



Maharashtra Metro Rail Corporation Ltd. (Pune Metro Rail project)

Communications-Based Train Control (CBTC) High Speed Train Testing Started in Pune Metro.

Date: 26th Sept 2022



Pune Metro has installed a world-class state-of-the-art Communication Base Train Control Signalling System (CBTC) for passenger and train safety. With this Signalling system, it will be possible to operate a train every two minutes (headway of two minutes) and still maintain a safe distance between each train.

In this Communication Base Train Control Signaling System (CBTC) system; position, speed, location, timing, and other important information of the train will be continuously communicated and updated by the on-board computer on the train and Train Control and Management System (TCMS) with other trains running on the tracks, zonal control centre through radio communication. Due to this, the information of a train will be continuously received by the train running ahead and the train running behind it. Due to such features two trains can never approach/hit each other, if for some reason a train stops, the train behind it will automatically stop at a safe distance. Information regarding the exact location of the train will be communicated to all Zonal Control Centres and TCMS systems of all trains through the radio unit installed on the side of the tracks.



The structure of the CBTC system will be:

Each train will have a high-end computer on board. The majority of the Signalling equipments used are conforming to the Highest Safety Integrity Level (SIL-4). SIL-4 is currently the highest quality rating in the world for train signaling equipment. The computer installed in the train will be in constant touch with the zone controller equipment and the Train Control and Management System (TCMS), it will keep updating the information about the trains. Due to this, the exact

position of the train would be constantly updated with the equipment computers in other trains.



The signaling and train control system in Pune Metro will be software-based. For its testing calibration and validity, the work of low-speed and high-speed train trials, and multiple train trials are being done in Vanaz and Nal stop sections. In the trial, 3 trains are run simultaneously. The purpose of the trial is to see whether the information of a train is properly transmitted and received in the backward and forward running trains or not. The train trials conducted so far are satisfactory. These train tests are being conducted on Titagarh Firema trains for Pune Metro.

Benefits of CBTC Signaling System: -

1. Even if the train operates every two minutes it is possible to ensure utmost safety.
2. Full capacity utilization of the metro system with the maximum number of trains possible.
3. Passengers can get accurate train location and train timing updates to plan their journey ahead.



4. Automatic Train Protection (ATP) installed at the trackside along with Train Control and Management System (TCMS) will enable automatic movement of trains through Automatic Train Operation (ATO). Due to this, the train will run completely automatically. The train operator will only do the opening and closing of the train doors and other monitoring. Starting the train, accelerating it, and stopping it at a scheduled spot on the platform will all be automated.

On this occasion, the Managing Director of Maha Metro Dr. Brijesh Dixit said, "CBTC's high-speed train trial is an important step towards the completion of Pune Metro. Pune Metro in a few months from now will be operational from Garware College Metro Station to Civil Court and from Phugewadi to Civil Court. The safety and security of the commuters are of utmost importance and therefore CBTC and ATO systems have been chosen for Pune Metro".