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**MODERN COACH FACTORY, RAEBARELI
ELECTRICAL DESIGN**

SPECIFICATION	SPECIFICATION FOR CLOSED CIRCUIT TELEVISION (CCTV) SURVEILLANCE SYSTEM IN POWER CAR	MEDTS-0007, Rev-1 Page 1 of 7 Date:18.03.2020
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Name	Designation	Signature	Date	Level
Sh. R.B.Yadav	SSE/EI/D-I		18.03.2020	Prepared
Sh. Madan	Dy. CEE/Design		18.3.2020	Reviewed
Sh. R.S. Bhidonia	CEDE			Approved

1. Introduction

1.1 General

This specification describes the CCTV Surveillance System to be supplied and installed for IR Power car. The contractor shall be responsible for all works required in this specification with regard to Design, supply, testing and commissioning of CCTV System.

1.2 OPERATING AND SERVICE CONDITIONS

The equipment shall be sturdy and suitable for the following service conditions normally to be met in service:

Ambient	-5 to +55 deg Celsius
Temp under sun inside stable coach :	70 deg C
Temp in the engine room during DA set running	May go higher depending upon unusual occurrences such as fire/smoke etc
Train speed	200 Kmph
Relative Humidity	Up to 98% during rainy season
Altitude	Max 1200 meter above sea level
Atmosphere	Extremely dusty, foggy, and desert terrain in certain areas. The dust concentration in air may reach at high value of 1.6mg/cubic meter.
Coastal area	The equipment shall be designed to work in humid salt laden and corrosive atmosphere. The maximum values of the condition shall be as under Maximum Ph value : 8.5 Sulphate : 7 mg/liter Max. concentration : 6 mg/liter of chlorine Max. Conductivity : 130 micro Siemens/cm
Vibration:	The equipment, system and their mounting arrangement shall be designed to withstand satisfactorily the vibration and shocks encountered in service as specified below: (a) Maximum vertical acceleration : 3.0 g. (b) Maximum lateral acceleration : 3.0 g. (c) Maximum longitudinal acceleration : 5.0 g. ('g' being the value of acceleration due to gravity)

1.3 Functional Requirements

The functional requirement of the CCTV system shall include the following:

- i. System shall facilitate facial recognition for unambiguous identification of the target person/object by giving high resolution images.
- ii. Facial recognition in low light condition especially in aisle area during night time.



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- iii. The system should be suitable for mobile application for use on railway Power car/coaches and should be able to withstand vibrations and shocks that are encountered.
- iv. Shall have sufficient storage on a removable media for retrieving data on intermediate stations by authorized person viz. RPF.
- v. Recorder should have safety storage/emergency recording function i.e. in case of HDD failure the data should store on additional storage device (SD card)
- vi. Recorder should have in-built diagnostics with indication to log internal function or: hardware failure.
- vii. The recorder should support date & time, GPS location & speed of vehicle, channel - title, unique ID and should appear at bottom left / right.
- viii. System should have the following interfaces:-
 - a. M12 / M23 industrial connector for Ethernet.
 - b. PoE Ethernet ports for the direct power supply to the cameras thus reducing the cabling.
 - c. HDMI / VGA / Composite video output port for direct Monitoring of output.
 - d. Alarm ports
 - e. USB ports
 - f. GPS interface
 - g. GPRS/ CDMA mobile communication
- ix. The System Software should support below functionality.
 - a. Vehicle information management i.e. Vehicle location via Google Maps interface.
 - b. Video search, playback & download function by means of remote device.
 - x. In case of loss of video signal to NVR due to failure of any one or all the cameras due to any reason, there shall be visual indication in the NVR for respective camera.

2. Scope of Supply

This specification covers requirements for supply and installation of CCTV system in power car coach. The CCTV system shall include NVR (Network video recorder), Camera and accessories. The supply and installation shall be as per drawing enclosed. in the tender document.

2.1 Major items

1) Components with requirements of Recorded video Analysis feature

1	Camera
2	Network Video Recorder with HDD SD Card
3	Panic button & Talk back facility
4	Software
5	Interconnecting cables and power supply of 110V DC/ 24V DC/ 12 V DC
6	Special tools (optional)
7	Comprehensive Annual Maintenance Contract (optional)

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

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