

# उत्तर प्रदेश मेट्रो रेल कॉरपोरेशन लि०

## UTTAR PRADESH METRO RAIL CORPORATION LTD.

(Formerly Known as Lucknow Metro Rail Corporation Ltd.)  
(भारत सरकार एवं उत्तर प्रदेश सरकार का एक संयुक्त उपक्रम)  
(A JOINT VENTURE OF GOVT. OF INDIA & GOVT. OF U.P.)

Date: 07/07/2022

To,

Shri S. T. Abbas,  
Advisor (Networks, Spectrum & Licensing),  
TRAI.  
New Delhi.

Sub: Spectrum requirements of RRTS and Metro Rail (UPMRCL)

Ref: TRAI-PRESS RELAESE NO. 37/2022, Dated 9<sup>th</sup> Jun 2022

Vide ref. above, written comments on the issue raised in the consultation paper regarding the spectrum requirements of RRTS and Metro Rail (UPMRCL) are attached as annexure.

This is for your kind information and necessary action.

Enclosure: Comments (5 Pages)

  
07/07/2022  
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**Telecom Regulatory Authority of India  
(TRAI)**

**Consultation Paper**

*Spectrum Requirements of National Capital Region  
Transport Corporation (NCRTC) for Train Control  
System for RRTS Corridors*

**July 2022**

Response Submitted by:

**Uttar Pradesh Metro Rail Corporation Limited  
(UPMRCL)**





## PREAMBLE

Uttar Pradesh Metro Rail Corporation Limited (formerly Lucknow Metro Rail Corporation Limited) is a joint venture of Government of India and Government of Uttar Pradesh set up as a Special Purpose Vehicle for implementation and operation of rail based Mass Rapid Transit System (Metro) in various cities of Uttar Pradesh. It was incorporated as a Government company on 25th November 2013. The Metro rail network of the company in Lucknow consisting of North-South corridor from CCS Airport to Munshi Pulia via Charbagh Railway Station and Hazratganj (22.878 km.) is operational from 08/03/2019.

Company has already set up highest standards in delivery of world class modern Metro System for the city of Lucknow to the best of international practices in implementing such a mega infrastructure project in a highly complex urban environment in strict time schedule and cost effective manner.

Kanpur Metro project comprises of two corridors; first corridor is IIT Kanpur to Naubasta (23.785 km) and second corridor is Agriculture University to Barra-8 (8.60 km) and total estimated cost of the project is Rs 11,076.48 Crores. Priority section of Kanpur Metro has become operational since 28.12.2021.

Agra Metro project comprises of two corridors; first corridor is between Sikandara to Taj East Gate (14 Km approx.) and second corridor is between Agra Cantt to Kalindi Vihar (15.4 Km approx.) and total estimated cost of the Project is Rs. 8,379.62 Crore.

**1. In which band, spectrum should be assigned to NCRTC for their LTE-R technology-based Train control system for RRTS rail corridors?**

Spectrum for RRTS & Metro Rails (UPMRCL) should be allotted in 700 MHz band for the following reasons

- i. 700 MHz band offers better coverage, reduces capex cost.
- ii. If the allotted spectrum is in the same band for Indian Railways, RRTS & Metro Rails, it will lead to economies of scale and sharing of spares may also be possible.
- iii. Vendor ecosystem is available in 700 MHz band for Radio Access Network and User Equipment (Train Radio, Handheld and Fixed Radio Terminals).

**2. How much spectrum in the spectrum band(s) suggested in response to Q1, should be assigned to NCRTC to meet its requirement for its RRTS LTE-R based network?**

RRTS and Metro Rails (UPMRCL) should be allotted 5 MHz spectrum in 700 MHz band, since the Mission Critical Voice, Mission critical Data and Video requirements are same as that of Indian Railways.

**3. Do you see any challenge, if the same spectrum is assigned to different RRTS/metro rail networks, operating in geographically separated areas/corridors in the country? If yes, kindly provide details and possible solutions.**

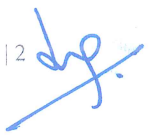
- a) Assignment of same spectrum for RRTS/Metro rail networks which are geographically separated area

No challenges are expected in geographically separated regions if regions are sufficiently far away.

- b) Assigning same spectrum to more than one RRTS Metro/rail networks operating in the overlapping geographical area

For sharing of spectrum between RRTS and Metro Rails (UPMRCL) in geographically overlapping areas, suitable experts' recommendations may be taken.

**4. In case more than one RRTS Metro/rail networks are to operate in overlapping geographical areas, will it be appropriate for RRTS Metro/rail networks to share the**





Radio Access Network (RAN) in the overlapping areas using Multi-Operator Core Network (MOCN)? Any other feasible mechanism for using same spectrum in overlapping areas may also be suggested with detailed explanation. Kindly justify your response.

As MOCN is a proven technology for RAN Sharing in South Korea and many commercial networks in the world, it may be used to operate in overlapping geographical areas for RRTS/Metro Rail Networks.

5. In case it is decided that RRTS Metro/rail networks may share the Radio Access Network (RAN) in the overlapping area using Multi-Operator Core Network (MOCN),
  - a) Whether it should be included in the terms and conditions for assignment of spectrum that the assigned spectrum may have to be shared with other RRTS/Metro rail networks to whom government decides to assign the same spectrum frequencies on sharing basis?
  - b) Whether certain guidelines for coordination mechanism need to be issued or it should be left to the mutual agreement between the RRTS/Metro rail network operators mandated for MOCN RAN sharing? In case, guidelines need to be prescribed, kindly suggest the points to be included in the guidelines.
  - c) Whether commercial arrangements between two RRTS/Metro rail networks for RAN sharing needs to be regulated or left to the mutual arrangement?
  - d) Whether any other conditions need to be prescribed for such RAN sharing? Kindly provide detailed justifications.
    - a) This is a policy matter to be decided by Govt. of India.
    - b) Coordination mechanism may be decided through Mutual Agreement.
    - c) Commercial arrangement may be decided through Mutual Agreement.
    - d) In case of disagreement, MoHUA (Nodal Ministry for RRTS & Metro Rail) may govern the terms and conditions of RAN sharing between RRTS & Metro Rail
6. What should be the permission/licensing regime for operation of wireless networks for NCRTC and other RRTS/metro rail networks? Kindly justify your response with justification.



For RRTS and Metro Rails the same policy as adopted for Indian Railways for permission/licensing regime for operation of wireless networks may be made applicable.

7. What should be the broad terms and conditions, which may be included in the Permission/License. Kindly provide detailed response with justification.

Same terms and conditions as adopted for Indian Railways for permission/licensing of captive wireless networks may be made applicable for RRTS and Metro Rails. Moreover, it is a policy matter to be decided by Govt. of India.

8. Would it be appropriate if the spectrum be allocated on the same analogy as Indian Railways, for the same reasons as argued by DoT? If not, what should be the spectrum charging mechanism for spectrum that will be assigned to NCRTC? Kindly provide detailed response with justification.

As the use case of RRTS/Metro Rails (UPMRCL) and Indian Railways is identical, hence the spectrum allocation may be made on the same analogy as that of Indian Railways.

9. Whether the terms & conditions and spectrum charges that will be applicable for NCRTC, should be made applicable to the other RRTS/Metro rail networks that may come up in future? If no, what terms & conditions and spectrum charges should be made applicable for the other RRTS/Metro rail networks? Kindly justify your response.

Yes, as the captive network use of RRTS and Metro rail (UPMRCL) are similar, therefore terms & conditions and spectrum charges should be kept uniform.

10. Any other issues/suggestions relevant to the subject, may be submitted with proper explanation and justification.

No suggestions.

