Telecom Regulatory Authority of India (TRAI)

Consultation Paper

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

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Response Submitted by:

Name of Organization

L&T METRO RAIL

Hyderabad

PREAMBLE

L&T Metro Rail (Hyderabad) Limited (LTMRHL) have entered into a Concession Agreement (CA) with Government of Telangana State for provision of Hyderabad Metro Rail project from Miyapur to LB Nagar (28.87 Km); Jubilee Bus Station to MGBS (11 Km) and Nagole to Raidurg (29 Km) on Design, Build, Finance, Operate and Transfer (DBFOT) basis for 35 years .

Metro Train is fully operational for all the above routes. Captive Mobile Radio Trunking System have been deployed for efficient communication for Train Operation and Security Coordination. We have obtained Captive Mobile Trunking Service License in Frequency Band of 380 to 400 Mhz. Presently 10 Pair of frequencies have been assigned to establish secure communication for entire Metro rail route. In addition to this we have establish Fibre Optic Networks & Lan Switching network across the route for high data transfer for Signalling & Train Communication and also for Video Surveillance

LTMRHL COMMENTS ON ISSUES MENTIONED IN THE CONSULTATION PAPER

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

We have implemented Captive Mobile Radio Trunking System (CMRTS) technology which is based on ETSI TETRA standard. Primarily CMRTS is deployed for establishing Voice Communication between Train Operator and Operational Control Centre. Voice communication is a Mission Critical application and thus CMRTS technology provides reliable & secure communication. Data Communication for Train Control & Monitoring has been established thru Fibre Optics Cable and Data Switches which are installed and connected across all Station.
Since we have deployed CMRTS for Voice Communication we will not be in Position to provide our comments regarding the Frequency band assignment for LTE – R technology

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?

We have been assigned Frequency band 380 to 400 Mhz . We cannot comment on spectrum band for LTE – R Network.

2. **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.

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

We envisage PTT denial and communication loss issue due to frequency overlapping.

3. **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.

RRTS / Metro and rail networks can share same spectrum provided dedicated and required Bandwidth is available with full redundancy and with complete Data security features. Please note that we have no experience of sharing RAN through MOCN or any other mechanism.

4. **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.**

It is a policy decision to be taken by Govt. of India .

5. **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.**

We recommend adoption of similar regime as applicable to CMRTS .

6. **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 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.

7. **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.**

   It is a policy matter to be decided by Govt. of India.

8. **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.**

   It is a policy matter, however for all similar captive networks like RRTS and Metro Rail the same terms and conditions and spectrum charges shall be applicable.

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

   No suggestion.