

Additional Terms and Conditions for Bidders (including Pre-Qualification requirements)**ATC for “CCTV Networking system”.****Additional Terms and conditions:**

S. No	Description of requirement	Document to be attached
1	Bidder should submit a self-declaration stating that, “Offered item is same as per enquiry and there is no deviation”.	Self-declaration on letterhead of firm.
2	Data Sheet / Drawings / Catalogues of the product (s) offered in the bid, are to be uploaded along with the bid documents. Buyers can match and verify the Data Sheet with the product specifications offered. In case of any unexplained mismatch of technical parameters, the bid is liable for rejection	Data Sheet / Drawings / Catalogues of the product (s)
3	Contract shall be awarded to only such bidder(s), who is (are) approved by ICF/RDSO/Indian Railways for the CCTV Networking system for DETC (Diesel Electric Tower Car) application on the date of bid opening to qualify for this tender.	Supporting document of approval.

SPECIFICATION No. : ICF/ELEC/OHE/009
NO. OF PAGES : 08

SCHEDULE OF TECHNICAL REQUIREMENTS FOR SUPPLY AND
INSTALLATION OF CLOSED CIRCUIT TELEVISION(CCTV)
SYSTEM(OBERVATION/SURVEILLANCE)FOR DETCs

ISSUED BY
INTEGRAL COACH FACTORY, CHENNAI - 38

CORRECTION SLIP NO.	00	00				
REVISION	00	01				
PREPARED BY :	JJ SSE/D/E	JJ SSE/D/E				
VERIFIED BY	JM DY.CEE/D	RBP DY.CEE/D-I				
APPROVED BY :	SPV CDE/E	AS CDE/E				
DATE :	19.09.2016	14.10.19				



INTEGRAL COACH FACTORY, CHENNAI	ICF/ELEC/OHE-009 REV.01,CS-00 DATE :14-10-2019 Page 1 of 8
SCHEDULE OF TECHNICAL REQUIREMENTS FOR SUPPLY AND INSTALLATION OF CLOSED CIRCUIT TELEVISION (CCTV) SYSTEM (OBSERVATION/SURVEILLANCE) FOR DETCs	

1.0 Introduction

1.1 GENERAL

This Schedule of technical requirements describes the CCTV System to be supplied and installed for Diesel Electric Tower Car (DETC).

The contractor shall be responsible for Design, testing, supply, installation and commissioning of CCTV System covered under this specification.

The DETC is provided with 110 volts DC supply (with voltage variation 90 V to 140 V DC) with 15% ripple content. The supplier shall use suitable power supply unit which is capable of converting 110 V DC to working voltage of CCTV system.

1.2 Climatic conditions

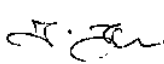

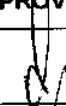
The coaches will be operated under the climatic conditions shown in Table below:

Description	Limiting Values
Ambient temperature	-10°C to 50°C
Altitude	Sea level to 600 mtrs
Humidity	Max. 95% RH

2.0 Scope of Supply

2.1 The scope of CCTV system consists of following items.

- Camera (Observation/ Surveillance) Bullet type IP Camera – 1 no.
- 7" TFT monitor – 2 nos.
- Network Video Recorder consists of
2TB SSD with 2GB cache memory and 256 GB SD Card – 1 no.
- Power supply unit – 1no.
- Set of cables required for all items covered under scope – 1 set
- Maintenance manual – 1 no.

PREPARED BY	VERIFIED BY	APPROVED BY
		
SSE/D/E	DY.CEE/D-I	CDE/ELEC



INTEGRAL COACH FACTORY, CHENNAI	ICF/ELEC/OHE-009 REV.01,CS-00 DATE :14-10-2019 Page 2 of 8
SCHEDULE OF TECHNICAL REQUIREMENTS FOR SUPPLY AND INSTALLATION OF CLOSED CIRCUIT TELEVISION (CCTV) SYSTEM (OBSERVATION/SURVEILLANCE) FOR DETCs	

2.2 Necessary software shall be provided for retrieving and viewing the recordings.

2.3 The contractor shall provide all the documents as listed below

- i. Description of CCTV system aggregates with drawings.
- ii. Test certificates issued by reputed International Agencies / NABL accredited lab shall be submitted for cameras, NVR, Cables and other important items as specified in the Technical specifications
- iii. Interface plan
- iv. Operation and maintenance manual in soft copy
- v. Manufacturer Authorization Letter from the OEM




3.0 Functional Requirements

The functional requirement of the CCTV system shall meet the following requirements:

- i. The system should be suitable for mobile application for use on DETC coaches and should be able to withstand vibrations and shocks that are encountered.
- ii. Shall have sufficient storage on a removable media for retrieving data by user Railways.
- iii. Recorder should have safety storage/emergency recording function. i.e in case of SSD failure the data should store on additional storage device (SD card)
- iv. Recorder should have in-built diagnostics with indication to log internal function or hardware failure.
- v. System should have the following interfaces:
 - PoE Ethernet ports for the direct power supply to the cameras thus reducing the cabling.
 - HDMI /VGA / Composite video output port for direct Monitoring of output.
 - USB ports
 - GPS interface
 - GPRS/3G/ 4G mobile communication
- vi. The System Software should support Video search, playback & download function by means of remote device.

4.0 Commissioning and Testing

- 4.1 Contractor shall perform the integration at consignee premises. It is the responsibility of the contractor to integrate all components of CCTV system in each coach and demonstrate satisfactory performance of the complete system to the consignee.
- 4.2 Contractor shall be responsible for carrying out performance tests of the CCTV.

PREPARED BY	VERIFIED BY	APPROVED BY
		
SSE/D/E	DY.CEE/D-I	CDE/ELEC



INTEGRAL COACH FACTORY, CHENNAI	ICF/ELEC/OHE-009 REV.01,CS-00 DATE :14-10-2019 Page 3 of 8
SCHEDULE OF TECHNICAL REQUIREMENTS FOR SUPPLY AND INSTALLATION OF CLOSED CIRCUIT TELEVISION (CCTV) SYSTEM (OBSERVATION/SURVEILLANCE) FOR DETCs	

Consignee will have the right to witness any of the tests at any stage of test progress. The commissioning test of the complete vehicle will be performed by contractor for the CCTV assembly at consignee premises. The contractor shall submit all test documents, Test procedures and check sheets to consignee for approval as per agreed time schedule. The contractor shall submit all necessary information, test procedures and check sheets for the integration test for approval of consignee.

5.0 Packing

Contractor shall ensure proper packing of the CCTV equipment to avoid damage during transit, handling and storage.

6.0 Certifications

All the camera models & NVR shall carry the mandatory certifications mentioned in the specification & same shall be duly submitted along with the offer, otherwise the offer would be rejected.

7.0 Warranty

The CCTV system shall be warranted for a period of thirty six months from the date of commissioning.

8.0 Training

The contractor shall provide training to Railway personnel/staff of User Railways in the operation and maintenance of CCTV system and software.

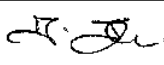


9.0 Handing over of CCTV System

The contractor shall commission and handover the complete CCTV system in accordance with the time schedule approved by consignee. The contractor shall provide the instructions for proper storage, handling and logistic function of components supplied by the contractor.

10.0 Technical Requirements

10.1 General

- (i) The contractor shall be responsible for meeting all the requirements in STR and submission of all the required data for CCTV system design.
- (ii) IP Rating shall be for Dust protection with dehumidifying membrane, IP-66 to IEC 60529 and the camera shall be vandal proof (Impact rating IK-10 to IEC62262). Railway Certificate for vibration shall conform to EN50155. To ensure ruggedness of the CCTV system in rolling stock application, all the components/ system should be compliant to international standards EN50155, EN60529, EN60068, EN50121 and EN61000.
- (iii) The firm should provide after sales service all over Indian Railways.

PREPARED BY	VERIFIED BY	APPROVED BY
		
SSE/D/E	DY.CEE/D-I	CDE/ELEC



INTEGRAL COACH FACTORY, CHENNAI	ICF/ELEC/OHE-009 REV.01,CS-00 DATE :14-10-2019 Page 4 of 8
SCHEDULE OF TECHNICAL REQUIREMENTS FOR SUPPLY AND INSTALLATION OF CLOSED CIRCUIT TELEVISION (CCTV) SYSTEM (OBSERVATION/SURVEILLANCE) FOR DETCs	

(iv) Necessary proof of documents for the above shall be submitted.

10.2 CCTV Camera

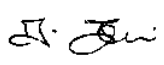

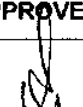
The camera shall be IP Bullet type suitably selected to work in day / night in respect of resolution, clarity of images and illumination condition for on-train application and shall be of proven design.

10.3 IP Bullet type Camera shall conform to the following specification:

Image Sensor	1/3" 4.0 MP progressive scan CMOS sensor
Effective pixels	2560 (H) X 1440 (V)
Electronic Shutter	1/5s to 1/1,000,000s
Min. Illumination	0.3 Lux/F1.4 B/W 0.03 Lux/F1.4: 0 Lux - IR on
S/N Ratio	More than 50db
Day/Night mode	Auto, Dual IR -cut filter
Gain control	Auto/Manual
White Balance	Auto/Manual
WDR range	Min. 120dB
Lens	2.7mm – 13.5mm at F 1.4 or better Varifocal motorized lens
IR LED lighting distance	40metres
Digital DENOISE	3D Digital
Field of view	98° -28° or Better for horizontal 51° -16° or Better for vertical 115° -32° or Better for diagonal
Video compression	H.265 or better
Video Format	PAL/NTSC
Ethernet Network	RJ 45 (10/100Base-T)
Protocol	Network protocol
Interoperability	ONVIF ver 2.4 or better
Remote operation	Monitor, Playback, System setting, File download, Log info, Maintenance, Upgrade
Compatible smart phones	I phone, I pad & compatible OS
Power supply	12VDC PoE

10.4 NETWORK VIDEO RECORDER (NVR)

The Network Video Recorder (NVR) shall be of Rugged design with high resistance to vibration and impact Dust-resistant in a metal enclosure. The mounting of NVR shall be done at the location as per the tender drawing.

PREPARED BY	VERIFIED BY	APPROVED BY
		
SSE/D/E	DY.CEE/D-I	CDE/ELEC



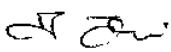

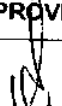
INTEGRAL COACH FACTORY, CHENNAI	ICF/ELEC/OHE-009 REV.01,CS-00 DATE :14-10-2019 Page 5 of 8
SCHEDULE OF TECHNICAL REQUIREMENTS FOR SUPPLY AND INSTALLATION OF CLOSED CIRCUIT TELEVISION (CCTV) SYSTEM (OBSERVATION/SURVEILLANCE) FOR DETCs	

Network Video Recorder (NVR) shall conform to the following specification:

- 4 Channel Standalone / Embedded Linux DVR or better
- IP Bullet type Camera Compatible - NVR
- H.265 Video Compression
- Supported Recording Modes: Schedule / Continuous / Motion / Alarm
- HDMI/ VGA monitor output & 1 TV output
- USB Flashdrive Drive Backup / Export
- One SSD (Solid State Drive) of 2TB capacity type 3D NAND BASED MLC/TLC or QLC with min 2GB cache memory. However the capacity should be sufficient enough to record maximum resolution videos for 30 days minimum @ 24 hours per day.
- One SD card with 256 GB capacity
- 1 channel Audio output-1 RJ 45 input
- Front and Rear USB Ports
- Watch dog / Power Failure Recovery
- Firmware upgrade via USB
- USB mouse controlled
- Arrangement of NVR, Converters and power supplies shall be accommodated in single enclosure or rack. Dimensions of this enclosure shall be followed as per sketch in Annexure-B, if any changes it shall be intimated to ICF before bulk supply.

10.5 The LCD monitor shall conform to the following technical requirements

Display device	Color (LCD)
Picture area	7-inch wide screen
Panel type	TFT- LCD
Connection type	M12 A-coding
Resolution	800 x 3(RGB) x480

PREPARED BY	VERIFIED BY	APPROVED BY
		
SSE/D/E	DY.CEE/D-I	CDE/ELEC



INTEGRAL COACH FACTORY, CHENNAI	ICF/ELEC/OHE-009 REV.01,CS-00 DATE :14-10-2019 Page 6 of 8
SCHEDULE OF TECHNICAL REQUIREMENTS FOR SUPPLY AND INSTALLATION OF CLOSED CIRCUIT TELEVISION (CCTV) SYSTEM (OBSERVATION/SURVEILLANCE) FOR DETCs	

Field frequency	50Hz, 60Hz, 75 Hz
Dimension	As per annexure-A

10.6 Software System Requirement

10.6.1 Requirements of Recorded Video Analysis Feature

- Software shall enable play back of recorded video stream.
- One or more video streams can be selected and shown simultaneously in a multiple display.
- The sequences of interest can be flagged with markings on the time bar. These sequences can then be exported by the software and either written to the analysis PC in a file or USB storage.
- Enlarging the images to emphasis key details shall be possible.

10.6.2 The contractor shall provide, as a minimum, the following as per ISO-27001.

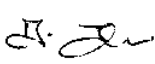

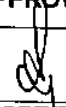
- 1) Diagnostics & Maintenance Software
- 2) User Manual for Diagnostics & Maintenance Software
- 3) Two backup copies of application software
- 4) Test Software

All software supplied for the system designed structurally and logically, fully documented, thoroughly tested in a systematic manner such that they can achieve high quality in terms of safety, reliability, testability, traceability and maintainability.

The contractor shall ensure that no license is required to use software supplied along with the equipment and there are no restrictions attached to the use of any information supplied by the contractor which might later prevent or hinder the user from using system for viewing the video using the software.

10.6.3 RAMS (Reliability, Availability, Maintainability and Safety)

The firm / supplier shall provide RAMS data, safety integrating level as per IEC-62278/EN 50126 and IEC 61709

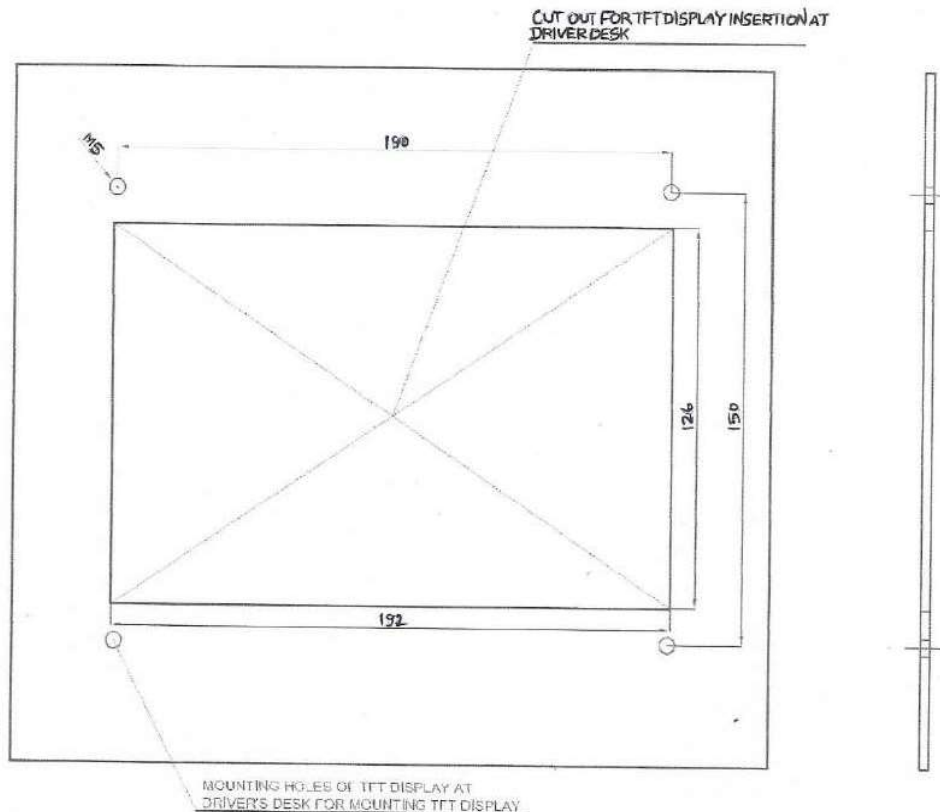
PREPARED BY	VERIFIED BY	APPROVED BY
		
SSE/D/E	DY.CEE/D-I	CDE/ELEC



INTEGRAL COACH FACTORY, CHENNAI	ICF/ELEC/OHE-009 REV.01,CS-00 DATE :14-10-2019 Page 7 of 8
SCHEDULE OF TECHNICAL REQUIREMENTS FOR SUPPLY AND INSTALLATION OF CLOSED CIRCUIT TELEVISION (CCTV) SYSTEM (OBSERVATION/SURVEILLANCE) FOR DETCs	

ANNEXURE-A

MOUNTING PLATE DETAILS FOR TFT DISPLAY AT DRIVER DESK



NOTE:

- 1) THIS IS THE FIXING PLATE WHICH IS AVAILABLE IN DRIVER DESK FIRM SHALL SUPPLY TFT DISPLAY SUITABLE TO THIS MOUNTING ARRANGEMENT.
- 2) ADAPTOR PLATE SHALL BE SUPPLIED BY FIRM, IF TFT DISPLAY NOT SUITABLE TO THIS FIXING PLATE.
- 3) COMPLETE MOUNTING ARRANGEMENT AND TFT DISPLAY DRAWING TO BE SUBMITTED TO ICF FOR APPROVAL BEFORE BULK SUPPLY.

PREPARED BY	VERIFIED BY	APPROVED BY
SSE/D/E	DY.CEE/D-I	CDE/ELEC



