

**GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)**

No. 2005/Proj./Mumbai/15/1 Vol.II

New Delhi, date 31.10.2013

Managing Director,
Mumbai Metro One Private Limited,
Mumbai Metro One Depot, D N Nagar,
J.P. Road, 4 Bungalows,
Andheri (West),
Mumbai-400053

Sub: Approval of Signaling and Telecom System for Mumbai Metro Project Versova-Andheri-Ghatkopar (VAG) Corridor.

Ref: (i) MMOPL's Letter No. MMOPL/App/2013/22 dated 05.03.2013.

(ii) MMOPL's Letter No. MMOPL/App/2012/31 dated 16.05.2013.

(iii) RDSO's Letter No. UTHS/56/MMOPL dated 28.06.2013.

Mumbai Metro One Private Limited's request containing in the letters cited under reference (i) & (ii) for approval of Signaling and Telecom System for Mumbai Metro Project Versova-Andheri-Ghatkopar (VAG) Corridor has been examined in Board's office in consultation with RDSO, Lucknow.

In this context, approval of Signaling and Telecom System for Mumbai Metro Project Versova-Andheri-Ghatkopar (VAG) Corridor is hereby conveyed with following stipulations:-

A. Signalling System				
S.No.	Description	Minimum requirement	Proposed Equipment and References submitted by MMOPL	Remarks of Railway Board
1	Type of Signalling	Cab Signalling, 'CATC (ATP, ATO, ATS). ATP and ATS are essential, ATO is optional.	LZB700M.similar to the one used by DMRC in line-3 & DAMEPL, It has ATO unit which is fully supervised by ATP.	Approved
2	Back up Signalling	Line side (CLS) at entry and exit at all interlocked stations.	LED signal similar to the one used in DAMEPL	Approved
3	Interlocking	EI with built- in block working facilities	SICAS electronic interlocking system & SIMIS similar to the one used by DMRC in line-3 & DAMEPL	Approved
4	Train control system	CATC (ATP, ATS, ATO optional)	ATP: LZB700M. & ATS: VICOS is similar to the one used by DMRC in line- 3 & DAMEPL	Approved
5	Type of Track Circuits	Coded Audio Frequency Track Circuits (AFTC)	Siemens FTGS: similar to the one used by DMRC in line-3 & DAMEPL, Depot track circuit or single rail DC track circuit.	Approved
6				
	i) For Main Line	i) Non-Trailable high thrust, high performance point machine	Siemens S700K: Similar to the one used by DMRC in line-3 & DAMEPL	Approved
	ii) For Depot	ii) Trailable high thrust, high performance point machine	Siemens Bsg9. antr. 9bl Trailable type similar to the one used by DAMEPL	Approved

7.	Redundancy in cab equipment for ATP (Cab Sig.)	1+1 (hot standby)	Similar to the redundant system used by DAMEPL i.e. with a manual changeover.	Approved with condition that rules for manual change over to standby ATP system shall be properly in place and followed strictly during operation by Mumbai Metro. It may be ensured that a Procedure Order shall be enforced for manual changeover as and when required, clearly bringing out the role of driver / motorman for issuing necessary guidelines to be adopted in Mumbai Metro.
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B. Telecommunication System				
S.No.	Description	Minimum requirement	Proposed Equipment and References submitted by MMOPL	Remarks of Railway Board
1	Tele Communication	-Integrated System with OFC, -Train Radio, -CCTV, -Centralized Clocks, -PA Systems, with the additional provision that Train Display Boards at Station also be integrated in the system. -Regarding Train Radio System, it should be fully digital and duplex system, the standards may be chosen based on techno-economic consideration.	The following details are provided: -General -Key system capability and design criteria: OFC-Technical description Synchronous Digital Hierarchy- Technical description Backbone IP network- Technical description Tetra Radio- Technical description Tetra Radio- Hardware description CCTV system-Technical description Time distribution system- Technical description Passenger Announcement system- Technical description Passenger Information Display System- Technical description	Approved Centralized IP based Video Surveillance System shall be adopted
2	Positive Train Identification	Provided with interface between ATS and Train Radio	Signaling-Telecom Interface document- Technical Description is attached.	Approved

27/10/13

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o/c
(Mohit Lita)

Director/Works Planning
Railway Board