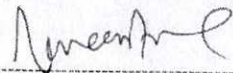





S No	Parameters	Qualitative Requirements	Trial Directives
13	<u>Battery Charger</u>	a) 180-240 V AC battery charger to be provided with short circuit protection. Charger should have battery charging status indicator. Battery charger to be capable of charging all the batteries required for operation of the equipment at a single time	a) BOO to physically check the same.
		b) 12-15 V DC Charger to be provided with the equipment capable of charging all the batteries required for operation of the equipment at a single time	c) BOO to physically check the same.
		c) Reverse polarity protection to be provided.	d) The battery will be inserted in the battery charging slot of the battery charger. The charger should not allow the battery to be fitted in reverse polarity and in case the battery does get fitted in the reverse polarity it should not get damage. BOO to physically check the same. Firm to provide test certificate.
14	<u>Operational Weight</u>	Operational weight should not exceed 2.5 kg (which includes equipment with battery inserted & switched ON, Harness and Headphones).	BOO to physically check the same
15	<u>Transportation weight</u>	Transportation weight should not exceed 10 kg(Which includes) Hard Carrying case, equipment with battery inserted, Harness, Headphone, Spare battery, battery charger- AC Charger, DC Charger, test targets and technical literature)	BOO to physically check the same

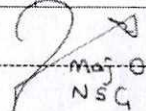
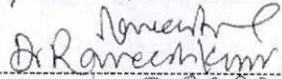


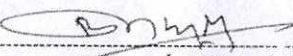









S No	Parameters	Qualitative Requirements	Trial Directives (Suggested Revised)
16	<u>Mutual Interference</u>	Two equipment of the same make from same OEM while working in close range (min 50 cm) should not interfere each others operational efficiency/ working.	OEM to furnish self declaration for the same
17	<u>Booting Time</u>	Booting time for the equipment should not exceed 60 sec	BOO to physically check the same
18	<u>Search Head Cover</u>	Cover for the search head to be provided.	BOO to physically check the same and OEM to furnish self declaration certificate for the same
19	<u>Operational Temp Range</u>	-5 degree c to +55 degree c or better	OEM to furnish test certificate from national/international accredited lab. BOO to physically check the same
20	<u>Humidity</u>	90 % RH	OEM to furnish test certificate from national/international accredited lab. BOO to physically check the same
21	<u>Activation</u>	The system should not activate any radio controlled device in close proximity to search head *	OEM to furnish relevant certificate from national/international accredited lab. BOO to physically check the same.
22	<u>IP Standard</u>	Equipment to be IP 63 standard or better	OEM to furnish test certificate from national/international accredited lab. Trial to be conducted in the following manner: (i) Operational equipment will be taken out from carrying case. (ii) Operational equipment will be immersed in water up to a depth of 1 meter for 30 minutes (iii) Equipment will again be switched ON after 30 minutes and tested for its working condition
23	<u>Soft Carrying case</u>	The detector should come with its all accessories in a lightweight, durable, compact soft carrying case preferable water resistant.	BOO to physically check the same

S No	Parameters	Qualitative Requirements	Trial Directives
24	<u>Hard Carrying case</u>	A ruggedized hard carrying case as per Mil Std 810 H to be provided for transportation and storage of the eqpt which will also accommodate all accessories of the eqpt.	OEM to furnish test certificate from national/international accredited lab. BOO to physically check the same
25	<u>Operational Life</u>	Minimum eight years	OEM to furnish undertaking for the same .
26	<u>Warranty</u>	Warranty of the eqpt should be two years (24 months) and Supplier and OEM should give undertaking for supplying spare parts and service for 8 years including warranty period.	OEM to furnish undertaking for the same.
27	<u>Spare List and Spare parts</u>	a) OEM to furnish MRLS (manufacturer recommended list of spares)	a) OEM to furnish list, self declaration regarding the same and BOO to physically check the certificate and list.
		b) OEM to provide each number/set of MRLS at the time of tendering in a carrying case	b) OEM to furnish undertaking for the same.
28	<u>Training</u>	a) OEM/OEM auth firm to provide operational training to Bomb technicians/ individual for a week as per user requirement.	a) OEM to furnish undertaking for the same.
		b) OEM/OEM auth firm to provide user level maintenance training Bomb technicians/ individual as per user requirement	b) OEM to furnish undertaking for the same.
29	<u>Tools</u>	a) OEM to provide tool kit to carryout repair of the eqpt at user level (List of tools to be furnished by OEM)	a) BOO to check the list of tools and OEM to furnish undertaking.
		b) OEM to provide cleaning tool kit required for the eqpt (List of tools to be furnished by OEM)	b) BOO to check the list of tools and OEM to furnish undertaking
30	<u>Manual</u>	a) OEM to provide User manual	a) BOO to physically check the same
		b) OEM to provide maintenance manual	b) BOO to physically check the same


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