

Government of India
Ministry of Home Affairs
Directorate General National Security Guard
(Provisioning Branch/Ord Section)
Mehram Nagar, Palam, New Delhi – 110 037
Fax No. 011-25663258/25671639

No. P/604/18(389)/RTVS/Prov (Ord)/NSG/246 Dated, the 15 Jan 2019

**QUALITATIVE REQUIREMENTS (QRs) AND TRIAL DIRECTIVES (TDs) OF
REAL TIME VIEWING SYSTEM (WITH LAPTOP IN LIEU OF LIXISCOPE)**

1. The QRs and TDs in respect of Real Time Viewing System (With laptop in Lieu of Lixiscope) as per Annex-I and Annex-II respectively have been approved by the competent authority are forwarded herewith.
2. For your information and further necessary action please.


(Rakesh Kumar)
Group Commander (Proc)

o/c

Distribution:-

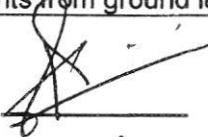
1. JS (PM), MHA, Jaisalmer House, New Delhi - for information please.
2. IG/ Director (R&D), BPR&D, 4th Floor, Block No 11, CGO Complex, New Delhi.
3. DIG (Prov), CRPF, CGO Complex, New Delhi.
4. DIG (Prov), CISF, CGO Complex, New Delhi.
5. DIG (Prov), ITBP, CGO Complex, New
6. DIG (Prov), SSB, R.K. Puram, New Delhi.
7. DIG (Prov), BSF, CGO Complex, New Delhi
8. DIG (Prov), Assam Rifles (Through LOAR)
9. Ops (WE), HQ NSG

**DRAFT QRs OF REAL TIME VIEWING SYSTEM
(WITH LAPTOP IN LIEU OF LIXISCOPE)**

Ser No	QRs
1	<p>X-Ray Source:-</p> <p>(a) The X-Ray source should be a single package, having robust design with integrated carrying handle for one hand portability. The operational wt including bty pack should not exceed 06 Kgs.</p> <p>(b) It should penetrate upto min 50 mm of steel.</p> <p>(c) It should be capable of being operated at min 3 mtrs from imager both wired and wirelessly.</p> <p>(d) It should provide min 270 KVP energy.</p> <p>(e) It should not contain any radioactive material.</p> <p>(f) It should function on pulse or constant potential output.</p> <p>(g) It should have rechargeable battery pack which can perform for min 01hour of continuous operation. Also, one spare battery pack to be provided.</p> <p>(h) It should have facility to set the number of pulse or exposure time manually and through CDU (Control and Display Unit), depending on the type of object.</p> <p>(j) It should have a safety interlock key with visual and audible indicators to warn the operator when activated.</p> <p>(k) It should not have any warm up time.</p> <p>(l) It should have backlit LCD for night operations.</p> <p>(m) It should be provided with charger (OEM std only) for charging the rechargeable bty packs.</p> <p>(n) It should be provided with standard camera tripod to mount, stabilize and elevate x-ray generator.</p>
2.	<p>Imager Panel and Interface Control Unit/ Box</p> <p>(a) The imager should have min imaging area of 16.5" (W) x 13.5" (H) with minimum dead space at bottom and on any one side (upto 16 mm allowed) from external dimensions.</p> <p>(b) The thickness of the imager should not exceed 24mm.</p> <p>(c) It should have a dynamic range of min 14bit and resolution min 3.5 lp/ mm with pixel pitch of min 135 microns for clear and sharp images.</p> <p>(d) Both combined should not weigh more than 06kgs along with its attachments (support/ legs).</p> <p>(e) The imager should have capability to operate in both wired (min 50mtrs) and wireless (min 150 mtrs LOS) made from Control and Display Unit. Additional 100mtrs wire with spool to be provided separately for extension of wired mode.</p> <p>(f) The interface control unit/ Box (can be integrated with lap tops) should have capability to operate in both wired (min 03 mtrs) and wireless (min 05 mtrs) mode from both X-Ray source and imager.</p> <p>(g) The imager panel and Interface Control Box /Unit should be battery operated and should have bty operation duration of min 04 hrs.</p> <p>(h) It should provide instant imaging of the object with min 5 seconds image acquisition time in both wired and wireless mode.</p> <p>(j) Imager should be provided with such a support / legs which enable it to be easily positioned on uneven surfaces or slope.</p> <p>(k) Should have a visual battery low level indicator for both Imager and ICU</p> <p>(l) It should also be provided with a tripod (of similar height that of the x-ray generator) which should be equipped to hold the imager for easier positioning at different heights from ground level.</p>




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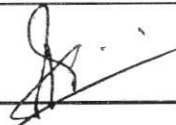


DRAFT QRs OF REAL TIME VIEWING SYSTEM (WITH LAPTOP IN LIEU OF LIXISCOPE) (Contd..)


Ser No	QRs
3.	<u>Control and Display Unit</u>
(a)	It should have fully rugged, lightweight, wireless laptop with an option to convert into tablet PC with one quick swivel and should be certified for MIL-STD-810 G & IP 65 or above.
(b)	<p>It should have the following minimum configuration or better:-</p> <p>CPU :- Intel core i5 -3610 ME v Pro Processor - 2.7GHZ with Turbo boost up to 3.3GHZ. - 3MB Cache.</p> <p>Storage and memory : 4GB-16GB SD RAM (DDR3L-1333MHZ) Stock- mounted flex-connect hard drive with quick - release. 500GB 7200 rpm Hard drive with heater.</p> <p>Display : - 10.1" XGA Sunlight - viewable (LED) 1024x786. -Capacitive touch screen. -5 point resistive multi touch + digitizer.</p> <p>Key board and input: Touch screen or multi touch + digitizer. Integrated stylus holder.</p> <p>Wireless: 802.11 /b/g/n wifi Technology 802.12 Bluetooth v 4.0. + EDR (Class1) Dual high- gain antenna pass- through.</p> <p>Power Supply : AC adaptor: AC 100V-240V 50/60HZ. Bty op: 04 hrs(Touch screen) 04 hrs (Multitouch + digitizer)</p> <p>Other Features : Backlit keyboard-sealed rubber or plastic emissive. USB 3.0 (X1), USB 2.0 (X1) RJ-45 VGA Headphones/speaker Microphone/Live in SD Card Slot HDMI</p> <p>Soft Ware : Windows 8.1 pro 64-bit or better</p>



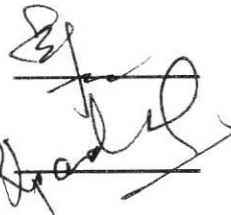
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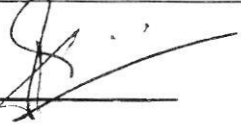


**DRAFT QRs OF REAL TIME VIEWING SYSTEM (WITH LAPTOP
IN LIEU OF LIXISCOPE) (Contd..)**

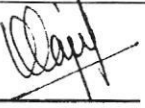
Ser No	QRs
	(c) It should not weigh more than 3kgs. (Including battery). (d) The Laptop should be housed in a common/ separate case provided by OEM for ease of operation and carriage.
4.	Soft ware Features :- (a) A user friendly menu driven advanced software should be provided to facilitate the operator to choose a wide range of functions. (b) It should provide image enhancement and analysis tools as under :- (i) Pseudo Colouring facility. (ii) Brightness & Contrast control, smoothing and sharpening of images. (iii) Stitching and cropping of images. (iv) Histogram Equalisation and Annotate images. (v) Embossing (3D Effect) of the image. (vi) Rotation to 360°, Pan, Zoom (Whole image or region of interest) and Polarity. (vii) Visual Database of images including name, date, category, place, fill name etc. (viii) Summing and Overlay of multiple images. (ix) X-Ray Generator Selection, pulse setting, pulse activation. (x) On Screen measurement facilities in multiple units. (xi) The X-Ray source should be provided with a system which can differentiate between organic and inorganic materials.
5.	Miscellaneous :- (a) The complete system including X-Ray source, Imager unit (including Interface Control Box /Unit), Control and Display unit along with wire. (min 50 mtr) and wireless systems should fit into a ruggedized min two wheeled transport case and it should not weigh more than 30kgs. Also, the other accessories should fit into separate ruggedized transport case. (b) The RTVS should be provided with mountings to use it via ROV/ Mini ROV. (c) The RTVS should be able to operate in temp range of -10°C to 50°C. (d) Technical literature and users handbook for both hardware and software to be provided by the vendor.



 Mr. M. K. K. K.



 S. J. K. K.



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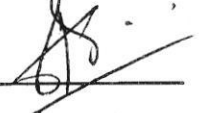

 (Sudeep Lakhtakia)
 DG, NSG

**DRAFT TRIAL DIRECTIVES OF REAL TIME VIEWING SYSTEM (WITH LAPTOP
IN LIEU OF LIXISCOPE)**


<u>Ser No</u>	<u>QRs</u>	<u>Trial Directives</u>
1.	<p><u>X-Ray Source :-</u></p> <p>(a) The X-Ray source should be a single package, having robust design with integrated carrying handle for one hand portability. The operational wt including bty pack should not exceed 06 Kgs.</p> <p>(b) It should penetrate upto min 50 mm of steel.</p> <p>(c) It should be capable of being operated at min 3 mtrs from imager both wired and wirelessly.</p> <p>(d) It should provide min 270 KVP energy.</p> <p>(e) It should not contain any radioactive material.</p> <p>(f) It should function on pulse or constant potential output.</p> <p>(g) It should have rechargeable battery pack which can perform for min 01 hour of continuous operation. Also, one spare battery pack to be provided.</p> <p>(h) It should have facility to set the number of pulse or exposure time manually and through CDU (Control and Display Unit), depending on the type of object.</p> <p>(j) It should have a safety interlock key with visual and audible indicators to warn the operator when activated.</p> <p>(k) It should not have any warm up time.</p> <p>(l) It should have backlit LCD for night operations.</p> <p>(m) It should be provided with charger (OEM std only) for charging the rechargeable bty packs.</p> <p>(n) It should be provided with standard camera tripod to mount, stabilize and elevate x-ray generator.</p>	<p>To be physically checked by the BOO.</p> <p>To be physically checked by the BOO by placing the 50 mm thick steel with 1mm wire behind it to verify the penetration.</p> <p>To be physically checked by the BOO.</p> <p>BOOs to check Certificate provided by OEM.</p> <p>BOOs to check Certificate provided by OEM.</p> <p>BOOs to check Certificate provided by OEM.</p> <p>To be physically checked by the BOO by firing max pulses /exposure fired at regular intervals of 02 mins for continuous 1hr.</p> <p>To be physically checked by the BOO on different types of objects.</p> <p>To be physically checked by the BOO.</p> <p>To be physically checked by the BOO.</p> <p>To be physically checked by the BOO.</p> <p>To be physically checked by the BOO by charging a fully discharged bty of the eqpt.</p> <p>To be physically checked by the BOO.</p>



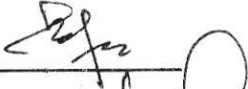
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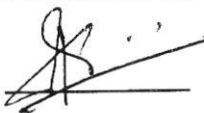


**DRAFT TRIAL DIRECTIVES OF REAL TIME VIEWING SYSTEM (WITH LAPTOP
IN LIEU OF LIXISCOPE) (Contd....)**

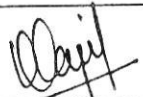
<u>Ser No</u>	<u>QRs</u>	<u>Trial Directives</u>
2.	Imager Panel and Interface Control Unit / Box	
(a)	The imager should have min imaging area of 16.5" (W) x 13.5" (H) with minimum dead space at bottom and on any one side (upto 16 mm allowed) from external dimensions.	To be physically checked by the BOO.
(b)	The thickness of the imager should not exceed 24mm.	To be physically checked by the BOO.
(c)	It should have a dynamic range of min 14 bit and resolution min 3.5 lp/ mm with pixel pitch of min 135 microns for clear and sharp images.	OEM certificate to be provided.
(d)	Both combined should not weigh more than 06kgs along with its attachments (support/ legs).	To be physically checked by the BOO.
(e)	The imager should have capability to operate in both wired (min 50mtrs) and wireless (min 150 mtrs LOS) made from Control and Display Unit. Additional 100 mtrs wire with spool to be provided separately for extension of wired mode.	To be physically checked by the BOO on ground by the taking images at specified distances.
(f)	The interface control unit/ Box (can be integrated with lap tops) should have capability to operate in both wired (min 03 mtrs) and wireless (min 05 mtrs) mode from both X-Ray source and imager.	To be physically checked by the BOO.
(g)	The imager panel and Interface Control Box /Unit should be battery operated and should have bty operation duration of min 04 hrs.	To be physically checked by the BOO.
(h)	It should provide instant imaging of the object with min 5 seconds image acquisition time in both wired and wireless mode.	To be physically checked by the BOO.
(j)	Imager should be provided with such a support / legs which enable it to be easily positioned on uneven surfaces or slope.	To be physically checked by the BOO.
(k)	Should have a visual battery low level indicator for both Imager and ICU	To be physically checked by the BOO.
(l)	It should also be provided with a tripod (of similar height that of the x-ray generator) which should be equipped to hold the imager for easier positioning at different heights from ground level.	To be physically checked by the BOO.



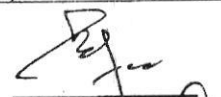
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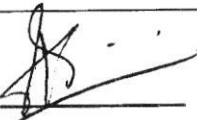


**DRAFT TRIAL DIRECTIVES OF REAL TIME VIEWING SYSTEM (WITH LAPTOP
IN LIEU OF LIXISCOPE) (Contd....)**

<u>Ser No</u>	<u>QRs</u>	<u>Trial Directives</u>
3.	<p><u>Control and Display Unit</u></p> <p>(a) It should have fully rugged, lightweight, wireless laptop with an option to convert into tablet PC with one quick swivel and should be certified for MIL-STD-810 G & IP 65 or above.</p> <p>(b) It should have the following minimum configuration or better:- CPU :- Intel core i5 -3610 ME v Pro Processor - 2.7GHZ with Turbo boost up to 3.3 GHZ. - 3MB Cache. Storage and memory : 4GB-16GB SD RAM (DDR3L-1333MHZ) Stock- mounted flex-connect hard drive with quick - release. 500GB 7200 rpm Hard drive with heater. Display: - 10.1" XGA Sunlight - viewable (LED) 1024x786. -Capacitive touch screen. -5 point resistive multi touch + digitizer. Key board and input: Touch screen or multi touch + digitizer. Integrated stylus holder. Wireless: 802.13 /b/g/n wifi Technology 802.14 Bluetooth v 4.0. + EDR (Class1) Dual high- gain antenna pass- through. Power Supply : AC adaptor: AC 100V-240V 50/60HZ. Bty op: 04 hrs(Touch screen) 04 hrs (Multi touch + digitizer)</p>	<p>OEM certificate to be provided</p> <p>To be physically checked with the technical literature by the BOO.</p>



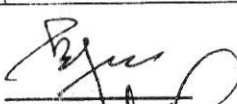
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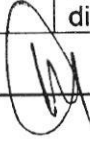

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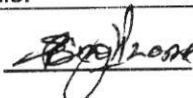
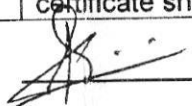
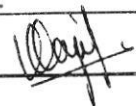




**DRAFT TRIAL DIRECTIVES OF REAL TIME VIEWING SYSTEM (WITH LAPTOP
IN LIEU OF LIXISCOPE) (Contd....)**


Ser No	QRs	Trial Directives
	<p>Other Features : Backlit keyboard-sealed rubber or plastic emissive. USB 3.0 (X1), USB 2.0 (X1) RJ-45 VGA Headphones / speaker Microphone/Live in SD Card Slot HDMI</p> <p>Soft Ware : Windows 8.1 pro 64-bit or better</p>	To be physically checked with the technical literature by the BOO.
	(c) It should not weigh more than 3kgs. (Including battery).	To be physically checked by the BOO.
	(d) The Laptop should be housed in a common/ separate case provided by OEM for ease of operation and carriage.	To be physically checked by the BOO.
4	<p>Soft ware Features :-</p> <p>(a) A user friendly menu driven advanced software should be provided to facilitate the operator to choose a wide range of functions.</p> <p>(b) It should provide image enhancement and analysis tools as under :-</p> <p>(i) Pseudo Colouring facility.</p> <p>(ii) Brightness & Contrast control, smoothing and sharpening of images.</p> <p>(iii) Stitching and cropping of images.</p> <p>(iv) Histogram Equalisation and Annotate images.</p> <p>(v) Embossing (3D Effect) of the image.</p> <p>(vi) Rotation to 360°, Pan, Zoom (Whole image or region of interest) and Polarity.</p> <p>(vii) Visual Database of images including name, date, category, place, fill name etc.</p> <p>(viii) Summing and Overlay of multiple images.</p> <p>(ix) X-Ray Generator Selection, pulse setting, pulse activation.</p> <p>(x) On Screen measurement facilities in multiple units.</p> <p>(xi) The X-Ray source should be provided with a system which can differentiate between organic and inorganic materials.</p>	<p>User handbook and technical specifications to be provided by the vendor and same be checked by BOO.</p> <p>To be physically checked by the BOO.</p> <p>To be physically checked by the BOO and OEM certificate should also provided.</p>

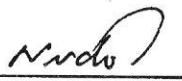


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**DRAFT TRIAL DIRECTIVES OF REAL TIME VIEWING SYSTEM (WITH LAPTOP
IN LIEU OF LIXISCOPE) (Contd....)**

<u>Ser No</u>	<u>QRs</u>	<u>Trial Directives</u>
5.	Miscellaneous :-	
	The complete system including X-Ray source, Imager unit (including Interface Control Box / Unit), Control and Display unit along with wire. (min 50 mtr) and wireless systems should fit into a ruggedized min two wheeled transport case and it should not weigh more than 30 kgs. Also, the other accessories should fit into separate ruggedized transport case.	To be physically checked by the BOO.
	(b) The RTVS should be provided with mountings to use it via ROV/ Mini ROV.	To be physically checked by the BOO.
	(c) The RTVS should be able to operate in temp range of -10°C to 50°C.	OEM certificate to be provided.
	(d) Technical literature and users handbook for both hardware and software to be provided by the vendor.	To be physically checked by the BOO.

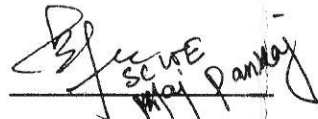















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(Sudeep Lakhtakia)
DG, NSG