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Dated: July 22, 2019

To,
Shri Syed Tausif Abbas,
Advisor (Networks, Spectrum and Licensing),
Telecom Regulatory Authority of India,
Mahanagar Door Sanchar Bhawan,
Jawahar Lal Nehru Marg, Old Minto Road,
New Delhi - 110002

Subject: Consultation Paper on "Allotment of spectrum to Indian Railways for Public Safety and Security services"

Dear Sir,

This is with reference to your above mentioned consultation paper.

In this regard, please find enclosed our response for your kind consideration.

Thanking You,
Yours' Sincerely

For **Bharti Airtel Limited**

A handwritten signature in blue ink, appearing to read 'Ravi P. Gandhi', with a horizontal line underneath.

Ravi P. Gandhi
Chief Regulatory Officer

Encl: a.a.

**Bharti Airtel Limited's Response to TRAI's Consultation Paper on
"Allotment of spectrum to Indian Railways for Public Safety and Security Services"**

At the outset, we would like to appreciate the transformation process to be undertaken by Indian Railways towards "Development of Ultra-high-speed Wireless Corridor" along their network. This will truly bring a strategic shift in Railway operations, passenger safety & security, enhance customer satisfaction and improve the overall health of our railways. We would like to place our sincere thanks to TRAI for providing an opportunity to submit our response to this Consultation paper. We hope that TRAI will consider our submissions favorably.

Q1 Whether spectrum in 700 MHz band should be assigned to Indian Railways for RSTT in India? Please provide justification for your response.

Bharti Airtel's Response:

As rightly highlighted in the consultation paper, 700 MHz band is a globally harmonized band identified for deployment of IMT applications in the telecommunication services by various countries. The key advantages of this band include wider coverage area with fewer base stations and higher penetration inside buildings. The global harmonization of 700 MHz band as laid out in WRC-15 would provide several benefits such as global roaming, higher capacities and affordable services.

Any allotment of spectrum resources identified for the commercial mobile services should be allocated in a fair and transparent manner. Given the advantages and key benefits of 700 MHz band spectrum, this strategic resource should be allocated first to the licensed telecom service providers through the proper allocation mechanism i.e. auction. Keeping in view the goals of Digital India, TRAI has also recommended that the entire spectrum available should be put in auction for all the identified bands and it may not be right to assume that only the existing licensees will participate in the auction process.

It is observed that only 35 MHz of spectrum is available for allocation in 700 MHz band, after reserving 10 MHz for meeting the demands of Ministry of Defence. Allocating further 10-15 MHz to Indian Railways would result in availability of only 20-25 MHz for commercial IMT services. This is grossly inadequate considering the current number of operators and new operators that may plan to enter the industry in future. Such scarcity would have a direct impact on the provision of services and realization of goals of NDCP viz. providing broadband to all and ensuring connectivity to all uncovered areas.

Hence, we are of the view that Spectrum in 700 MHz band should not be allocated to Indian Railways. It should only be made available to the licensed TSPs via due auction process.

Q2 In case your answer to Q1 is in affirmative, how much spectrum should be assigned to Indian Railways?

Bharti Airtel's Response:

No Comments in view of response to Q1 above.

Q3 In case your answer to Q1 is negative,
(i) what are the other bands (including 450-470 MHz) in which spectrum can be assigned for RSTT,
(ii) how much spectrum should be assigned to Indian Railways?

Bharti Airtel's Response:

Worldwide, the analogue based RSTT systems are getting replaced by digital systems. The Resolution 236 of WRC -15 recognized the need to conduct timely studies on various technologies that can be used to provide radiocommunication services for railways. This resolution also considered that there is a need to integrate different technologies to facilitate various functions and meet the needs of high speed railway environment. Before allocation of any further spectrum resources to Indian Railways, it is prudent to wait for the outcome of WRC-19 which will help to identify and facilitate global or regional harmonized frequency bands to support RSTT.

Several countries such as Japan have allocated 400 MHz band for RSTT since the 1960s. Japan has been experimenting with the 44 GHz band and they have launched a system to be deployed in this band for RSTT maintenance services (using voice and data). China has also deployed its RSTT system in 450 MHz band over its 80000Kms lines and proposed evolution of FDD LTE based RSTT system currently tested in this band.

Similarly, Indian Railways can be allocated the 450-470 MHz for deployment of LTE based RSTT. We are also of the view that the spectrum in Band 71 (i.e. 663 - 698/ 617 - 652 MHz) may also be explored in the case of Indian Railways. To begin with, 5 MHz FDD or 10 MHz TDD may be assigned to Indian Railways subject to feasibility in the above band.

It is again reiterated that the spectrum in 700 MHz band as recommended by TRAI for being put up in the upcoming auction should not be allocated/ reserved for RSTT applications.

Q4 In case it is decided that spectrum in IMT bands which have already been earmarked for mobile services, be assigned to Indian Railways for RSTT in India, what should be the methodology (including price) of allotment of spectrum?

Bharti Airtel's Response:

Mobile services are provided by licensed TSPs who invest huge amounts in acquiring the spectrum through open market process i.e. auction.

Any commercial spectrum band earmarked for mobile services should be assigned via auction irrespective of the type of agency/entity desiring to use the same for providing any services. Since the 700 MHz band has a huge potential for being used for provision of commercial IMT services and for providing improved coverage to the subscribers, it is recommended that any entity desiring to have spectrum in this band should pay the market determined price as determined in auction.

Q5 In case it is decided to assign spectrum in other spectrum bands (including 450-470 MHz band), what should be the methodology (including price) of allotment of spectrum?

Bharti Airtel's Response:

For serving the needs of LTE based RSTT, the existing process followed by DoT for assignment of spectrum administratively for captive usage can be followed for allotment of spectrum in Band 71/ 450-470 MHz band. The allotted spectrum shall be used only for captive RSTT services and not for providing Internet services or any other services which are provided by licensed TSPs in India.

Q6 Do you foresee any challenges, if IR makes internet services available onboard i.e. within the train using spectrum allocated for signaling purpose?

Bharti Airtel's Response:

The primary motive of the allotment of spectrum to Indian Railways is for the "Development of Ultra-high-speed wireless corridor for Train-ground and Train-Train communication" including mission critical, interoperable and safety-related applications. The usage of spectrum assigned for such captive use should be limited to non-commercial usage only.

We do not support any provision of Internet services by Indian Railways with the use of spectrum assigned for signaling purpose, since this would result in unfair competition and direct substitute to the services provided by existing licensed operators who acquire spectrum through auction.

Any provision of Internet services onboard should be done by facilitating the TSPs to install their own infrastructure.

Q7 Whether the requirement of IR for RSTT can be fulfilled using the following alternate methods:

- (i) Alternate method suggested in para 4.47, wherein a TSP could build, deploy and maintain LTE-R network for IR; while the control, use and operation of the LTE-R network may be with IR. Or;**
- (ii) Alternate method suggested in para 4.48, wherein there could be a common integrated network (with common spectrum) for Public Safety i.e. Public Protection and Disaster Relief (PPDR) and Railways, using PS-LTE and LTE-R technology respectively. Or;**
- (iii) Any other method as may be suggested by the stakeholders. (Please provide detailed response with justifications and required enabling provisions.)**

Bharti Airtel's Response:

For the creation of LTE based RSTT network, Railways should allow all the existing TSPs to install their commercial network, directly or in shared mode. Only the licensed TSPs holding valid license should be allowed to provide the mobile Internet services to the passengers.

Further, as indicated in response to Q1, commercial bands such as 700 MHz should not be assigned for captive use by Indian Railways for LTE based RSTT. Any assignment of commercial bands for any services should be as per market determined process/ auction.

Q8 If there are any other issues/suggestions relevant to the subject, stakeholders may submit the same with proper explanation and justification.

Bharti Airtel's Response:

No Comments.