

GOVERNMENT OF INDIA  
MINISTRY OF RAILWAYS  
(RAILWAY BOARD)

New Delhi, dated 21.06.2013

No. 2012/Proj./MAS/9/1

Managing Director,  
Chennai Metro Rail Ltd.,  
Harini Towers No. 7,  
Conran Smith Road,  
Gopalapuram,  
Chennai-600 086

Sub: Technical Clearance of Signaling, Train Control & Communication System of Chennai Metro Rail Limited.

Ref: CMRL's Letter No. CMRL/SYS/ASA-01/2012 dated 18.8.2012.

With reference to Chennai Metro Rail Ltd's letter cited under reference the following parameters for S&T Systems with remarks are issued:-

Parameter	Remarks of Signal Dte.
Type of Signaling	Continuous Automatic Train Control System (CATC) (ATP/ATO/ATS).
Mode of Train Operation	Automatic Mode with cab signaling operation. Restricted Manual Mode, Depot Mode and Cut Out Mode.
Back-up Signaling	Line side LED Signaling and Continuous Train Detection system- Used for Back-up Signaling.
Interlocking	Electronic Interlocking 2 out of 3 systems in Hot Stand-by Mode.
Train Control System	LZB 700M continuous Automatic Train Control system.
Type of Track Circuits	Coded Audio Frequency Track Circuits (AFTC).
Signal	Cab Signaling and LED Signaling for Line side.
Point machine for Main Line	Point Machine for Main Line-Non-Trailable High Performance, 3-Phase Point Machine, operating voltage 400 Volts.
Point machine for Depot	Trailable/Non-trailable Point machine.
Redundancy in cab equipment for ATP (Cab Sig.) for both Underground Metro and Elevated Rail Corridor.	(1+1) Redundancy as per prevalent & proven technology meeting specified RAMS requirements with Automatic Switchover to Stand-by ATP system without manual intervention. However, Manual Switchover to standby ATP shall also be available to be used in case of failure of Automatic Switchover system.

Although, the systems proposed for Chennai Metro Rail Ltd. is considered as generically approved systems, CMRL has to bring in a process of comprehensive internal as well as Independent Verification and Validation (IV&V) of system design, configuration and application data at each stage of design approval, installation & commissioning and subsequent maintenance.

In addition, an Independent Safety Assessment (ISA) of the Signaling System would be necessary to be done by agencies of repute to be identified by RDSO.

**Telecommunication:** The Communication System proposed for adoption in Chennai Metro is as under:

S.No.	System	Sub-System
1.	Intgrated Control & Management System (ICMS)	a) M&E SCADA HMI b) Video & Communication HMI c) Integrated NMS of Telecom sub system.
2.	Network System	a) Communication backbone Network (72 core mono mode fibre cable along both the tracks). b) Master clock Systems.
3.	Passenger Information System (PIS)	a) Public address & voice Alarm system (PA/VA) b) Passenger Information Display System (PIDS).
4.	Security Systems	a) CCTV System b) Driver Only Operation (DOO) CCTV System c) Access Control & Intruder Detection System for unmanned location.
5.	Voice Communication of Recording Systems.	a) Office Telephone System b) Operational Telephone System c) Voice Recording System
6.	Mobile Radio Communication System.	a) Tetra Radio System in 400 MHz band (proposed) with 500 users.
7.	Positive Train Identification (PTI)	a) PTI Loop will work in conjunction with ATP

The above Telecom and PTI System proposed in Chennai Metro is considered generically approved system.

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*Avinash*

(Avinash)  
Deputy Director/Project  
Railway Board

Copy to: ED/UTHS, RDSO, Manak Nagar, Lucknow

*PD/BS/CC*  
*21/6/13*

