



PROVINCIAL ELECTRICITY AUTHORITY

Specification No.: RTLS-N1-001/2563 : HANDHELD INFRARED CAMERA

Page 1 of 5

C3 Schedule of detailed requirement

Invitation to Bid No.:

Item	PEA Material No.	Quantity	Description
1	-	set(s)	<p>Handheld infrared camera, to use for checking all type of electrical equipment for predictive maintenance program, with :</p> <p>Detector Resolution : Focal Plane Array (FPA), uncooled microbolometer, 320 x 240 pixels, (or better)</p> <p>Minimum spectral range coverage : 8 to 13 μm</p> <p>Field of View (FOV) : not less than $24^\circ \times 18^\circ$</p> <p>Minimum focus distance : not more than 0.15 m</p> <p>Instantaneous field of view (IFOV) : not more than 0.93 mrad</p> <p>Thermal sensitivity at 30°C (NETD) : not more than 0.05°C (at 30 Hz image frame rate)</p> <p>Image frame rate (on display) : not less than 30 Hz, non-interlaced</p> <p>Display : not less than 3.5 " colour display</p> <p>Digital zoom : up to 4 x, or better</p> <p>Visual : built-in, 5 Mpixels (or better), full color</p> <p>Temperature range : 0°C to 650°C</p> <p>Accuracy : $\pm 2^\circ \text{C}$, $\pm 2\%$ of reading (whichever is greater) at 25°C ambient or better</p> <p>Atmospheric transmission correction : input correction for humidity, temperature and measuring distance</p> <p>Emissivity correction : variable from 0.1 to 1.0 or select from listings in pre-defined materials list (at 0.01 step)</p> <p>Measurement mode : 3 movable spot, 3 areas (auto maximum and minimum temperature), or better</p> <p>Image storage : not less than 4 GB removable memory card</p>



PROVINCIAL ELECTRICITY AUTHORITY

Specification No.: RTLS-N1-กบข.-001/2563 : HANDHELD INFRARED CAMERA

Page 2 of 5

C3 Schedule of detailed requirement

Invitation to Bid No.:

Item	PEA Material No.	Quantity	Description
			Focus : manual and auto
			File format
			-Thermal : 14 bit fully radiometric IR image
			-Visual : visual image shell be linked with Corresponding thermal image
			Image presentation mode
			-Auto blend : IR plus full visible on camera
			-Picture in picture : IR resizable and movable
			Laser pointer
			-laser alignment : Position is automatically displayed on the infrared image
			-Laser distance meter : calculates distance to target for precisely focused
			Interface : USB , Bluetooth, and WIFI for connection between the camera to smartphone, tablet and notebook computer.
			Battery : internal rechargeable battery, at least 2 hours operation
			Operating temperature : up to 50 ° C
			Protection : IP 54, or better
			Shock : 25G, or better
			Vibration : 2 G, or better
			Total weight (include battery) : not more than 1.5 kg
			Complete with :
			1. 10 seconds voice annotation with each image file, or better
			2. Communication cable
			3. One (1) set battery charger and three (3) sets battery



PROVINCIAL ELECTRICITY AUTHORITY

Specification No.: RTLS-N1-0115.-001/2563 : HANDHELD INFRARED CAMERA

Page 3 of 5

C3 Schedule of detailed requirement

Invitation to Bid No.:

Item	PEA Material No.	Quantity	Description
			<p>4. Data analysis and reporting software comprising useful function for Windows OS., Mac OS., iOS, Android OS. ect. operating system, with :</p> <ul style="list-style-type: none"> - thumbnail image viewer - support drag and drop transfer of selected images from PC card to computer - independent emissivities correction variable from 0.1 to 1.0 or select from listings in pre –defined materials list (at 0.01 step) - spot tools, area tools and line tools with maximum, minimum and average temperature, and Delta T calculation function - voice note replay - wizard driven report generation, the report can be modified by user <p>5. Notebook computer or Tablet with :</p> <p>Notebook computer</p> <p>CPU : Intel Core i7 2 GHz, or better</p> <p>Memory : 2 GB DDR3, or better</p> <p>Hard disk : not less than 640 GB</p> <p>Display : 14" TFT color LCD, or better</p> <p>Power supply : single phase, 230 V AC, 50 Hz and battery operated</p> <p>Complete with operating system software and other auxiliary equipment necessary to complete.</p> <p>Tablet</p> <p>Operation : iOS or Android or Windows</p> <p>Ram : not less than 3 GB</p> <p>Rom : not less than 64 GB</p> <p>Display : 9.7" color LCD, or better</p> <p>Connection : WIFI and Bluetooth</p> <p>Touch Screen and Keyboard and pen</p>



PROVINCIAL ELECTRICITY AUTHORITY

Specification No.: RTLS-N1-นบข.-001/2563 : HANDHELD INFRARED CAMERA

Page 4 of 5

C3 Schedule of detailed requirement

Invitation to Bid No.:

Item	PEA Material No.	Quantity	Description
			6. Color inkjet multifunction printer (print, scan and copy), resolution 4,800 x 1,200 dpi for full color report, A4 document size, or better 7. Transport case 8. Instruction manual in English and Thai 9. Other accessories according to manufacturer's design and auxiliary equipment necessary to complete.
2	-	1 lot	Training course for two (2) PEA's personnel per each unit, not less than two (2) days, for operation and maintenance of handheld infrared camera complete with software training
3	-	Lot(s)	Spare parts (give detail), to guarantee and uninterrupted service for a period of two (2) years.
4	-	Lot(s)	Optional accessories (give detail).



PROVINCIAL ELECTRICITY AUTHORITY

Specification No.: RTLS-N1-0111.-001/2563 : HANDHELD INFRARED CAMERA

Page 5 of 5

C3 Schedule of detailed requirement

Invitation to Bid No.:

Item	PEA Material No.	Quantity	Description
			<p>Note :</p> <ol style="list-style-type: none">1. The bidder has to quote the unit costs.2. The bidder has to quote training course, spare parts and optional accessories with a list of quantities and their itemized prices, if any; PEA reserves the right to purchase the training course, spare parts and optional accessories by some or all of items, to adjust their quantities, or to cancel them.3. Evaluation and comparison of bid price shall not include the training course, spare parts and optional accessories.4. The bidder has to submit sufficient references describing the previous experience of the suppliers (e.g. list of supply of equipment and/or materials having the same of similar design as proposed, field experience, the registration of TISI, the copies of license, etc.) to the satisfaction of PEA.5. Training course shall be provided by the contractor for two (2) PEA's personnel per each unit, not less than two (2) days, for operation and maintenance of handheld infrared camera complete with software training, the contractor has to support for all expenses.6. The bidders have to supply one (1) complete set the Handheld infrared camera and accessories to the site of PEA for demonstration, within five (5) days, counted from the bid closing date. The sample will be returned after consideration. Any bidder cannot supply sample, the bid shall be rejected. In case of the Handheld infrared camera and/or accessories are not functional with PEA's requirement, the bid shall be rejected7. The bidders must provide spare parts service for the products offered for sale for a period of 5 years by attaching the certification documents together with the quotation.



PROVINCIAL ELECTRICITY AUTHORITY

Specification No.: RTLS-N1-กบข.-001/2563 : **HANDHELD INFRARED CAMERA**

C4 Price schedule

Invitation to Bid No.:

Manufacturer :

Country of origin :

Trade-mark :

Item	PEA Material No.	Catalogue No.	Description	Quantity	Unit Cost (See details & conditions attached)	Total Cost (See details & conditions attached)
1	-		<p>Handheld infrared camera, to use for checking all type of electrical equipment for predictive maintenance program, with:</p> <p>Detector Resolution :</p> <p>Minimum spectral range coverage :</p> <p>Field of View (FOV) :</p> <p>Minimum focus distance :</p> <p>Instantaneous field of view (IFOV):</p> <p>Thermal sensitivity at 30° C (NETD) (at 30 Hz image frame rate) :</p> <p>Image frame rate (on display) :</p> <p>Display :</p> <p>Digital zoom :</p> <p>Visual :</p> <p>Temperature range :</p>	set(s)		



PROVINCIAL ELECTRICITY AUTHORITY

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C4 Price schedule

Invitation to Bid No.:

Manufacturer :

Country of origin :

Trade-mark :

Item	PEA Material No.	Catalogue No.	Description	Quantity	Unit Cost (See details & conditions attached)	Total Cost (See details & conditions attached)
			Accuracy : Atmospheric transmission correction : Emissivity correction : Measurement mode : Image storage : Focus : File format : -Thermal : -Visual : Image presentation mode : -Auto blend : -Picture in picture :			



PROVINCIAL ELECTRICITY AUTHORITY

Specification No.: RTLS-N1-กบข.-001/2563 : **HANDHELD INFRARED CAMERA**

C4 Price schedule

Invitation to Bid No.:

Manufacturer :

Country of origin :

Trade-mark :

Item	PEA Material No.	Catalogue No.	Description	Quantity	Unit Cost (See details & conditions attached)	Total Cost (See details & conditions attached)
			Laser pointer			
			-laser alignment :			
			-Laser distance meter :			
			Interface :			
			Battery :			
			Operating temperature :			
			Protection :			
			Shock :			
			Vibration :			
			Total weight (include battery) :			



PROVINCIAL ELECTRICITY AUTHORITY

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C4 Price schedule

Invitation to Bid No.:

Manufacturer :

Country of origin :

Trade-mark :

Item	PEA Material No.	Catalogue No.	Description	Quantity	Unit Cost (See details & conditions attached)	Total Cost (See details & conditions attached)
			Complete with : 1)..... 2)..... 3)..... 4)..... 5)..... 6)..... 7)..... 8)..... 9).....			



PROVINCIAL ELECTRICITY AUTHORITY

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C4 Price schedule

Invitation to Bid No.:

Manufacturer :

Country of origin :

Trade-mark :

Item	PEA Material No.	Catalogue No.	Description	Quantity	Unit Cost (See details & conditions attached)	Total Cost (See details & conditions attached)
2	-		Spare parts for Item 1 (Give detail) 1) 2) 3) 4) 5)	Lot		
3	-		Optional accessories for Item 1 (Give details) 1)..... 2) 3) 4)	lot		