

उत्तर मध्य रेलवे  
North Central Railway



प्रधान कार्यालय (मि. एवं दू. स. विभाग)  
गंगा परिसर, सूबेदारगंज  
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सं: NCR/S&T/2096/Telecom/IT & Railnet/(Part-5)

दिनांक: 03.11.2022

**Telecom Technical Circular No. 02/2022**

Sr. DSTE/Co./PRYJ  
Sr. DSTE/Co./ JHS  
Sr. DSTE/Co./ AGC

**Sub: Guideline for Implementation of IP Exchange and FTTH (Fiber to The Home) over NCR.**

Following guidelines are being issued for implementation of IP Exchange and FTTH over NCR:

1. Provision of FTTH using GPON technology should be made for all officers as well as remote side offices.
2. FTTH should be integrated with IP exchange so that railway phone can be extended through FTTH.
3. Network architecture of FTTH shall be protected or with ring architecture.
4. Copper pair shall be used only at distribution level. Any other core network shall be planned through OFC with protected path.
5. Open source Asterisk server shall be used for all IP exchange.
6. Sub divisional exchange should work with divisional exchange in closed group.
7. Distributed FXS gateway architecture should be preferred in Division and Zone.
8. FXS shall be planned as per availability of number of user i.e. 16, 24, 48 port.
9. PSTN connectivity through SIP/PRI trunk line should be preferred instead of FXO gateway.
10. IP Exchange shall be planned only for current requirement of connection and not unnecessary plan for future up-gradation.
11. IP PBX system of Divisional HQ can be extended to any way side station on Railnet or SDH network by provisioning of the FXS gateway. FXS gateway should be planned for OFC connectivity, if feasible.
12. Zonal HQ and divisional HQ shall be connected with each other through NGN on Railnet IP MPLS network and also connected through one to one SIP trunking.

13. IP to IP Exchange shall be connected through SIP trunk, IP to TDM exchange shall be connected through PRI trunk.
14. IP phones shall be used separate voice VLAN for voice Transmission on highest forward priority and it must be different from data VLAN.
15. Hardware configuration shall be strictly followed in accordance With Railway Board Circular No.2022/Tele/9(3)/9 dated 13.09.2022.
16. IRASET training should be planned for competent Exchange staff.

**(R. N. Singh)**  
**CCE/NCR**

**Copy to: CSTE/Proj/Co/NCR for kind information**