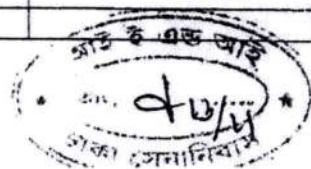


TECHNICAL SPECIFICATION OF FORWARD LOOKING INFRARED (FLIR) WITH MAP & MISSION MANAGEMENT SYSTEM AND GROUND STATION WITH INSTALLATION AND MODIFICATION FOR ARMY AVIATION MI-171SH HELICOPTER (DP-5)

Ser	Description	Technical Specification	To be filled up by the Manufacturer/Principal
PART-1: GENERAL SPECIFICATION			
1.	Nomenclature	FLIR system with installation and commissioning for Army Aviation Mi-171SH Helicopter	
2.	Brand	To be mentioned	
3.	Model	To be mentioned	
4.	Country of Origin	Gp-A and Gp-B	
5.	Country of Manufacture	Gp-A and Gp-B	
6.	Country of Assembly	Gp-A and Gp-B	
7.	Year of Manufacture	Not earlier than the year of contract	
8.	Validity of the Model	Minimum 10 years	
9.	Name of Manufacturer With Complete Address (Office address, Telephone, Fax Email and Web address)	To be mentioned	
10.	Name of Principal with Complete Address (Office address, Telephone, Fax Email and Web Address)	To be mentioned	
11.	Name of Local Agent with Complete Address (Office address, Telephone, Fax Email and web address)	To be mentioned	
12.	General Specifications	The FLIR should be compatible with existing MI-171SH helicopters of Bangladesh Army Aviation. The system should include installation of the device in the helicopter, cockpit modification (if required) installation of monitors in cockpit, cabin and ground station.	
13.	<u>Functions</u>	a. The Mi-171Sh Helicopter to be equipped with latest generation of FLIR supported by necessary equipment.	
		b. Should have long-range multi spectral full HD Digital Imaging capability with IR and low light condition. Should also have continuous Zoom/ magnification and auto focus capability.	
		c. System should be capable of live streaming simultaneously on the monitor.	
		d. Should have precision targeting capability (geo point navigation and precision targeting).	
		e. Should have long-range standoff and full range laser designator capability	
		f. The system should have very low profile (compact, lightweight and low power demand).	
		g. The system should preferably be easily attachable/ detachable in any Mi-171SH helicopter (if modification is required details to be mentioned and modification to be carried out in coordination with user)	
		h. Should pose minimum interference with helicopter operational capability.	
		i. Should have Built-In Vibration isolator.	
		14.	<u>Capabilities</u>
		b. Should be powered by the helicopters	



Ser	Description	Technical Specification	To be filled up by the Manufacturer/Principal
		existing power supply system	
		c. Should be able to detect static and mobile target during day, night and complete darkness	
		d. Should be capable of target tracking and autofocus on both stationary and moving targets.	
		e. To be ruggedly built and easy to maintain	
		f. To have the capability of operation in water, dust, vibration and shock-proof and corrosion-free from normal salinity.	
15.	PART-2: TECHNICAL SPECIFICATION (FLIR WITH MAP & MISSION MANAGEMENT SYSTEM AND GROUND STATION/ RECEIVER)		
	a. Nomenclature	FLIR System with Necessary Items and Accessories	
	b. Brand	To be mentioned	
	c. Type	To be mentioned	
	d. Model	To be mentioned	
	e. Country of Origin	Gp-A and Gp-B	
	f. Country of Manufacture	Gp-A and Gp-B	
	g. Country of Assembly	Gp-A and Gp-B	
	h. Gimbal		
	(1) Dimension/Size	To be mentioned	
	(2) Weight	To be mentioned (Low wt preferable)	
	(3) External Electronics unit requirement	18-28 VDC (if DC operated)/ AC 400Hz (if AC operated)	
	(4) Axis	2 outer and 2 inner axes or 4 axes, Gyro Stabilized	
	(5) Azimuth coverage	360 degrees continuous	
	(6) Elevation coverage	Minimum +20° to -120° elevation	
	j. Video Auto Tracker	Must have Video auto tracking feature	
	k. HDTV Camera		
	(1) Number of Pixels/ Resolution	Minimum 1920x1080 pixel	
	(2) Optical Zoom	Minimum 17X and continuous zooming	
	(3) Fields of View/Vision	Minimum 31.2°-1.2°	
	(4) Sensor Type	Details to be mentioned.	
	l. Infra-red/ Thermal Camera		
	(1) Sensor Type	Details to be mentioned (Preferred to be HD thermal camera).	
	(2) Array Size	Minimum 640x 512 pixel (Preferred to have 1280x 720 pixel).	
	(3) Digital Zoom	Minimum 4X.	
	(4) Optical Zoom	Minimum 11X and continuous zooming.	
	(5) Spectral Range	Between 3 to 5 μm	
	(6) Lens	Details to be mentioned	
	(7) Fields of View/Vision	Minimum 19° to 2.6° continuous zoom.	
	m. Low Light Camera		
	(1) Sensor Type	Details to be mentioned.	
	(2) Digital Zoom	Minimum 4X.	
	(3) Optical Zoom	Minimum 17X and continuous zooming.	
	(4) Lens	Details to be mentioned.	
	(5) Number of Pixels/ Resolution	Minimum 1280x720 pixel	
	(6) Fields of View/Vision	Minimum 20° to 2.4°	
	n. Laser Range Finder		
	(1) Classification of Safety	Class 1 (eye safe) as per NATO or Equivalent standard.	
	(2) Viewing Range/Distance	Minimum 10 km. Maximum range to be mentioned.	

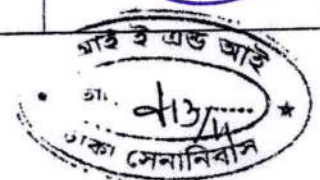


Ser	Description	Technical Specification	To be filled up by the Manufacturer/Principal
	(3) Accuracy	Maximum ± 5 m.	
	(4) Maximum Measurement Rate	To be mentioned.	
	p. <u>Laser Pointer</u>	Details to be mentioned (Preferred to have higher wave length).	
	q. <u>Operating Altitude</u>	Minimum 3000 ft with mentioned resolution and range (higher Altitude is preferable).	
	r. <u>Range Performance</u>		
	(1) <u>Human</u>		
	(a) Detection	Minimum 8 km.	
	(b) Recognition	Minimum 2 km.	
	(c) Identification	Minimum 1 km.	
	(d) Detection Height	To be mentioned.	
	(2) <u>2.3 m x 2.3 m Target</u>		
	(a) Detection	Minimum 15 km.	
	(b) Recognition	Minimum 5 km.	
	(c) Identification	Minimum 2 km.	
	(d) Detection Height	To be mentioned.	
	s. <u>Video</u>		
	(1) Output standard	HD-SDI or Equivalent standard. Details to be mentioned.	
	(2) Output frame	Minimum 25 FPS.	
	(3) Streaming	To be mentioned.	
	(4) Streaming Compression	To be mentioned.	
	(5) Streaming Interface	To be mentioned.	
	(6) Serial Interface	To be mentioned.	
	(7) KLV Metadata	To be mentioned.	
	t. <u>IMU/ INS</u>		
	(1) Geo Location	Tightly-coupled, fully-integrated, IMU and GPS for geo-pointing and target geo- location capability to be available.	
	(2) Geo Hold	To be mentioned.	
	u. <u>Video Output Monitoring System</u>		
	(1) Cockpit display	Details to be mentioned (NVG compatible).	
	(2) Crew Compartment Display	Must have following Characteristics : a. Mounted on quick removal plate or seat rails. b. Full HD monitor. c. Data/ Voice/ Video recorder. d. Integrated Mission Management Unit (MMU). e. Integrated Tactical Radios. f. Moving Map/ ARS.	
	v. Desiccant cartridge	To be mentioned.	
16.	<u>Software for Map and Mission Management System</u>		
	a. Description	Details to be mentioned.	
	b. Name/ Brand/ Model or Other details	To be mentioned.	
	c. Software update facility/ requirement and any yearly subscription	Details to be mentioned.	
17.	<u>Environmental Issues for FLIR System (As per Military Standard 810 E/F/G or Commercial Standard RTCA DO-160 F/G)</u>		
	a. Operating temperature	Details to be mentioned	
	b. Storage temperature	Details to be mentioned	
	c. Relative Humidity (RH) for operation and storage	Method and Procedure-Details to be mentioned.	
	d. Vibration Proof	Military Standard or Commercial Standard to be specified. Method and Procedure - Details to be	
	e. Dust tight		



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Ser	Description	Technical Specification	To be filled up by the Manufacturer/Principal
	f. Rain proof	mentioned.	
18.	List of Standard Accessories for FLIR System	List with quantity to be submitted/ mentioned.	
19.	List of Optional Accessories for FLIR System	List with quantity to be submitted/ mentioned.	
20.	<u>Ground Station/ Receiver</u>		
	a. Nomenclature	Portable Ground Station	
	b. Brand/Make	To be mentioned	
	c. Model	To be mentioned	
	d. Country of Origin	Gp-A and Gp-B	
	e. Country of Manufacture and Assembly	Gp-A and Gp-B	
	f. Video Output Standard	HD-SDI system	
	g. Antenna	Tripod mounted or Telescopic Must. Should have the provision for fixing with the Armoured Personnel Carrier (APC) /Military jeep. Details to be mentioned	
	h. Data Transfer Principal	Preferably LOS (Line of Sight).	
	j. Receiver	Should have no of data output interfaces.	
	k. Display with all Accessories	Details to be mentioned.	
	l. Software with update facility/ requirement and any yearly subscription	Details to be mentioned.	
	m. Input Power/ Power Supply	Details to be mentioned.	
	n. Range	Minimum 50 km (Higher range is preferable).	
	p. List of Standard Items/Accessories for Ground Station/ Receiver (If any)	List with quantity to be submitted/ mentioned.	
	q. List of Optional Items/Accessories for Ground Station/ Receiver (If any)	List with quantity to be submitted/ mentioned.	
	r. <u>Environmental issues for Ground Station/Receiver (As per Military Standard 810 E/F/G or Commercial Standard RTCA DO-160 F/G)</u>		
	(1) Operating temperature	Details to be mentioned	
	(2) Storage temperature	Details to be mentioned	
	(3) Relative Humidity (RH) for operation and storage	Method and Procedure-Details to be mentioned.	
	(4) Drop Proof	Military Standard or Commercial Standard to be specified. Method and Procedure - Details to be mentioned.	
	(5) Vibration Proof		
21.	Installation & Helicopter Modification (internal & external FLIR installation including work plan in details)	Installation to be completed at user location by the manufacturer technical experts and commissioning to be done by supplier. Details to be mentioned	
22.	<u>Following Tasks should be Ensured During Installation of FLIR system</u>		
	a. Interfacing and integration of existing SX-16 NVG Compatible Search Light (installed in helicopter) with offered FLIR system in slave mode.		
	b. Interfacing of supplied FLIR System with map & mission management system at the cargo compartment to be used by cabin operator of the helicopter. So that the offered system is ready for plug and play.		
	c. FLIR system will be integrated with IMU/ GPS provides for Geo-Location and Moving Map integration. System should features an advanced HD video engine, including Automatic Target Tracking, Scene Hold, Image Blending, Haze Reduction etc.		
	d. Bidder is to arrange onsite training for flight and maintenance crew at Army Aviation premises on installation, operation and maintenance of supplied FLIR system during installation period.		
	e. Appropriate software and necessary programming kits (if applicable) must be provided with all items.		
	f. Appropriate log book entries and supporting documentation for all major alternations to be done by the bidder.		



Ser	Description	Technical Specification	To be filled up by the Manufacturer/Principal
23.	Warranty	Minimum 01 year	
24.	Any Other: (Any other items/accessories not mentioned above but require for full range of operation/use of the offered FLIR Systems to be mentioned and must be supplied free of cost with the FLIR Systems).	To be mentioned	
PART-3: TRAINING REQUIREMENT. Price of training to be quoted separately.			
25.	a. User Training (Operation Training) b. User Training (Technical Maintenance Training)	a. Bidder is to arrange onsite training for flight and maintenance crew at Army Aviation premises on installation, operation and maintenance of supplied FLIR system during installation period. b. Any other training offer for operation and maintenance of supplied FLIR system to be mentioned.	
PART-4: REPAIR AND MAINTENANCE REQUIREMENT LESS LIST OF SPARES			
26.	Level of Repair	Manuals (hard copy and soft copy) to be provided (as applicable)	
27.	Manuals For Preventive Maintenance and Repair	Manuals (hard copy and soft copy) to be provided (as applicable)	
28.	Provision of Repair Maintenance and after Sales Service Support	Details maintenance support to be provided as including the likely cost of maintenance after warranty period	
29.	Books & Publications		
	a. Owners/ operators manual in English (book type) including CD/ DVD	List to be provided as per requirement of EME Dte	
	b. Workshop/ repair manual in English (book type) including CD/ DVD	List to be provided as per requirement of EME Dte	
	c. 100% updated master spare parts catalogue in English (book type) including CD/ DVD	List to be provided as per requirement of EME Dte	
	d. Complete and updated master spare parts price catalogue/ list in English (book type) including CD/ DVD	List to be provided as per requirement of EME Dte	
PART-5: LIST OF SPARES			
30.	List of Standard Spare Parts, Tools and Accessories	List to be provided as per requirement EME Dte	
31.	List of 5% Spare List (fast and slow moving item)	List to be provided as per requirement EME Dte	
PART-6: TOOL LIST FOR DIFFERENT LEVELS OF MAINTENANCE			
32.	Analyzing, Measuring, Testing/ Fault Finding and Diagnostic Set	List to be provided as per requirement EME Dte	
33.	Special Service Tools (SST)	List to be provided as per requirement EME Dte	
34.	Special Service Materials (SSM)	List to be provided as per requirement EME Dte	
35.	Necessary tools/ tester/ test equipment (if any) for serviceability check and necessary tools for repair/ maintenance of the proposed system	To be mentioned in details as per requirement of EME Dte	

