

GOVERNMENT OF INDIA [भारत सरकार]
 MINISTRY OF RAILWAYS [रेल मंत्रालय]
 (RAILWAY BOARD) [रेलवे बोर्ड]

Inspection Note of Smt. Aruna Singh, Additional Member (Telecom), Railway Board during her visit to South Central Railway on 26.08.2022.

A. Inspection and review of LTE PoC.

SN	Description	Marked to
1(a)	EPC Core of CDoT with two MCX servers have been configured and installed in the Railways data center at SC. Ruggedised MCX handsets in 700 MHz band along with SIM have been arranged for the PoC.	ED/CDoT
(b)	Only two eNodeBs have been arranged. It was informed that a total of 12 eNodeBs are planned for the PoC. CDoT informed that other eNodeBs are under production and four eNodeBs will be arranged by 30 th September, 2022, another four by 31 st October, 2022.	ED/CDoT
(c)	CDoT confirmed that all material including 20W eNodeBs, antenna, cables etc. are available at site for two locations (SC & LPI). Only the mounting brackets as per tower structure will have to be manufactured locally. For this, the agency needs to be finalized quickly.	ED/CDoT
(d)	For PoC for LTE-R, eNodeBs at SC and LPI were yet not mounted on the towers, but were kept on the table for the demo. CDoT to complete this mounting activity within 10 days.	ED/CDoT
(e)	WPC experimental operating license has been obtained by CDoT.	ED/CDoT
(f)	As of now, only two cab radio is available. The test trial should be started using these two cab radios. Also, CDoT informed that currently, they have only one station radio equipment. For proper test trial, atleast 2 station radio are required. RDSO was advised to issue a letter clearly indicating the requirement of cab radios and station radios for the PoC to CDoT.	ED/Tele-II/RDSO ED/CDot
(g)	CDoT was requested to provide a dummy sample of the cab radio to RDSO so that equivalent space arrangement in all types of locos of IR can be ensured and approved by RDSO.	ED/Tele-II/RDSO ED/CDoT
2.	Mission critical voice communication was demonstrated by CDoT. The following scenarios were shown between Secunderabad (SC) and Lingampally (LPI) in 700 MHz band. <ol style="list-style-type: none"> 1. One to one Voice and Video call SC to LPI. 2. Group creation in Dispatcher. 3. Group call with PTT features. 4. SDS: message one to one or in a group 5. File transfer: Image and Audio formats transfer (partially shown) 6. Call pre-emption: Higher priority calls (Emergency call) pre-empts ongoing private call. 7. Functional Aliasing: This is used for Role based communication e.g. if 	PCSTE/SCR ED/CDoT

	<p>we create station master aliasing then whosoever takes that role will receive the call.</p> <p>8. Time synchronization between UE and Dispatcher.</p> <p>CDoT should show features again after the eNodeBs are mounted on the tower.</p>	
3.	<p>It was informed that for the PoC, two different MCX are being tried. CDoT representatives were advised to demonstrate all the scenarios for both the MCX for better appreciation of their working in Railways scenarios of LTE. Further, interoperability of different clients and servers may also be demonstrated.</p>	ED/CDoT
4.	<p>RDSO has already issued the FRS test plan. The same is being studied by CDoT. CDoT desires discussions with Railways to plan and prepare the technical scenarios to test the FRS in the PoC setup. RDSO and CDoT should finalize these within a fortnight and testing as per test plan should be initiated in the section.</p>	ED/CDoT ED/Tele-II/RDSO PCSTE/SCR
5.	<p>SCR has informed that based on the survey done by CDoT, it is getting 3 towers erected in SC-LPI section. This will ensure 100% coverage and redundancy testing in one block section. The agency be fixed early and towers erected as per RDSO design.</p>	ED/C-DOT PCSTE/SCR
6.	<p>OSD/CoE Kavach suggested that because there are only two eNodeBs available at PoC site, the trial should be in Hafeezpet-Lingampally section. This will help the testing of new software of Kavach.</p> <p>This was agreed to. SCR and CDoT to take action accordingly.</p>	ED/CDoT PCSTE/SCR
7.	<p>CDoT has undertaken survey of the Loco for installation of cab radios. RDSO informed that it has received the drawing from CDoT and RDSO approvals for installing the display unit, cab-radios and its antenna in the loco will be communicated by 31st August 2022 to CDoT.</p>	ED/Tele-II/RDSO ED/CDoT
8.	<p>The redundancy requirement of cab radio was discussed. It was informed that RDSO, CDoT and the industry should work together to evolve a redundant architecture for cab radios considering the capability of Indian manufacturer.</p>	ED/Tele-II/RDSO
9.	<p>CDoT informed that their Kavach related software for Kavach Application Server and Loco Exchange Server for LTE will be ready by 31st August. OSD/CoE/Kavach and ED/Tele-II/RDSO informed that simulation testing of the software for Kavach will be taken up by the Kavach vendors by 15th September.</p>	ED/Tele-II/RDSO
10.	<p>CDoT is yet to get the field installation done that involve OFC laying, power supply extension etc. CDoT was advised to expedite the same and get the work completed. SCR confirmed that all approvals for space and placement of equipment has been given to CDoT.</p>	ED/CDoT PCSTE/SCR
11.	<p>It was advised to all concerned that the next review will be done on 10th September, 2022.</p>	ED/CDoT ED/Tele-II/RDSO PCSTE/SCR

B. Discussions with GM/SCR

S.No.	Description	Marked to
1.	<p>1. PoC of LTE-R is though slow, however, in the right direction. SCR should extend all necessary assistance to C-DoT for ensuring its success by getting towers erected as per Radio Survey.</p> <p>2. Executing Agency to be got decided early for executing already sanctioned minimum essential amenities (MEA).</p> <p>For balance unsanctioned stations, the processing and sanctioning of MEA works be expedited, to cover provision of PAE and clocks on stations of Guntur, Nanded and Guntakal divisions of SCR.</p> <p>3. Funds to the tune of ₹ 5.17 Cr. are required from SCR for payment to RailTel (RCIL) towards maintenance cost of 4 fibre OFC & STM-4 for the previous years as well as the current year.</p> <p>4. Proposal for extension of Data Center of RCIL be considered favorably so that RCIL can provide better services to IR such as e-office, e-DAS, HMIS etc.</p>	GM/SCR
2.	An award of Rs.20,000/- is sanctioned for the unit of CSTE/Project/SCR and ED/Tele/RDSO for efforts made in starting the PoC of LTE-R showcasing basic call features of MCX applications.	Dir/Tele

No. 2020/Tele Dev./Implementation of LTE

Dt: 01.09.2022

Aruna Singh
01/9/22

(ARUNA SINGH)

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Copy to :-

- (i) General Manger /South Central Railway
- (ii) DG/RDSO/Lucknow
- (iii) PCSTE/SCR/Secunderabad
- (iv) ED/CDoT, CDoT Campus, Mehrauli.

} For information and necessary action.

Copy to :-

- (i) Sr.PPS to MI for information of MI