

संख्या. पी-63013/66/06/2026/मोड-1/सीओबल/2009-13

भारत सरकार, गृह मंत्रालय
महानिदेशालय सीमा सुरक्षा बल
(रसद निदेशालय: आधुनिकीकरण सैल)
(Email-comdtord@bsf.nic.in)

ब्लाक संख्या . 10,
सीजीओ काम्पलैक्स,
लोधी रोड, नई दिल्ली-03
दिनांक 8 सितम्बर 2026

वरिष्ठ तकनीकी निदेशक

The Senior Technical Director
राष्ट्रीय सूचना-विज्ञान केन्द्र, नोर्थ ब्लॉक,
गृह मंत्रालय, नई दिल्ली
NIC, North Block, MHA
New Delhi
(द्वारा ई-मेल)

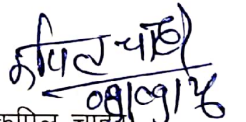
(ई-मेल पता : mpsugandhi@nic.in)

Sub: **Request for comments of stakeholders/OEM on draft QRs & TDs**

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 विषयान्तर्गत सूचित किया जाता है कि तकनीकी विशेषज्ञों के उप समूह द्वारा “**Hand Held Thermal Imager (Uncooled)- Revision**” के गुणात्मक आवश्यकता/परीक्षण निर्देशों के मसौदों का प्रारूप दिनांक 01 सितम्बर 2026 को आयोजित सभा के दौरान तैयार किया गया, जिसको इस आशय से प्रेषित किया जा रहा है कि उक्त उपकरण के गुणात्मक आवश्यकता/परीक्षण निर्देश को गृह मंत्रालय की वेबसाइट पर 15 दिन के लिए अपलोड करने का श्रम करें।

संलग्न: उपरोक्तनुसार


(कपिल चाहर)
उप कमाण्डेंट (मोड)

प्रतिलिपि :-

1. SO (IT), North Block, MHA : उपरोक्त उपकरण के गुणात्मक आवश्यकता /परीक्षण निर्देशों के मसौदा को आपके सूचनार्थ एवं अग्रिम कार्यवाही हेतु प्रेषित किया जाता है।
(Through E-mail)
(E-mail address: soit@nic.in)
2. IT Wing, FHQ BSF : उपरोक्त उपकरण के गुणात्मक आवश्यकता /परीक्षण निर्देशों के मसौदे को सीमा सुरक्षा बल की वेबसाइट पर 15 दिन के लिए अपलोड करने का श्रम करें। आपसे अनुरोध है कि उक्त मसौदे को गृह मंत्रालय की वेबसाइट पर भी अपलोड करने हेतु निम्नलिखित पतों पर ई-मेल करने का 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. Prov Dte (Ord Section) : For information w.r.t your UO No. 2983 dated 15 July 2026.
4. File.

भारत सरकार, गृह मंत्रालय
महानिदेशालय सीमा सुरक्षा बल
(रसद निदेशालय: आधुनिकीकरण सैल)
ब्लाक संख्या . 10, सीजीओ काम्पलेक्स, लोधी रोड, नई दिल्ली-03
(Email-comdtord@bsf.nic.in)

संख्या. पी-63013/66/06/2026/मोड-1/सी0सु0बल/

दिनांक ____ सितम्बर 2026

विषय : **"HAND HELD THERMAL IMAGER (UNCOOLED)- REVISION" के गुणात्मक आवश्यकता/परीक्षण निर्देशों पर हितधारकों/निर्माताओं/विक्रेताओं की टिप्पणी के लिए अनुरोध।**

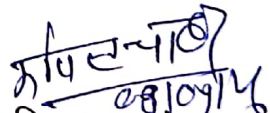
"Hand Held Thermal Imager (Uncooled)- Revision" के गुणात्मक आवश्यकता और परीक्षण निर्देशों को परिशिष्ट 'ए' के रूप में संलग्न किया गया है। हितधारकों/निर्माताओं/विक्रेताओं से अनुरोध किया जाता है कि वे उस उत्पाद की विस्तृत एवं स्टीक जानकारी दें। साथ ही प्रत्येक पैरामीटर के अनुरूप अपने उत्पाद के सही विवरणों को प्रस्तुत करें। सिर्फ 'अनुपालना' या 'अनुपालना नहीं' वाली टिप्पणी स्वीकार नहीं की जाएगी।

- क्या आप मूल उपकरण निर्माता/विक्रेता हैं?
- यदि विक्रेता 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

1. आवश्यक जानकारी/विवरण 22 सितम्बर 2026 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

2. शीघ्र प्रतिक्रिया का अनुरोध किया जाता है।


(कपिल चाहर)

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-63013/66/06/2026/Mod-I/BSF/

Dated, the __Sept 2026

Subject : Request for comments of stakeholders/OEM/Firms on QRs (Qualitative Requirements) & TDs (Trial Directives) of "HAND HELD THERMAL IMAGER (UNCOOLED)- REVISION"

The draft QRs/TDs "Hand Held Thermal Imager (Uncooled)- Revision" 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 22.09.2026.

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

3. An early response is requested.



(Kapil Chahar)
Dy. Commandant (Mod)

DRAFT QRS & TRAIL DIRECTIVES OF HAND HELD THERMAL IMAGER (UN-COOLED) – REVISION

S/NO	QRs	Trail Directives	Remarks
A	HAND HELD THERMAL IMAGER (UN-COOLED) SHORT RANGE		
	I) GENERAL Monocular (Un Cooled Short Range version)	To be physically checked by the BOOs.	
	a) Ruggedness Should be rugged for operations as per JSS-5555/JSS 5855/MIL Std 810H (for high & low temperature, humidity, shock, vibration and Bump test) or better and IP 67	Firm has to submit National / International accredited lab certificate for the same	
	b) Image Have capability to produce real time picture.	To be physically checked by BOOs on Eye Piece as well as on external device.	
	c) Carrying Case Should have a ruggedized customized container for transportation and a soft carrying case for dust and rain protection.	To be physically checked by the BOOs. i) Transportation case placed at a height of minimum 2 mtr with HHTI inside and drop on a hard surface. Transportation case should not be deformed and have any crack. After drop test eqpt should work properly. ii) Shower on Soft carrying case for rain protection no water content enter on Soft carrying case.	
	d) Penetration Penetrate darkness, haze and smoke.	To be physically checked by the BOOs. Switch on the system in different conditions like full dark night, haze and smoke. Observe the image on external LCD/LED screen like full dark night, haze and smoke. For creating the smoke condition BOOs should use smoke candles.	
	e) Not get damaged if faced towards sun accidentally.	To be physically checked by the BOOs. Switch on the system and direct towards the sun for 2 to 3 second. After this system should work properly.	
	f) Be immune to glare of searchlights.	To be physically checked by the BOOs. Switch on the searchlight and throw its beam towards HHTI in operational mode for 2 to 3 sec. System should work properly.	

S/NO	QRs	Trail Directives	Remarks
	g) Have a suitable tint to reduce eyestrain. This feature should help the observer to quickly regain his normal vision.	To be physically checked by the BOOs It must have suitable tint to reduce eyestrain. This feature should help the observer to quickly regain his normal vision.	
	h) Weight 850 gm or less including Battery, Neck/Shoulder carrying strap, hand strap, OG Cover and Eye guard.	To be physically checked by the BOOs.	
	i) Should be able to be fixed on Tripod.	To be physically checked by the BOOs.	
II.	TECHNICAL SPECIFICATION		
	a) Detector Micro bolometer or better. Detector element pixel pitch 12 μm or better.	Firm to provide OEM data sheet in this regard.	
	b) Resolution FPA resolution 640 x 480 or better	Firm to provide OEM data sheet in this regard.	
	c) Spectral range 8-14 μm	Firm to provide OEM data sheet in this regard.	
	d) Field of view 8° x 6° (Maximum)	To be physically checked by the BOOs (Tested on Acceptance Test station of SIW BSF)	
	e) Digital Zoom 4x or better	To be physically checked by the BOOs (Tested on Acceptance Test station of SIW BSF)	
	f) Ready time Less than 1 minute	To be physically checked by BOOs.	
	g) Reticule Inbuilt reticule for range estimation.	To be physically checked by BOOs.	
	h) Focusing Manual	To be physically checked by BOOs.	
	i) NUC Shutter-less.	Firm to provide OEM certificate in this regard and to be physically checked by BOOs.	
	j) Polarity Black Hot and white Hot should be available.	To be physically checked by BOOs.	
	k) Video output Connector It should have provision for external video output through BNC connector	To be physically checked by BOOs.	
	l) Internal display Advance high resolution OLED display having resolution minimum 1024 x 720 or better	Firm has to submit OEM certificate in respect of the same.	

S/NO	QRs	Trail Directives	Remarks
III.	OPERATIONAL FEATURES		
a)	Range Human i. Detection :- 700 Mtr (Minimum) ii. Recognition :- 500 Mtr (Minimum)	To be physically checked by the BOOs. Detection: Group of 2-3 Jawans placed at a distance of 2-3 meter apart in camouflage uniform at the range of 700 meters and move the both hand up & down. Then move the Jawans horizontally with the same action. Movement of troops should be detected. Detection means – Ability to detect vehicles structures and any movement of men or animal. Recognition:- Move a group of 02-03 persons placed at a distance of 2-3 meters apart in camouflage uniform from a range of 500 meters and move the both hand up & down. Then move the group horizontally with the same action. Group of men should be recognized.	
b)	Vehicle i. Detection :1500 Mtr (Minimum) ii. Recognition : 700 Mtr(Minimum) (A vehicle of maximum overall length of 4010 mm, maximum overall width of 1540 mm and maximum overall height of 1875 mm.)	Detection :- To be physically checked by BOOs Moving the vehicle in horizontal direction at 1500 mtr movement of vehicle to be detected. Moving the vehicle in horizontal at 700 mtr and vehicle to be recognized.	
c)	Operating temp Range : -20°C to +55°C	Firm should be submit the National/International Accredited lab certificate/report in respect of operating Temp.	
d)	Storage temp Range: -30°C to +60°C	Firm should be submit the National/International Accredited lab certificate/ report in respect of Storage Temp.	
IV.	POWER SOURCE		
a)	It should Function on 110 Volt to 270 Volt, 50 Hz AC mains through AC/DC Adopter.	To be physically checked by the BOOs. Connect the AC/DC adopter on 50 Hz variable AC mains supply and check the out-put voltage by varying the in-put voltage from 110 to 270 Volts.	
b)	Battery : Should have rechargeable commercially available Lithium-based battery.	To be physically checked by the BOO.	
c)	Battery performance : The battery(s) should be able to run the system for 6 hours or more in operation mode on single charge.	To be physically checked by the BOO.	

S/NO	QRs	Trail Directives	Remarks
	d) Spare batteries : 02 spare batteries be provided.	Undertaking be given by the firm.	
	e) Battery charger : A smart and intelligent, universal charger for charging the battery from 110 volt to 270 Volts 50 Hz AC mains along with DC charging facility from 12 volt to 48 volt DC (on entire range) should be provided. It should have "charge on" and "charge complete" indications during the charging of battery. The charger should be capable to charge the battery fully in ≤ 5 hours.	To be physically checked by the BOO 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 to 270 volts. Again switch 'ON' the charger through DC power supply and check the out-put voltage by varying the in-put voltage from 12 to 48 volts (entire voltage range). Check the charger for 'Charge ON' and charge complete indications. Charge a fully discharged battery with the charger and note down the total time.	
	V. MISCELLANEOUS		
	a) User Operation Manual/ technical Manual - Detailed operators instructions, Technical literature, Maintenance manual, inspection standards be provided with the equipment	Firm to provide an operating user manual with the equipment and same will be physically checked by the BOO.	
	b) Firm to provide spare part list with Part No. during supply of store	Firm to submit an undertaking certificate in this regard.	
	c) 05 days base Workshop level training to minimum 10 technicians at OEM premises on full-fledged running testing, diagnostic and calibration set up.	Firm to submit an undertaking certificate in this regard.	
	d) 03 days operator level training should be provided at user defined location.	Firm to submit an undertaking certificate in this regard.	
B	HAND HELD THERMAL IMAGER (UN-COOLED) LONG RANGE		
	I. GENERAL Binocular (Un Cooled Long Range version)	To be physically checked by the BOOs.	
	a) Ruggedness Should be rugged for operations as per JSS-55555/JSS-5855/ MIL Std 810H (for high & low temperature, humidity, shock, vibration and Bump test) or better and IP 67	Firm has to submit National / International accredited lab certificate for the same	

S/NO	QRs	Trail Directives	Remarks
b)	Image Have capability to produce real time picture.	To be physically checked by BOOs on Eye Piece as well as on external device.	
c)	Carrying Case Should have a ruggedized customized container for transportation and a soft carrying case for dust and rain protection.	To be physically checked by the BOOs. i) Transportation case placed at a height of minimum 2 mtr with HHTI inside and drop on a hard surface. Transportation case should not be deformed and have any crack. Eqpt should work properly. ii) Shower on Soft carrying case for rain protection no water content enter on Soft carrying case.	
d)	Penetration Penetrate darkness, haze and smoke.	To be physically checked by the BOOs. Switch on the system in different conditions like full dark night, haze and smoke. Observe the image on external LCD/LED screen like full dark night, haze and smoke. For creating the smoke condition BOOs should use smoke candles.	
e)	Not get damaged if faced towards sun accidentally.	To be physically checked by the BOOs. Switch on the system and direct towards the sun for 2 to 3 second. After this system should work properly.	
f)	Be immune to glare of searchlights.	To be physically checked by the BOOs. Switch on the searchlight and throw its beam towards HHTI in operational mode for 2 to 3 sec. System should work properly.	
g)	Have a suitable tint to reduce eyestrain. This feature should help the observer to quickly regain his normal vision.	To be physically checked by the BOOs It must have suitable tint to reduce eyestrain. This feature should help the observer to quickly regain his normal vision.	
h)	Weight 1.5 kg or less including Battery, Shoulder/ Neck carrying strap, hand strap, OG Cover and Eye guard.	To be physically checked by the BOOs.	
i)	Should be able to fixed on tripod.	To be physically checked by the BOOs.	
j)	HHTI should have a minimum 05 meter power & video cable. The user may specify if cable length required is more than 5 meter.	To be physically checked by the BOOs	

S/NO	QRs	Trail Directives	Remarks
	k) (Optional- To be decided by the user department at the time of indent) Should be able to fixed on tripod as well as Pole, Tower, Mast or otherwise as specified by the user department. Interface to be provided by the firm.	To be physically checked by the BOOs.	
	l) (Optional- To be decided by the user department at the time of indent) HHTI should be mountable on a Pan & Tilt Unit (PTU) for smooth movement of HHTI. The Pan & Tilt Unit (PTU) should be provided by firm. Specifications of PTU as under: i) High precision motorized pan and tilt unit with variable speed facility. ii) Azimuth (Pan) : 0° to 360° with variable speed of 1° /Sec. to 30°/Sec. iii) Elevation (Tilt) : -40° (Min) to +15° (Min.) with variable speed of 1° /Sec. to 15°/Sec. OR The Pan & Tilt Unit (PTU) to be arranged and specified by the user department.	To be physically checked by the BOOs.	
	m) (Optional- To be decided by the user department at the time of indent) HHTI should be compatible for connection with the DVR system of user department. The DVR system to be arranged by user department at own level.	To be physically checked by the BOOs.	
	n) The equipment shall be provided with a ruggedized, Military –Grade connector for Video and Power Interface, Suitable for repeated mating and un-mating during operational use in field. The connector shall be provided triple-start, self-locking threaded type and recessed (scoop proof) contacts to prevent it from bending or damage to contact pins during mating and un-mating.	The Firm should submit National/ International accredited Lab certificate compliant to MIL-DTL-38999 series III or equivalent Military Standard.	

S/NO	QRs	Trail Directives	Remarks
II.	TECHNICAL SPECIFICATION		
a)	Detector Micro bolometer or better. Detector element pixel pitch 12 μm or better.	Firm to provide OEM data sheet in this regard.	
b)	Resolution FPA resolution 640 x 480 or better	Firm to provide OEM data sheet in this regard.	
c)	Spectral range 8-14 μm	Firm to provide OEM data sheet in this regard.	
d)	Field of view Wide : 8° x 6° (minimum) Narrow : 4° x 3° (maximum) (Note: Field of view should be achieved optically only.)	To be physically checked by the BOOs (Tested on Acceptance Test station of SIW BSF)	
e)	Optical Zoom : 2x (min) Digital Zoom : 4x or better	To be physically checked by the BOOs (Tested on Acceptance Test station of SIW BSF)	
f)	Ready time Less than 1 minute	To be physically checked by BOOs.	
g)	Reticule Inbuilt reticule for range estimation.	To be physically checked by BOOs.	
h)	Focusing Manual	To be physically checked by BOOs.	
i)	NUC Shutter-less.	Firm to provide OEM certificate in this regard and to be physically checked by BOOs.	
j)	Polarity Black Hot and white Hot should be available.	To be physically checked by BOOs.	
k)	Video output Connector It should have provision for external video output through BNC connector	To be physically checked by BOOs.	
l)	Inter Pupillary Distance (IPD) It should have digital or manual IPD between 55-72 mm or better.	To be physically checked by the BOO	
m)	Internal display Advance high resolution OLED display having resolution 1024 x 720 or better	Firm has to submit OEM certificate in respect of the same.	

S/NO	QRs	Trail Directives	Remarks
III.	OPERATIONAL FEATURES		
a)	Range: Human i. Detection: 2000 mtr (Minimum) ii. Recognition: 1000 mtrs (Minimum)	To be physically checked by the BOOs. Detection: Place 02-03 Jawans at a distance of 2-3 meter apart in camouflage uniform at the range of 2000 meters and move the both hand up & down. Then move the Jawan horizontally with the same action. Movement of hand should be detected. Detection means – Ability to detect vehicles structures and any movement of men or other movable things. Recognition:- Move a group of 03 persons at a distance of 2-3 meters apart in camouflage uniform from a range of 1000 meters and move the both hand up & down. Then move the group horizontally with the same action. Group of men should be recognized.	
b)	Vehicle i. Detection : 3000 Mtr (Minimum) ii. Recognition : 1500 Mtr (Minimum) (A vehicle of maximum overall length of 4010 mm, maximum overall width of 1540 mm and maximum overall height of 1875 mm.)	Detection :- To be physically checked by BOOs Moving the vehicle in horizontal direction at 3000 mtr movement of vehicle to be detected. Moving the vehicle in horizontal at 1500 mtr and vehicle to be recognized.	
c)	Operating temp Range -20°C to +55°C	Firm should be submit the National/International Accredited lab certificate/report in respect of operating Temp.	
d)	Storage temp Range -30°C to +60°C	Firm should be submit the National/International Accredited lab certificate/report in respect of Storage Temp.	
IV.	POWER SOURCE		
a)	It should Function on 110 volt to 270 volt, 50 Hz AC mains through AC/DC Adopter.	To be physically checked by the BOOs. Connect the AC/DC adopter on 50 Hz variable AC mains supply and check the out-put voltage by varying the in-put voltage from 110 to 270 volts.	
b)	Battery Should have rechargeable commercially available Lithium-based battery.	To be physically checked by the BOO.	

S/NO	QRs	Trail Directives	Remarks
c)	Battery performance The battery(s) should be able to run the system for 6 hours or more in operation mode on single charge.	To be physically checked by the BOO.	
d)	Spare batteries 02 spare batteries be provided.	Undertaking be given by the firm.	
e)	Battery charger A smart and intelligent, universal charger for charging the battery from 110 volt to 270 volts 50 Hz AC mains along with DC charging facility from 12 volt to 48 volt DC (on entire range) should be provided. It should have "charge on" and "charge complete" indications during the charging of battery. The charger should be capable to charge the battery fully in ≤ 5 hours.	To be physically checked by the BOO 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 to 270 volts. Again switch 'ON' the charger through DC power supply and check the out-put voltage by varying the in-put voltage from 12 to 48 volts (entire voltage range). Check the charger for 'Charge ON' and charge complete indications. Charge a fully discharged battery with the charger and note down the total time.	
V.	MISCELLANEOUS		
a)	User Operation Manual/ technical Manual - Detailed operators instructions, Technical literature, Maintenance manual, inspection standards be provided with the equipment	Firm to provide an operating user manual with the equipment and same will be physically checked by the BOO.	
b)	Firm to provide spare part list with Part No.	Firm to submit an undertaking certificate in this regard.	
c)	05 days Base Workshop level training to minimum 10 technicians at OEM premises on full-fledged running testing, diagnostic and calibration set up.	Firm to submit an undertaking certificate in this regard.	
d)	03 days Operator level training should be provided.	Firm to submit an undertaking certificate in this regard.	
C	HAND HELD THERMAL IMAGER (UN-COOLED) LONG RANGE AUTO FOCUS		
I.	GENERAL Binocular (Un Cooled Long Range version)	To be physically checked by the BOOs.	
a)	Ruggedness	Firm has to submit National / International accredited lab certificate for the same	

S/NO	QRs	Trail Directives	Remarks
	Should be rugged for operations as per JSS-55555/JSS-5855/MIL Std 810H (for high & low temperature, humidity, shock, vibration and Bump test) or better and IP 67.		
	b) Image Have capability to produce real time picture.	To be physically checked by BOOs on Eye Piece as well as on external device.	
	c) Carrying Case Should have a ruggedized customized container for transportation and a soft carrying case for dust and rain protection.	To be physically checked by the BOOs. i) Transportation case placed at a height of minimum 2 mtr with HHTI inside and drop on a hard surface. Transportation case should not be deformed and have any crack. Eqpt should work properly. ii) Shower on Soft carrying case for rain protection no water content enter in Soft carrying case.	
	d) Penetration Penetrate darkness, haze and smoke.	To be physically checked by the BOOs. Switch on the system in different conditions like full dark night, haze and smoke. Observe the image on external LCD/LED screen like full dark night, haze and smoke. For creating the smoke condition BOOs should use smoke candles.	
	e) Be immune to glare of searchlights.	To be physically checked by the BOOs. Switch on the searchlight and throw its beam towards HHTI in operational mode for 2 to 3 sec. System should work properly.	
	f) Have a suitable tint to reduce eyestrain. This feature should help the observer to quickly regain his normal vision.	To be physically checked by the BOOs It must have suitable tint to reduce eyestrain. This feature should help the observer to quickly regain his normal vision.	
	g) Weight Up to 2 Kg or less including Battery, Neck/Shoulder carrying strap, hand strap, OG Cover and Eye guard.	To be physically checked by the BOOs.	
	h) Should be able to be fixed on Tripod.	To be physically checked by the BOOs.	
	i) HHTI should have a minimum 05 meter power & video cable. The user may specify if cable length required is more than 5 meter.	To be physically checked by the BOOs	

S/NO	QRs	Trail Directives	Remarks
j)	(Optional- To be decided by the user department at the time of indent) Should be able to fixed on tripod as well as Pole, Tower, Mast or otherwise as specified by the user department. Interface to be provided by the firm.	To be physically checked by the BOOs.	
k)	(Optional- To be decided by the user department at the time of indent) HHTI should be mountable on a Pan & Tilt Unit (PTU) for smooth movement of HHTI. The Pan & Tilt Unit (PTU) should be provided by firm. Specifications of PTU as under: i) High precision motorized pan and tilt unit with variable speed facility. ii) Azimuth (Pan) : 0° to 360° with variable speed of 1° /Sec. to 30°/Sec. iii) Elevation (Tilt) : -40° (Min) to +15° (Min.) with variable speed of 1° /Sec. to 15°/Sec. OR The Pan & Tilt Unit (PTU) to be arranged and specified by the user department.	To be physically checked by the BOOs.	
l)	(Optional- To be decided by the user department at the time of indent) HHTI should be compatible for connection with the DVR system of user department. The DVR system to be arranged by user department at own level.	To be physically checked by the BOOs.	
m)	The equipment shall be provided with a ruggedized, Military –Grade connector for Video and Power Interface, Suitable for repeated mating and un-mating during operational use in field. The connector shall be provided triple-start, self-locking threaded type and recessed (scoop proof) contacts to prevent it from bending or damage to contact pins during mating and un-mating	The Firm should submit National/ International accredited Lab certificate compliant to MIL-DTL-38999 series III or equivalent Military Standard.	

S/NO	QRs	Trail Directives	Remarks
II.	TECHNICAL SPECIFICATION		
a)	Detector Micro bolometer or better. Detector element pixel pitch 12 μ m or better.	Firm to provide OEM data sheet in this regard.	
b)	Resolution FPA resolution 640 x 480 or better	Firm to provide OEM data sheet in this regard.	
c)	Spectral range 8-14 μ m	Firm to provide OEM data sheet in this regard.	
d)	Field of view Wide : 8° x 6° (minimum) Narrow : 4° x 3° (maximum) (Note: Field of view should be achieved optically only.)	To be physically checked by the BOOs (Tested on Acceptance Test Station of SIW BSF)	
e)	Optical Zoom : 2x (min) Digital Zoom : 4x or better	To be physically checked by the BOOs (Tested on Acceptance Test station of SIW BSF)	
f)	Ready time Less than 1 minute	To be physically checked by BOOs.	
g)	Reticule Inbuilt reticule for range estimation.	To be physically checked by BOOs.	
h)	Focusing Auto	To be physically checked by BOOs.	
i)	NUC Shutter-less.	Firm to provide OEM certificate in this regard and to be physically checked by BOOs.	
j)	Polarity Black Hot and white Hot should be available.	To be physically checked by BOOs.	
k)	Video output Connector It should have provision for external video output through BNC connector	To be physically checked by BOOs.	
l)	Inter Pupillary Distance (IPD) It should have digital or manual IPD between 55-72 mm or better.	To be physically checked by the BOO	

S/NO	QRs	Trail Directives	Remarks
m)	Internal display Advance high resolution OLED display having resolution 1024 x 720 or better	Firm has to submit OEM certificate in respect of the same.	
III.	OPERATIONAL FEATURES		
a)	Range: Human i. Detection: 2000 mtr (Minimum) ii. Recognition: 1000 mtrs (Minimum)	To be physically checked by the BOOs. Detection: Place 02-03 Jawans at a mutual distance of 2-3 meters apart in camouflage uniform at the range of 2000 meters and move the both hand up & down. Then move the Jawan horizontally with the same action. Movement of hand should be detected. Detection means – Ability to detect vehicles structures and any movement of men or other movable things. Recognition:- Move a group of 03 persons at a distance of 2-3 meters apart in camouflage uniform from a range of 1000 meters and move the both hand up & down. Then move the group horizontally with the same action. Group of men should be recognized.	
b)	Vehicle i. Detection : 3000 Mtr (Minimum) ii. Recognition : 1500 Mtr (Minimum) (A vehicle of maximum overall length of 4010 mm, maximum overall width of 1540 mm and maximum overall height of 1875 mm.)	Detection :- To be physically checked by BOOs. Moving the vehicle in horizontal direction at 3000 mtr movement of vehicle to be detected. Recognition:- Moving the vehicle in horizontal at 1500 mtr and vehicle to be recognized.	
c)	Operating temp Range -20°C to +55°C	Firm should be submit the National/International Accredited lab certificate/report in respect of operating Temp.	
d)	Storage temp Range -30°C to +60°C	Firm should be submit the National/ International Accredited lab certificate/report in respect of Storage Temp.	
IV.	POWER SOURCE		
a)	It should Function on 110 volt to 270 V, 50 Hz AC mains through AC/DC Adopter.	To be physically checked by the BOOs.	

S/NO	QRs	Trail Directives	Remarks
		Connect the AC/DC adopter on 50 Hz variable AC mains supply and check the out-put voltage by varying the in-put voltage from 110 to 270 volts.	
b)	Battery Should have rechargeable commercially available Lithium-based battery.	To be physically checked by the BOO.	
c)	Battery performance The battery(s) should be able to run the system for 6 hours or more in operation mode on single charge.	To be physically checked by the BOO.	
d)	Spare batteries 02 spare batteries be provided.	Undertaking be given by the firm.	
e)	Battery charger A smart and intelligent, universal charger for charging the battery from 110 volt to 270 volts 50 Hz AC mains along with DC charging facility from 12 volt to 48 volt DC (on entire range) should be provided. It should have "charge on" and "charge complete" indications during the charging of battery. The charger should be capable to charge the battery fully in ≤ 5 hours.	To be physically checked by the BOO 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 to 270 volts. Again switch 'ON' the charger through DC power supply and check the out-put voltage by varying the in-put voltage from 12 to 48 volts (entire voltage range). Check the charger for 'Charge ON' and charge complete indications. Charge a fully discharged battery with the charger and note down the total time.	
V.	MISCELLANEOUS		
a)	User Operation Manual/ technical Manual - Detailed operators instructions, Technical literature, Maintenance manual, inspection standards be provided with the equipment	Firm to provide an operating user manual with the equipment and same will be physically checked by the BOO.	
b)	Firm to provide spare part list with Part No.	Firm to submit an undertaking certificate in this regard.	
c)	05 days Base Workshop level training to minimum 10 technicians at OEM premises on full-fledged running testing, diagnostic and calibration set up.	Firm to submit an undertaking certificate in this regard.	
d)	03 days Operator level training should be provided.	Firm to submit an undertaking certificate in this regard.	
D	THERMAL IMAGER (UN-COOLED) LONG RANGE COMPATIBLE WITH CIBMS		

S/NO	QRs	Trail Directives	Remarks
I.	GENERAL Thermal imager (Un Cooled) integrated with Day Camera, LRF, DMC & GPS in one housing.	To be physically checked by the BOOs.	
a)	Ruggedness Should be rugged for operations as per JSS-55555/JSS-5855/MIL Std 810H (for high & low temperature, humidity, shock, vibration and Bump test) or better and IP 67.	Firm has to submit National / International accredited lab certificate for the same	
b)	Image Have capability to produce real time picture.	To be physically checked by BOOs	
c)	Carrying Case Should have a ruggedized customized container for transportation and a soft carrying case for dust and rain protection.	To be physically checked by the BOOs. i) Transportation case placed at a height of minimum 2 mtr with HHTI inside and drop on a hard surface. Transportation case should not be deformed and have any crack. Eqpt should work properly. ii) Shower on Soft carrying case for rain protection no water content enter in Soft carrying case.	
d)	Penetration Penetrate darkness, haze and smoke.	To be physically checked by the BOOs. Switch on the system in different conditions like full dark night, haze and smoke. Observe the image on external LCD/LED screen like full dark night, haze and smoke. For creating the smoke condition BOOs should use smoke candles.	
e)	Not get damaged if faced towards sun accidentally.	To be physically checked by the BOOs. Switch on the system and direct towards the sun for 2 to 3 second. After this system should work properly.	
f)	Be immune to glare of searchlights.	To be physically checked by the BOOs. Switch on the searchlight and throw its beam towards HHTI in operational mode for 2 to 3 sec. System should work properly.	
g)	Should be able to be fixed on Pole /Mast	To be physically checked by the BOOs.	
h)	Weight 3.5 kg or less.	To be physically checked by the BOOs.	
i)	Operating temp Range : -20°C to +55°C	Firm should be submit the National/International Accredited lab certificate/report in respect of operating Temp.	

S/NO	QRs	Trail Directives	Remarks
j)	Storage temp Range: -30°C to +60°C	Firm should be submit the National/International Accredited lab certificate/ report in respect of Storage Temp.	
II.	THERMAL CAMERA		
a)	Detector Micro bolometer or better. Detector element pixel pitch 12 µm or better.	Firm to provide OEM data sheet in this regard.	
b)	Resolution FPA resolution 640 x 480 or better	Firm to provide OEM data sheet in this regard.	
c)	Spectral range 8-14 µm	Firm to provide OEM data sheet in this regard.	
d)	Field of view Wide : 8° x 6° (minimum) Narrow : 4° x 3° (maximum)	To be physically checked by the BOOs (Tested on Acceptance Test Station of SIW BSF)	
e)	Optical Zoom : 2X (Min.) Digital Zoom : 4X or better	To be physically checked by the BOOs (Tested on Acceptance Test Station of SIW BSF)	
f)	Ready time Less than 1 minute	To be physically checked by BOOs.	
g)	Reticule Inbuilt reticule for range estimation.	To be physically checked by BOOs.	
h)	Focusing Auto	To be physically checked by BOOs.	
i)	NUC Shutter-less.	Firm to provide OEM certificate in this regard and to be physically checked by BOOs.	
j)	Polarity Black Hot and white Hot should be available.	To be physically checked by BOOs.	
k)	Video output Connector It should have provision for external video output through BNC connector	To be physically checked by BOOs.	
l)	RANGE : Human		
	i) Detection : 2000 mtr.(Minimum)	To be physically checked by the BOOs. Place 02-03 Jawans at a distance of 2-3 metes apart in camouflage uniform at the range of 2000 meters and move the both hand up & down. Then move the Jawan horizontally with the same action. Movement of hand should be detected. Detection means – Ability to detect vehicles structures and any movement of men or other movable things.	

S/NO	QRs	Trail Directives	Remarks
	ii) Recognition : 1000 Mtr (Minimum)	To be physically checked by the BOOs. Move a group of 03 persons at distance of 02-03 meters apart in camouflage uniform from a range of 1000 meters and move the both hand up & down. Then move the group horizontally with the same action. Group of men should be recognized.	
m)	Vehicle		
	i) Detection 4000 Mtr (Minimum) (A vehicle of maximum overall length of 4010 mm, maximum overall width of 1540 mm and maximum overall height of 1875 mm.)	To be physically checked by BOOs Moving the vehicle in horizontal direction at 4000 mtr movement of vehicle to be detected.	
	ii) Recognition 2000 Mtr (Minimum)	To be physically checked by the BOOs. Moving the vehicle in horizontal at 2000 mtr and vehicle to be recognized.	
III.	DAY CAMERA		
a)	Colour Camera	To be physically checked by BOOs	
b)	Resolution 1920 x 1080 or better	Firm has to submit OEM certificate in respect of the same.	
c)	Digital Zoom 4x or better	To be physically check by the BOO. (Tested on Acceptance Test Station of SIW BSF)	
d)	Optical Zoom 5x or better	To be physically check by the BOO. (Tested on Acceptance Test station of SIW BSF)	
e)	Focusing Automatically	To be physically checked by BOOs	
f)	RANGE : Human		
	i) Detection 2000 mtr or better	To be physically checked by the BOOs. Place 02-03 Jawans at a distance of 02-03 meters in camouflage uniform at the range of 2000 meters and move the both hand up & down. Then move the Jawan horizontally with the same action. Movement of hand should be detected. Detection means – Ability to detect vehicles structures and any movement of men or other movable things.	

S/NO	QRs	Trail Directives	Remarks
	ii) Recognition 1000mtr or better	To be physically checked by the BOOs. Move a group of 03 persons in camouflage uniform from a range of 1000 meters and move the both hand up & down. Then move the group horizontally with the same action. Group of men should be recognized.	
	iii) Identification 750 Mtrs or better	To be physically checked by BOOs Move a group of 03 persons with weapon at a distance of 750 Mtrs. Day camera should identify the presence of men with weapon and colour of the dress.	
	g) Vehicle		
	i) Detection 4 Km or better (A vehicle of maximum overall length of 4010 mm, maximum overall width of 1540 mm and maximum overall height of 1875 mm.)	To be physically checked by BOOs Moving the vehicle in horizontal direction at 4000 mtr movement of vehicle to be detected.	
	ii) Recognition 2 Km or better	To be physically checked by the BOOs. Moving the vehicle in horizontal at 2000 mtr and vehicle to be recognized.	
	iii) Identification 1 Km or better	To be physically checked by BOOs Place a vehicle (size as per QR) at a distance of 1 Km. Day camera should identify type of vehicle with colour.	
	IV. DIGITAL MAGNETIC COMPASS (DMC)		
	DMC should be provided for auto Northing. Accuracy should be $\leq 1^\circ$.	Switch 'ON' the Thermal Imager and do auto northing. Note down the bearing of a point with the help of compass. Again check the bearing of that point through inbuilt DMC and then compare both the readings for accuracy.	
	V. GLOBAL POSITIONING SYSTEM (GPS)		
	GPS to provide own position during initialization. It should give co-ordinates in Lat-Lon and Indian Military GR system. Accuracy should be 5 meters or less.	To be physically checked by BOOs.	
	VI. LASER RANGE FINDER (LRF)		

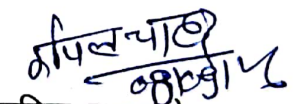
SNO	QRs	Trail Directives	Remarks
	LRF (class 1 eye safe) should be provided for finding range of any target/object upto 4000 meters or better with accuracy of ± 5 Mtrs or better.	To be physically checked by BOOs.	
VII	PAN & TILT MECHANISM		
a)	High precision motorized pan and tilt unit with variable speed facility.	To be physically checked by BOOs.	
b)	Azimuth (Pan) for 360° with variable speed of 1° to 40°/Sec.	To be physically checked by BOOs.	
c)	Elevation (Tilt) for +25° (Min) & -45° (Min) with variable speed of 1° to 15°/Sec.	To be physically checked by BOOs.	
VII	CONTROL DISPLAY UNIT (CDU)		
a)	CDU must be comprising of a ruggedized LCD colour display of size 15 inch (min).	To be physically checked by BOO.	
b)	CDU should have the facility to show the map in the background correlated with the video of the camera.	To be physically checked by BOO.	
c)	A suitable provision of the control keys or joystick should be provided to operate the system remotely with comfort.	To be physically checked by BOO.	
d)	CDU should have recovery option in the system itself whenever operating software gets corrupted. Operating System Software must be provided by OEM.	To be physically checked by BOO.	
e)	CDU should have the provision to control the operation of day & night camera and Pan & Tilt system.	To be physically checked by BOO.	
f)	CDU should have scan around facility and automatically scan the operator defined sector whenever required.	To be physically checked by BOO.	
g)	CDU must incorporate built in test equipment (BITE)	To be physically checked by BOO.	
h)	CDU should have ports for external PC interface, LAN and digital & analog video out.	To be physically checked by BOO.	
i)	Video Recording Capability: Inbuilt storage memory of 2TB (min) exclusively to store the video should be	To be physically checked by BOO.	

S/NO	QRs	Trail Directives	Remarks
	provided in the console. The system should have facility to retrieve the stored data.		
IX	NETWORK CONNECTIVITY		
	Integrate with available IP Network through LAN with video streaming , Video recording and all control	To be physically checked by BOO. Integrate with available IP Network through LAN with video streaming , Video recording and all control.	
X	POWER SOURCE		
	It should Function on 110 volt to 270 Volt, 50 Hz AC mains through AC/DC Adopter and UPS. (UPS back up 30 Minutes minimum)	To be physically checked by BOO. It should Function on 110 volt to 270 v, 50 Hz AC mains through AC/DC Adopter and UPS. (UPS back up 30 Minutes minimum)	
XI	MISCELLANEOUS		
a)	User Operation Manual/ technical Manual - Detailed operators instructions, Technical literature, Maintenance manual, inspection standards be provided with the equipment	Firm to provide an operating user manual with the equipment and same will be physically checked by the BOO.	
b)	Firm to provide spare part list with Part No.	Firm to submit an undertaking certificate in this regard.	
c)	05 days Base Workshop level training to minimum 10 technicians at OEM premises on full-fledged running testing, diagnostic and calibration set up.	Firm to submit an undertaking certificate in this regard.	
d)	03 days Operator level training should be provided.	Firm to submit an undertaking certificate in this regard.	

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

नोट – सभी विक्रेताओं/फर्मों से निवेदन है कि अपने सुझावों के साथ निम्नलिखित कागजात संलग्न कर ई-मेल पता comdtord@bsf.nic.in पर भेजने का श्रम करें:-

1. उत्पाद की वास्तविक विवरण पुस्तिका।
2. उत्पाद की साहित्यिक रचना का ब्यौरा।
3. गुणात्मक आवश्यकताओं के उपर व्यापक टिप्पणीयों।


 (कपिल चाहर)
 उप कमांडेंट (आधुनिकीकरण)