

Tel : +91-11-23011680
Fax: +91-11-23010241

Directorate of Staff Requirements
Integrated Headquarters of
Ministry of Defence (Navy)
A - Block Hutments
Dara Sukoh Road
New Delhi 110011

WP/0651/M-CCTV

28 Jan 19

**REQUEST FOR INFORMATION (RFI) FOR PROCUREMENT OF
MARINE CLOSED CIRCUIT TELEVISION (M - CCTV) SYSTEM**

1. The Ministry of Defence, Government of India, intends to procure and install 25 Marine CCTV (M-CCTV) Systems onboard various *IN* ships.
2. This Request for Information (RFI) consists of two parts as indicated below. Submission of incomplete response will render the vendor liable for rejection.
 - (a) **Part I.** The first part of the RFI incorporates operational characteristics and features that should be complied with by the equipment. A few important technical parameters of the proposed equipment are also mentioned.
 - (b) **Part II.** The second part of the RFI states the methodology of seeking response from the vendors.

PART - I

3. **Intended Use.** The Marine Closed Circuit Television(M-CCTV) is a modular, scalable CCTV system comprising of a combination of interconnected IP based low light capable day-night varifocal lens cameras with Near IR illumination capable of providing centralised video surveillance coverage and access to recorded information for monitoring external surveillance and helicopter operations onboard ships.
4. **Intended Quantity.** There would be requirement of about 25 M-CCTV Systems for small/large ships as per the following configurations:-

Ser	Ship	Quantity	Configuration
(a)	Large	15	Atleast 20 cameras, 04 Master Control Unit (Human Machine Interface) and 08 Monitoring/Viewing Stations (Multi Function Displays).
(b)	Small	10	Atleast 15 cameras, 02 Master Control Unit (Human Machine Interface) and 06 Monitoring/Viewing Stations (Multi Function Displays).

5. **Important Parameters.**

(a) **Technical Parameters.** The technical parameters sought for the M-CCTV System are placed at **Appendix A**. Vendors may also utilise this opportunity to recommend various inputs to determine the capabilities proposed in terms of Essential Parameters-A, Essential Parameters-B and Enhanced Performance Parameters i.a.w Para 10 of Chapter II of DPP 16 for development of SQRs.

(b) **Overall Costing Philosophy.** Vendors are to provide indicative cost for the equipment. The cost should clearly bring out the cost of all equipment, including associated systems/devices, maintenance/product support package, training, Manufacturer Recommended List of Spares (MRLS) and Annual Maintenance Contract (AMC). Tax/ custom duty component should be indicated separately.

(c) Vendors are to indicate whether similar equipment is in use by any other Navy or offered for use by other Governmental or Non-Governmental agencies within India and if so, unit price (without taxes/ custom duties) and year in which it was supplied. The differences between these versions of equipment and the equipment presently being offered may also be highlighted.

(d) **Indigenous Content (IC)/ Categorisation.**

(i) Indian vendors are to indicate capability to indigenously design develop and manufacture the required equipment with proof and the likely overall indigenous content percentage by cost.

(ii) In case Indian vendors are partnering with foreign OEMs, they are required to indicate the percentage of IC as per the format stipulated in Annexure I to Appendix A to Chapter I of DPP 2016 for the following:-

(aa) Basic cost of equipment.

(ab) Cost of Manufacturer Recommended List of Spares (MRLS).

(ac) Costs of Special Maintenance Tools and Special Test Equipment as applicable.

(iii) In case, Indian vendors are partnering with foreign OEMs, they are to indicate the number of stages in which IC at Sub-Sub-Para 5(d)(ii) would be achieved vis-a-vis proposed delivery schedule at Sub-Para 5 (h) below.

- (iv) Indian vendors are to indicate applicable key technologies and materials required for manufacturing of the equipment and the extent of their availability or accessibility in case they are not available in India.
- (v) Indian vendors are to indicate availability of the equipment in the Indian Market, level of indigenization, delivery capability and broad details of maintenance/life time support offered.
- (vi) Foreign OEMs/ vendors are to indicate willingness to partner with Indian Firms for manufacture of M-CCTV System and the range, depth and scope of ToT they are willing to provide.
- (e) Manpower required to operate and maintain the equipment.
- (f) The vendor would also be required to impart training to the 'Buyer' in operation and first line maintenance of the system. Accordingly, the vendor should indicate broad modalities wrt scope, duration, number of personnel and cost element for training Operators and Maintainers/Technicians of *IN* repair agencies.
- (g) **Option Clause.** An Option Clause may be exercised in the procurement case. Vendors must express their willingness or otherwise for Option Clause, including the duration for which the Option Clause will be valid.
- (h) The RFP for individual classes of ships is likely to be issued 4th quarter of 2019 onwards. Vendors need to indicate shortest tentative time schedule for supplying the said quantity of M-CCTV System post conclusion of contract.
- (j) The procurement of M-CCTV System would be guided by DPP 2016. All firms/vendors are advised to be conversant and in compliance with the same. If not, which Para/Clause of DPP 2016 would not be agreed to, is required to be indicated with reasons. Further, acceptability to the terms of payment as per DPP 2016 is required to be specifically indicated.
- (k) The vendors are required to indicate or otherwise to the conditions of the RFI and with all provisions of DPP-2016, and respond to the queries pertaining to the technical requirements placed at **Appendix A**. Vendors may consider RFI as advance information to obtain requisite government clearance.
- (l) The vendors are required to indicate feasibility to conduct FET in India/abroad and modalities for the conduct of FET.
6. Vendors should confirm that following conditions are acceptable:-
- (a) The solicitation of offers will be as per 'Single Stage – Two Bid System'. It would imply that a 'Request for Proposal' would be issued soliciting technical and

commercial offers together, but in two separate sealed envelopes. The validity of commercial offers should be at least 18 months from the date of submission of offers.

(b) The technical offers would be evaluated by a Technical Evaluation Committee (TEC) to check its compliance with RFP.

(c) The equipment of all TEC cleared vendors would be put through Field Evaluation Trials (FET) on a 'No Cost No Commitment (NCNC)' basis in India/abroad, in exact configuration as proposed in response to RFI. This would also include Maintenance Evaluation Trials (MET). Alternatively, the difference between various configurations and their consequent costs may be highlighted. Vendors may clarify the proposed platform (naval/ non naval platforms, demonstration of equipment already fitted on any other non /N/ IAF platform, etc) and venue (India/abroad) for conduct of FET.

(d) The vendors are additionally requested to confirm the feasibility of conducting a product demonstration on a No Cost- No Commitment (NCNC) basis at a location in India specified by the Indian Navy.

(e) A Staff Evaluation would be carried out by SHQ to analyse the result of field evaluation and shortlist the M-CCTV System for introduction into service. Towards this the participating vendors are to forward a list of equipment that would be made available for NCNC trials.

(f) Amongst the vendors cleared by Field Evaluation Trials, a Contract Negotiation Committee (CNC) would decide the lowest cost bidder (L1) and conclude the appropriate contract.

(g) The vendor would be bound to provide product support for time period specified in the RFP, which would include spares and maintenance tools/jigs and fixtures for field and component level repairs.

(h) The vendor would be required to accept the general conditions of contract given in the Standard Contract Document at Chapter VI of DPP-2016 placed on www.mod.nic.in

(j) **Offset Clause.** Vendor is to indicate willingness to comply with the Offset Clause as per DPP-2016 if the proposal exceeds Rs 2000 Cr (for foreign vendors only).

(k) **Integrity Pact.** Vendor is to indicate willingness to sign Integrity Pact along with appropriate IPBG in accordance with the provisions of DPP 2016 if applicable.

(l) **Performance-cum-Warranty Bond**. Performance-cum-Warranty Bond equal to 10% value of contract is required to be submitted after signing of contract as per provisions of DPP-2016.

(m) **Transfer of Technology (ToT)**. The firms/vendors are to indicate their willingness for ToT towards manufacture and maintenance of the product if applicable. The range, scope, depth and range of ToT of applicable key technologies are to be indicated (Sub-Sub-Para 5(d) (iii) also refers).

7. **Safety Compliance Clause**. The vendor to provide information on environmental, EMI, EMC tests, etc conducted on the equipment as per Military/ International standards and the life, safety guidelines for storage, handling, transportation and exploitation.

PART - II

8. **Procedure for Response**.

(a) Vendors are to fill the details as sought in ***Appendices 'A&C' and the form of response as in Appendix 'B' of Chapter II of DPP 2016 (also in Appendix B to this RFI)*** . Apart from filling exact details about the company, details about the exact product meeting our generic technical specifications should also be carefully filled. Additional literature on the product can also be attached with the form.

(b) The response to the RFI should be clearly labelled as **RFI Response: M-CCTV System** and dispatched at the following address : -

The Commodore (Staff Requirements)
Integrated Headquarters of Ministry of Defence (Navy)
Directorate of Staff Requirements (DSR)
A - Block Hutments
Dara Sukhoh Road
New Delhi 110011
Fax : +91-11-23010241
Email ID: dsr-navy@nic.in

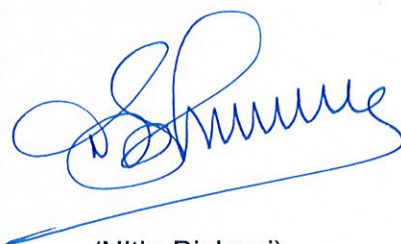
(c) The last date of acceptance of the response is **11 Mar 19** ie, six (06) weeks from the date of issue of this RFI/ placement on MoD website. The vendors shortlisted for RFP would be intimated.

(d) Vendor interaction with IHQ MoD(N)/DSR would be undertaken on **12 Feb 19**. Prospective vendors desirous of taking part in the vendor interaction are to fax details of participating personnel to IHQ MoD(N)/DSR by **08 Feb 19**.

9. The Government of India invites responses to this request only from Original Equipment Manufacturers (OEM)/ Authorised Vendors/ Government sponsored Export Agencies (applicable in the case of countries where domestic laws do not permit direct export by OEMs). The end users of the equipment is Indian Navy.

10. The information is being issued with no financial commitment and the Ministry of Defence reserves the right to change or vary any part thereof at any stage. The Government of India also reserves the right to withdraw RFI or RFP, should it be so necessary, at any stage.

11. The acquisition process would be carried out under the provisions of DPP -2016, as amended from time to time.



(Nitin Bishnoi)
Captain
Capt (SR) - Gunnery

Appendix A
(Refers to Sub-Para 5(a), 5(k) and 8(a))

TECHNICAL PARAMETERS

MARINE CCTV (M-CCTV) SYSTEM

Ser	Requirements	Parameters	Remarks
Configuration			
1.	Components	<p>M-CCTV System should include the following components:-</p> <p>(a) Above Deck Pan Tilt Zoom (PTZ) Camera.</p> <p>(b) Above Deck Static Camera.</p> <p>(c) Below Deck PTZ Camera</p> <p>(d) Control Equipment as system master console including Network Video Recorder (NVR) with recording facility.</p> <p>(e) Monitoring/Viewing Stations (Multi Function Displays).</p> <p>(f) Control Consoles (Human Machine Interface).</p>	Vendor to specify availability as per Para 4 of Part I of RFI and indicate dimensions of each component.
Camera Specifications			
2.	Above Deck Pan Tilt Zoom (PTZ) Camera	<p>The Above Deck Pan Tilt Zoom (PTZ) Camera should meet the following specifications:-</p> <p>(a) Day night varifocal camera with Near IR Illumination.</p> <p>(b) Image sensor with:- (i) 1/3" CCD or larger. (ii) Auto Iris. (iii) Minimum 30: 1 Zoom with motorised zoom and auto focus with manual override.</p> <p>(c) Image Resolution of 1920 x 1080p or more.</p> <p>(d) Horizontal Resolution > 550 TVL.</p> <p>(e) IP (Digital) Video Output/Scanning.</p> <p>(f) Sensitivity:- (i) Minimum 0.7 Lux Colour. (ii) Minimum 0.01Lux Mono.</p> <p>(g) Zoom Range:- (i) Optical : 30x or more. (ii) Digital: 12x or more.</p>	Vendor to indicate exact specifications for each camera model.

Ser	Requirements	Parameters	Remarks
		(h) Angle of View (Optical Zoom): 45° or more to 1.5° or less.	Vendor to indicate exact specifications for each camera model.
		(j) DRI Range (Day):- : See Note 1	
		(i) Human:	
		(aa) Detection at ≥5km or more.	
		(ab) Recognition at ≥1km or more.	
		(ac) Identification at ≥ 700m or more.	
		(ii) Small boat	
		Identification at ≥ 2 km or more.	
		(iii) Helicopter	
		(aa) Recognition at ≥ 4.5km or more.	
		(ab) Identification at ≥ 1.8 km or more.	
		Note1: DRI as per Johnsons' criteria of 02 pixel for detection, 06 pixel for recognition and 12 pixel for recognition with 50% Probability of achieving the objective at the specified distance given the following:- (a) 02° temperature difference and 0.85/km atmospheric attenuation factor for thermal imager and (b) 1000 lux illumination and 20% contrast for day imager.	
		(k) DRI Range (Night): Identification with illuminator at minimum 300 m slant range under 0.01 Lux conditions.	
		(l) Minimum 32 preset positions with 16 Preset tours at Preset Accuracy of 0.1° or better.	
		(m) Frame Rate > 25 FPS in all resolutions.	
		(n) Mechanical:-	
		(i) Casing	
		Electropolished 316L casing or any other ruggedized durable material which can be galvanically isolated from ship structure to ensure corrosion free operation in a marine environment.	
		(ii) Windows	
		Toughened glass window fitted with wipers and thermostatically operated demister.	
		(iii) Pan Operation	
		360° rotation @ at least 0° to 9°/sec with mechanical limits, programmable soft stops and Preset Positioning.	
		(iv) Tilt Operation	
		180° rotation @ at least 0° to 4.5°/sec with mechanical limits, programmable soft stops and Preset Positioning.	
		(p) The Above Deck PTZ Camera along with control system should support all transmission methods including IP and Fibre Optics.	Vendor to specify.

Ser	Requirements	Parameters	Remarks										
3.	Above Deck Static Camera	<p>The Above Deck Static Camera should meet the following:- specifications:-</p> <p>(a) Day night varifocal camera with Near IR Illumination</p> <p>(b) Image sensor with (i) 1/3" or larger CCD/CMOS. (ii) Auto Iris. (iii) Minimum 30: 1 Zoom with motorised zoom and auto focus with manual override.</p> <p>(c) Image Resolution of 1920 x 1080p or more.</p> <p>(d) Horizontal Resolution > 550 TVL</p> <p>(e) IP (Digital) Video Output/Scanning</p> <p>(f) Sensitivity:- (i) Minimum 0.7 Lux Colour (ii) Minimum 0.01Lux Mono</p> <p>(g) Zoom Range:- (i) Optical : 30x or more. (ii) Digital: 12x or more.</p> <p>(h) Angle of View (Optical Zoom): 45° or More to 1.5° or Less.</p> <p>(j) DRI Range (Day):-</p> <table border="1" data-bbox="424 1104 1299 1413"> <tr> <td data-bbox="424 1104 735 1238">(i) Human:</td> <td data-bbox="735 1104 1299 1238">(aa) Detection at ≥5km or more. (ab) Recognition at ≥1km or more. (ac) Identification at ≥ 700m or more.</td> </tr> <tr> <td data-bbox="424 1238 735 1279">(ii) Small boat</td> <td data-bbox="735 1238 1299 1279">Identification at ≥ 2 km or more.</td> </tr> <tr> <td data-bbox="424 1279 735 1413">(iii) Helicopter</td> <td data-bbox="735 1279 1299 1413">(aa) Recognition at ≥ 4.5km or more. (ab) Identification at ≥ 1.8 km or more.</td> </tr> </table> <p>(k) DRI Range (Night): Identification with illuminator at minimum 300 m slant range under 0.01 Lux conditions.</p> <p>(l) Minimum 32 preset positions with 16 Preset tours at Preset Accuracy of 0.1° or better.</p> <p>(m) Frame Rate > 25 FPS in all resolutions.</p> <p>(n) Mechanical:-</p> <table border="1" data-bbox="424 1675 1299 2051"> <tr> <td data-bbox="424 1675 735 1928">(i) Casing</td> <td data-bbox="735 1675 1299 1928">Electropolished 316L casing or any other ruggedized durable material which can be galvanically isolated from ship structure to ensure corrosion free operation in a marine environment.</td> </tr> <tr> <td data-bbox="424 1928 735 2051">(ii) Windows</td> <td data-bbox="735 1928 1299 2051">Toughened glass window fitted with wipers and thermostatically operated thermistor.</td> </tr> </table>	(i) Human:	(aa) Detection at ≥5km or more. (ab) Recognition at ≥1km or more. (ac) Identification at ≥ 700m or more.	(ii) Small boat	Identification at ≥ 2 km or more.	(iii) Helicopter	(aa) Recognition at ≥ 4.5km or more. (ab) Identification at ≥ 1.8 km or more.	(i) Casing	Electropolished 316L casing or any other ruggedized durable material which can be galvanically isolated from ship structure to ensure corrosion free operation in a marine environment.	(ii) Windows	Toughened glass window fitted with wipers and thermostatically operated thermistor.	Vendor to indicate exact specifications for each camera model.
(i) Human:	(aa) Detection at ≥5km or more. (ab) Recognition at ≥1km or more. (ac) Identification at ≥ 700m or more.												
(ii) Small boat	Identification at ≥ 2 km or more.												
(iii) Helicopter	(aa) Recognition at ≥ 4.5km or more. (ab) Identification at ≥ 1.8 km or more.												
(i) Casing	Electropolished 316L casing or any other ruggedized durable material which can be galvanically isolated from ship structure to ensure corrosion free operation in a marine environment.												
(ii) Windows	Toughened glass window fitted with wipers and thermostatically operated thermistor.												

Ser	Requirements	Parameters	Remarks								
4.	Below Deck Pan Tilt Zoom (PTZ) Camera	<p>The Below Deck Pan Tilt Zoom (PTZ) Camera should meet the following specifications:-</p> <p>(a) Day night varifocal camera with Near IR Illumination which allows comprehensive viewing in various lighting conditions ranging from poorly lit to bright lit conditions.</p> <p>(b) Image sensor with:- (i) 1/3" or larger CCD/ CMOS with global shutter. (ii) Auto Iris. (iii) Minimum 12: 1 Zoom with motorised zoom and auto focus with manual override.</p> <p>(c) Image Resolution of 1920 x 1080p or more.</p> <p>(d) Horizontal Resolution > 550 TVL.</p> <p>(e) IP (Digital) Video Output/Scanning.</p> <p>(f) Sensitivity:- (i) Minimum 0.7 Lux Colour. (ii) Minimum 0.01Lux Mono.</p> <p>(g) Zoom Range: Optical : 12x or more.</p> <p>(h) Angle of View (Optical Zoom): 50° or more to 1.5 or less° Horizontal.</p> <p>(j) Identification Range: Minimum 50 m or more by day and under 0.01 Lux conditions (with illuminator).</p> <p>(k) Minimum 32 preset positions with 16 Preset tours at Preset Accuracy of 0.1° or better.</p> <p>(l) Frame Rate > 25 FPS in all resolutions.</p> <p>(m) Mechanical:-</p> <table border="1" data-bbox="432 1361 1299 1960"> <tr> <td data-bbox="432 1361 687 1574">(i) Casing</td> <td data-bbox="687 1361 1299 1574">Electropolished 316L casing or any other ruggedized durable material which can be galvanically isolated from ship structure to ensure corrosion free operation in a marine environment.</td> </tr> <tr> <td data-bbox="432 1574 687 1704">(ii) Windows</td> <td data-bbox="687 1574 1299 1704">Toughened glass window fitted with wipers and thermostatically operated thermistor.</td> </tr> <tr> <td data-bbox="432 1704 687 1834">(iii) Pan Operation</td> <td data-bbox="687 1704 1299 1834">360° rotation @ atleast 0° to 9°/sec with mechanical limits, programmable soft stops and Preset Positioning.</td> </tr> <tr> <td data-bbox="432 1834 687 1960">(iv) Tilt Operation</td> <td data-bbox="687 1834 1299 1960">180° rotation @ atleast 0° to 4.5°/sec with mechanical limits, programmable soft stops and Preset Positioning.</td> </tr> </table> <p>(n) The Below Deck PTZ Camera along with control system should support all transmission methods including IP and Fibre Optics.</p>	(i) Casing	Electropolished 316L casing or any other ruggedized durable material which can be galvanically isolated from ship structure to ensure corrosion free operation in a marine environment.	(ii) Windows	Toughened glass window fitted with wipers and thermostatically operated thermistor.	(iii) Pan Operation	360° rotation @ atleast 0° to 9°/sec with mechanical limits, programmable soft stops and Preset Positioning.	(iv) Tilt Operation	180° rotation @ atleast 0° to 4.5°/sec with mechanical limits, programmable soft stops and Preset Positioning.	Vendor to indicate exact specifications for each camera model
(i) Casing	Electropolished 316L casing or any other ruggedized durable material which can be galvanically isolated from ship structure to ensure corrosion free operation in a marine environment.										
(ii) Windows	Toughened glass window fitted with wipers and thermostatically operated thermistor.										
(iii) Pan Operation	360° rotation @ atleast 0° to 9°/sec with mechanical limits, programmable soft stops and Preset Positioning.										
(iv) Tilt Operation	180° rotation @ atleast 0° to 4.5°/sec with mechanical limits, programmable soft stops and Preset Positioning.										

Ser	Requirements	Parameters	Remarks
Human Machine Interface			
5.	Control Equipment/Master System Console	<p>Should be capable of:-</p> <p>(a) Control of all cameras integrated with the system.</p> <p>(b) Monitoring additional cameras interfaced with other systems such as Integrated Bridge System (IBS).</p> <p>(c) Providing feed from integral CCTV cameras to minimum two other systems such as Integrated Bridge System (IBS).</p> <p>(d) Streaming video images to minimum 15 monitors/displays in scattered locations including PC monitors located on a Local Area Network.</p> <p>(e) Sequentially display images from all cameras in a continuous manner as PIP or TLG concept.</p> <p>(f) Should be capable of providing control and monitoring capability to atleast 04 HMI Control stations for large ships and 02 HMI control stations for small ships.</p> <p>(g) Should be capable of providing monitoring capability to atleast 08 Monitoring/Viewing Stations (Multi Function Displays) for large ships and 06 Monitoring/Viewing Stations for small ships.</p>	Vendor to specify.
6.	HMI Control Console	<p>(a) Each HMI console should be capable of permitting single video monitor operation in emergency and full watch operations in emergency.</p> <p>(b) Each HMI console default homepage should display all camera feeds fitted in the M-CCTV system.</p> <p>(c) Each HMI console should allow selection of specific camera views with remote pan, zoom and tilt control of PTZ cameras.</p> <p>(d) The HMI consoles should be identical and interchangeable both physically and functionally.</p> <p>(e) Each HMI console should comprise of a touch screen capable TFT (LCD) multifunction colour display and keyboard with associated tracker ball and processor(s).</p> <p>(f) Each HMI console should have a minimum screen resolution of 1920 x 1080 pixels.</p> <p>(g) Each HMI should be configurable using Master-Master (Multi Master concept). . Each HMI console therefore, should have the processing ability to fulfil all CCTV</p>	Vendor to specify.

Ser	Requirements	Parameters	Remarks
	HMI Control Console	<p>functions and control of cameras through servers/switches.</p> <p>(h) Where control of camera is being exercised by a earmarked HMI console that console would become the 'Station in Control'. In such a case, no other console should be able to exercise control of that camera. However, the information from that camera should continue to be available for display on all other consoles/ monitors. An indication that a HMI console is the 'Station in Control' for a particular camera should be available on the other consoles.</p> <p>(j) Means should also be available to relinquish control of a camera from the console, when desired, so that another console may assume the 'Station in Control' for that camera.</p> <p>(k) Facility for indication and transfer of control from one position to another should be available on the HMI.</p>	Vendor to specify
7.	Monitoring/ Viewing Stations	<p>(a) Each Monitoring/Viewing station should comprise of a touch screen TFT (LCD) multi function colour display of atleast 32" diagonal size with minimum 1920x 1080 pixel resolution.</p> <p>(b) Each Monitoring/Viewing station should have a provision on the display to switch between CCTV feeds and switch the displays to day or night mode, with a facility for dimming upto 'zero' level.</p> <p>(c) Each Monitoring/Viewing station TFT should have a provision for display of the following on demand (Ser 9 and :-</p> <ul style="list-style-type: none"> (i) Time Stamp. (ii) Ships position. Latitude and Longitude upto 2nd decimal). (iii) Ship's Heading in degrees upto first decimal. (iv) Ships Ground Speed in Knots upto first degree. (v) Ship's Roll in Degree upto first decimal. (vi) Ship's Pitch in Degree upto first decimal. (vii) Relative Wind Direction in degree upto first decimal. (viii) Relative Wind Speed in Knots upto first decimal. 	Vendor to specify

Ser	Requirements	Parameters	Remarks
		(ix) Heave Rate and vertical 'g' where available.	
Network Video Recorder (NVR)			
8.	Video Recording Capability	M-CCTV system should have the facility of video recording events through one or more 16 channel or more Network Video Recorders (NVR) and be able to replay the recorded video on Control Equipment/Master System Console, HMI control console and commercial PCs connected on Local Area Network.	Vendor to specify
9.	Time Stamp	Each log is to include a time stamp and logs are to be recorded in a chronological sequence. The Time stamp should be Day Month Year, Hour Minute Second, One – Hundredth of Second.	
10.	Storage of Information	Provision should be made for long-term storage of information from all cameras up to 15 days at 25 fps. Facility for external storage of the old records is also to be provided.	
11.	NVR Technical Specifications	Each NVR should have the following specifications:-	Vendor to specify
	(a) IP Video Input	Minimum 16 channel.	
	(b) Compression	H.265+, H.264, MJPEG or better.	
	(c) Live View/ Playback Resolution	Upto 2.3 mega pixels or more.	
	(d) HDMI Output	Upto 1920x1080p resolution or better.	
	(e) Synchronous Playback	Minimum 16 channels.	
	(f) PoE Interfaces	Atleast 16 independent 100 Mbps POE.	
	(g) SATA	02 ATA interfaces for 2 HDDS.	
	(h) Capacity	Upto 4 TB for each disk.	
	(j) Network Interface	One RJ-45 10/100/1000 Mbps self Adaptive Ethernet Interface.	
	(k) Network Protocols	TCP/IP and UDP.	

Ser	Requirements	Parameters	Remarks
Other Characteristics			
12.	Modularity	The Hardware and Software must be modular in design to cater maximum maintainability and operational flexibility. Additionally the modularity must also cater component obsolescence.	Vendor to specify
13.	Scalability	The M-CCTV system must be easily expandable, reconfigurable and upgradable to meet changing operational requirements.	
14.	Reliability	MMTF and Failure Rate to be specified.	
15.	Software Back Up	Each system should have adequate software back up along with necessary permission to load the HMI Control consoles. System software back up. System software backup is to be provided with necessary software and drivers to read the back-up images and re-boot the system.	
16.	Failure Alarm Indication	The M-CCTV system should give extensive audio/visual tell back facility by which abnormal function/failure of any subsystem or operation of any protection device should be indicated on the video panels. Acknowledgement of the alarm or warning shall cause the audio alarm to be silenced.	Vendor to specify
17.	Interoperability	(a)The M-CCTV system should be able to co-operate with IBS for the purpose of displaying the video received from CCTVs associated with Integrated Bridge System (IBS) nominated by <i>IN</i> .	
		(b) The M-CCTV system should be interfacable with IBS and shipborne sensors/sensor to facilitate display of information specified at Ser 7 (c).	
18.	Cable Details.	The M-CCTV system shall make use of the following Low Fire Hazard cables to meet system configuration:- (a) Video Cable Type RG 59. (b) Power Cable (3 Core). (c) Data Cable (9 Core). (d) Network cable STP CAT 6.	

Ser	Requirements	Parameters	Remarks
19.	Cable Entry Glands	Cable entry glands of mild steel for body and naval brass for nut and their sizes shall confirm to specification DGS/EED/VI/1535/R6 and are to be supplied along with the main equipment for incoming and outgoing cables.	
20.	Terminals	(a) All terminals should be easily and safely accessible for connection purpose and checking control voltage if needed. (b) Suitable terminals are to be supplied for all incoming and outgoing cables. (c) Adequate space is to be provided inside the units for bending and termination of incoming and outgoing cables.	
21.	Paint	Painting specifications of equipment should confirm to specification DGS -251. The colour shall be Admiralty Grey.	
22.	Power Supply	The M-CCTV system should cater for 230V 50 Hz 1 phase as input power supply to the system. Further, all other secondary supplies required for the system operation are to be derived from the main input power supply.	
23.	Environmental Conditions	The M-CCTV system should confirm to the following environmental conditions:-	
		(a) Storage temp	0° to 70°C.
		(b) Operating temp	10° to 55°C.
		(c) Humidity	95% RH condensing at 35° C.
		(d) Ingress Protection	IP 67 or better as per IEC 60529.
		(e) Ship motion	Roll ± 30°, period of roll 10 secs.
		(f) Pitch	7° fore and aft of centreline. Period 6 secs.
		(g) List	Permanent 20° either side.
24.	Standards	The CCTV system should be compatible for marine use and comply with the latest edition /equivalent standards of the following:-	
		(a) STANAG 4347.	
		(b) IEC 60945 for Environmental Test Methods for Electrical and Electronics Test Equipment and EMI/EMC.	
			Vendor to specify

Ser	Requirements	Parameters	Remarks
		(c) MIL-STD-816 C for maintainability. (d) MIL-HDBK-217 E for reliability. (e) MIL-STD-2167 A for software and documentation. (f) IEC 68227 for shock protection. (g) IEC 60945 for Vibration, Solar radiation, Low Temperature, Driving Rain and corrosion salt. (h) DGS/EED/VI/1535/R6 for Cable Entry Glands (j) NES 507 and NES 723. (k) DGS 251 for Paint Scheme.	Vendor to specify
25.	Software Source Listing	Complete source listing of all application software (if any) should be provided to <i>IN</i> .	Vendor to specify
26.	Upgradeability	The M-CCTV system should have built in 20% life cycle growth in all subunits/assemblies of the system. The expansion should be possible through Off-the-Shelf available hardware. Additionally, the growth potential should be built into the product upgrades and the system architecture is to accommodate the Pre-Planned Product Improvement. It should have the feasibility for seamless integration with Access control system, if required.	
27.	Product Support	The supplier should confirm the product support for a minimum period of 10 years for the equipment offered by them from the date of commissioning of the system. Essential infrastructure established ashore must be such that it can sustain 10 years from the time of commissioning of the last equipment and included in the technical proposal. The manufacturer/ Production Agency must provide life time product support including: - (a) Supply of spares. (b) Up-gradation when available. (c) Modifications and repairs. (d) Three (03) years notice, in case of any likely production shut down, to enable procurement of LTE spares. (e) Comprehensive Annual Maintenance Contract, if desired by the user/Navy. (f) Undertaking repairs (Beyond Local Repairs), after the warranty period and continued product support for 10 years after the supply of equipment.	
28.	Trials/Product Demonstration	(i) Field/Evaluation Trials on No Cost No Commitment (NCNC) Basis in India/ abroad (at OEM recommended premises/ platforms) by demonstration, simulation, documentation and	

Ser	Requirements	Parameters	Remarks
		certification, as applicable.	
		(ii) Product Demonstration on No Cost No Commitment (NCNC) Basis in locations specified by IN through demonstration, simulation, documentation and certification, as applicable.	

Appendix B
(Refers to Sub-Para 8(a))

INFORMATION PROFORMA
(INDIAN VENDORS)

1. **Name, Address and Unique ID (if any) of the Vendor/ Company/ Firm.** _____ (Company profile, in brief

to be attached. In the eventuality of the firm emerging as L1, Contract will be concluded in the **name and address** of the firm, as indicated here). Vendors are to submit an undertaking that any subsequent proposal for change in name of firm or address, will be intimated to IHQ MoD(N) at the first available opportunity and supporting documents furnished within five working days of approval by relevant competent authority.

2. **Type (Tick the relevant category).**

Original Equipment Manufacturer (OEM) Yes/ No

Authorised Vendor of Foreign Firm Yes/ No (attach details, if yes)

Others (give specific details)

3. **Contact Details.**

Postal Address: _____

City : _____ State : _____

Pin Code : _____ Tele : _____

Fax : _____ URL/ Web Site: _____

4. **Local Branch/ Liaison Office in Delhi (if any)**

Name & Address : _____

Pin Code : _____ Tel : _____ Fax : _____ Email : _____

5. **Financial Details.**

(a) Category of Industry (Large/ Medium/ Small Scale): _____

(b) Annual Turnover : _____ (in INR)

(c) Number of employees in firm : _____

(d) Details of manufacturing infrastructure : _____

(e) Earlier contracts with Indian Ministry of Defence/ Government agencies :

Contract Number	Equipment	Quantity	Cost

6. **Certification by Quality Assurance Organisation.**

Name of Agency	Certification	Applicable from (Date & Year)	Valid till (Date & Year)

7. **Details of Registration.**

Agency	Registration Number	Validity (Date)	Equipment
DGS&D			
DGQA/ DGAQA/ DGNAI			
OFB			
DRDO			
Any other Govt. Agency			

8. **Membership of FICCI/ ASSOCHAM/ CII or other Industrial Associations.**

Name of Organisation : _____

Membership Number : _____

9. **Equipment/ Product Profile (to be submitted for each product separately)**

- (a) Name of Product : _____
(IDDM Capability be indicated against the product)
(Should be given category wise for e.g. all products under night vision devices to be mentioned together)
- (b) Description (attach technical literature) : _____
- (c) Whether OEM or Integrator : _____
- (d) Name and address of Foreign collaborator (if any) : _____
- (e) Industrial Licence Number : _____
- (f) Indigenous component of the product (in percentage) : _____
- (g) Status (in service/ design & development stage) : _____
- (h) Product capacity per annum : _____

(j) Countries/ agencies where equipment supplied earlier (give details of quantity supplied): _____

(k) Estimated price of the equipment : _____

10. Alternatives for meeting the objectives of the equipment set forth in the RFI.

11. Any other relevant information : _____

12. **Declaration.**

(a) It is certified that the above information is true and any changes will be intimated within five (05) working days of occurrence.

(b) It is certified that design and development is indigenous and belongs to _____ (Vendor) and/ or _____ (its Indian sub vendor). The Indigenous Content in the said equipment is _____ % as on date and is likely to be raised to _____ % by (date). The certification for the same is enclosed.

(c) It is certified that the complete set of design and production drawings are available and source code for all software applications/ programmes are also available with _____ Vendor and that these would be produced for verification when required.

Note: Certification for 12 (b) and 12 (c) is required only if claiming IDDM category at Sub- Para 5 (d) of RFI Part I.

(d) It is certified that in the past that _____ (name of firm) has never been banned/ debarred from business dealings with MoD/GOI/ any other Government organisation and that there is no inquiry going on by CBI/ ED/ any other Government agency against the firm.

Note: Para 44 and Appendix F to Chapter II DPP 2016 may be referred.

(Authorised Signatory)

INFORMATION PROFORMA (FOREIGN VENDORS)

1. **Name, Address and Unique ID (if any) of the Vendor/ Company/ Firm.** _____ (Company profile, in brief

to be attached. In the eventuality of the firm emerging as L1, Contract will be concluded in the **name and address** of the firm, as indicated here). Vendors are to submit an undertaking that any subsequent proposal for change in name of firm or address, will be intimated to IHQ MoD(N) at the first available opportunity and supporting documents furnished within five working days of approval by relevant competent authority.

2. **Type (Tick the relevant category).**

Original Equipment Manufacturer (OEM) Yes/ No

Government sponsored Export Agency Yes/ No (Details of registration to be provided)

Authorised Vendor of OEM Yes/ No (give specific details)

Others

3. **Contact Details.**

Postal Address : _____

City : _____ State : _____

Country : _____ Pin/ Zip Code : _____

Tele : _____ Fax : _____

URL/ Website : _____ Email : _____

4. **Local Branch/ Liaison Office/Authorised Representatives, in India (if any).**

Name & Address : _____

City: _____ Province: _____

Pin Code: _____ Tel: _____ Fax: _____

Email : _____

5. **Financial Details.**

(a) Annual Turnover : _____ USD

(b) Number of employees in firm : _____

(c) Details of manufacturing infrastructure available : _____

(d) Earlier contracts with Indian Ministry of Defence/ Government agencies:

Agency	Contract Number	Equipment	Quantity	Cost

6. **Certification by Quality Assurance Organisation (if Applicable).**

Name of Agency	Certification	Applicable from (Date & Year)	Valid till (Date & Year)

7. **Equipment/ Product Profile (to be submitted for each product separately).**

(a) Name of Product : _____
(Should be given category wise for e.g. all products under night vision devices to be mentioned together)

(b) Description (attach technical literature) : _____

(c) Whether OEM or Integrator : _____

(d) Status (in service/ design development stage) : _____

(e) Production capacity per annum : _____

(f) Countries where equipment is in service: _____

(g) Whether export clearance is required from respective Government: _____

(h) Any collaboration/ joint venture/ co production/ authorised dealer with Indian Industry (give details):

Name & Address : _____

Tel: _____ Fax: _____

(j) Estimated price of the equipment : _____

8. Alternatives for meeting the objectives of the equipment set forth in the RFI.

9. Any other relevant information : _____

10. **Declaration.** It is certifies that :-

(a) It is certified that the above information is true and any changes will be

intimated within five (05) working days of occurrence.

(b) The _____ (name of firm) has never been banned/ debarred from business dealings with MoD/GOI/ any other Government organisation and that there is no inquiry going on by CBI/ ED/ any other Government agency against the firm.

Note: Para 44 and Appendix F to Chapter II DPP 2016 may be referred.

(Authorised Signatory)

ADDITIONAL INPUTS

1. **Technical Parameters.**

- (a) Number of years of experience in manufacturing of same/similar product.
- (b) Details of manufacturing infrastructure for manufacturing M-CCTV System.
- (c) Quality Plan maintained by vendor.
- (d) Details of certification by Quality Assurance Agencies.
- (e) Industrial License Details at the time of submission of bid.
- (f) Annual Production capacity and capability to increase the production capacity to meet the delivery schedule requirements.

2. **Financial Parameters.**

- (a) Turnover of Rs _____ Crs in last three years.
- (b) Capital Assests of _____.
- (c) Profit / Loss in last three years.
- (d) Tax Return. Copy of income tax return filed in last three years

3. **Additional Parameters.** In addition, the following information is required:-

- (a) Projects/ supply orders successfully executed in last five years.
- (b) Annual Reports of last five years.
- (c) Shareholder information.
- (d) Details of promoters, associated, allied and JV companies.
- (e) Details of vigilance action viz ongoing investigation and suspension/ debarment/ blacklisting actions against the company, if any.

4. **Undertaking**. Prospective Vendors must submit an undertaking that information provided by them is correct.