KERALA RAIL DEVELOPMENT CORPORATION LTD
(A Joint Venture Undertaking of Govt. of Kerala & Ministry of Railways, Govt. of India)

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Sub: TRAI : Consultation Paper On Allotment of Spectrum to NCRTC for Signalling & Train Control And Communication–Comments/ Suggestions

Ref: Information Note to the Press (Press release no 37/2022)

Kerala Rail Development Corporation Limited (KRDCL) is a Joint Venture Company of the Ministry of Railways/Govt. of India and Govt. of Kerala formed to take up Railway Development Projects in the State of Kerala in terms of extant policy directions issued by the Ministry of Railways.

Govt. of Kerala has proposed to take up the construction of the 3rd and 4th lines from Thiruvananthapuram to Kasaragod for a Semi High Speed Rail Project, named as SilverLine, along the length of Kerala , to provide fast, safe, comfortable and affordable means of intra - state travel.

The Semi High Speed Corridor will have an operational speed of 200 kmph with 11 stations on its 530 km long stretch. The latest proven technologies adopted globally for High-Speed Train Operations is proposed to be implemented in this Project. The Signaling and Train Control for the Semi High Speed Project is proposed to be based on the European Rail Transport Management System (ERTMS) consisting of ETCS (European Train Control Systems) Level 2 and LTE (Long Term Evolution) based Communication. For this a dedicated spectrum, not prone to interference from commercial mobile telephone operations and other data networks is required, like the needs of NCRTC while implementing the RRTS Projects.

The Department of Telecommunications (DoT), based on the recommendations of TRAI has already allotted a spectrum of 5 MHz paired bandwidth in the 700 MHz range to the Ministry of Railways for modernizing their Train Control Operations and communication needs. However, due to the apprehensions of danger to safe operations, concern for the life and property of the passengers which can be caused by the interference to the allotted spectrum, they have not agreed to share the spectrum and gone on record so. Pending TRAI's recommendation and DoT's clearance, the Govt. has already provisionally allotted a spectrum in the 900 MHZ band to NCRTC for commissioning their priority Section in the Year of Azadi Ki Amrut Mahotsav.

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The Feasibility Report for the SilverLine Project and the proposal of the GoK has got the In-principle approval from the Ministry of Railways. The DPR is submitted for the approval of Ministry of Railways and sanction from Central Govt. We will be approaching the DoT for allotment of spectrum as soon as the Railway Ministry clears the DPR.

The remarks offered in response to the issue for consultation is attached as Annexure- A. This may be considered while deciding the spectrum requirements for RRTS project and other HSR/SHSR/Metro networks.

Thanking you

(DEEPA JOY)

Jt. GM/KRDCL

Sl.No	Issue for Consultation	Remarks
1.	In which band, spectrum should be assigned to NCRTC for their LTE-R technology based Train control system for RRTS rail corridors?	The Spectrum should be assigned to NCRTC in the 700 Mhz band. This shall be separate from the one allotted to IR and dedicated to RRTS projects exclusively.
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?	It is felt that the safety and operational needs being the same as that of IR, 5 Mhz (Paired) spectrum be allotted to NCRTC.
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.	No challenges are expected, if operating in geographically separated areas/ corridors. It is felt that it will not be practically easy for RRTS/ Metro rail network to share the Radio Access Network in the overlapping area using Multi- Operator Core Network (MOCN) due to the multiple command and administrative set ups involved
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.	It is preferred to have separate spectrum for RRTS & Metros as there will be multiple sections / operators overlapping, especially Metros with RRTS at several points of intersections.
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),	Not recommended in view of the practical difficulties in the set up & administrative managements. However, if the Govt. decides RRTS/ Metro rail network may share the Radio Access Network (RAN) in the overlapping area using MOCN, then proper guidelines to be issued regarding:

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		1. Interface. 2. Management of the MOCN etc Considering the practical difficulties of management protocols between different operators.
	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?	a) Yes, it should be included in the terms and conditions for assignment of Spectrum and should not be left to the mutual agreement between the RRTS/Metro rail network operators mandated for MOCN RAN sharing. However, it is felt that the Spectrum bandwidth may be increased which should be sufficient to manage three / multiple operators (RRTS/ Metros)
	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.	b) Certain guidelines need to be issued for coordination mechanism under a Central Agency rather than between the RRTS/ Metro rail network operators mandated for MOCN RAN sharing the same band width. Should be regulated by a common Central Agency similar to WPC. New operator will be responsible for the interfacing, managing the integration of assets etc. within such controls
	c) Whether commercial arrangements between two RRTS/Metro rail networks for RAN sharing needs to be regulated or left to the mutual arrangement?	c) It is felt that Commercial arrangement needs to be regulated similar to the commercial telephone operators handling calls across the service providers.

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	d) Whether any other conditions need to be prescribed for such RAN sharing? Kindly provide detailed justifications.	d) Nil
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.	Licensing is required to ensure authorised use and license fee may be levied, as the services are made for public safety & security. As in the case of IR, the licensing fee may be kept minimal as it is related to safety and not for commercial ventures.
7.	What should be the broad terms and conditions, which may be included in the Permission/License. Kindly provide detailed response with justification.	Same as above
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.	Yes, with separate bandwidth having same terms and conditions
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 proposed objective of all RRTS/ SHSR/ HSR are same and similar to IR except the fact that different RRTS/ SHSR/ HSRs caters for different regions and state governments are stakeholders in it.
10.	Any other issues/suggestions relevant to the subject, may be	For SHSR or HSR the lower band spectrum is preferred for larger

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	submitted with proper explanation and justification.	propagation distances. This is already adopted by the railway industry in China.