

Information Note to the Press (Press Release No. 19/2025)

TELECOM REGULATORY AUTHORITY OF INDIA

New Delhi, 28th March 2025

For Immediate release

New Website: - www.trai.gov.in

TRAI releases report on Independent Drive Tests (IDT) conducted in five cities including Highways of Karnataka LSA, Madhya Pradesh LSA, Delhi LSA, Andhra Pradesh LSA and Railway routes of Rajasthan, Haryana, Delhi & Punjab LSA during January-2025

New Delhi, March 28th, 2025: TRAI, through its appointed agency, conducted Independent Drive Tests (IDT) in five cities/highways/Railway viz. Bengaluru city (Karnataka LSA), Jabalpur city & Raipur-Bilaspur-Raigarh Highway (MP LSA), Delhi city & Sohna to Dausa Highway (Delhi LSA), Vijayawada-Guntur city & Hyderabad -Vijayawada Highway (Andhra Pradesh LSA) and Jaipur Junction to Madhopur, Punjab Railway route (Rajasthan, Haryana, Delhi & Punjab LSA). Drive tests were conducted to assess the quality of service provided by Cellular Mobile Telephone Service providers for voice and data services in January-2025.

2. In IDT, the performance of M/s Bharti Airtel Ltd., M/s BSNL/MTNL, M/s Reliance Jio Infocomm Ltd. and M/s Vodafone Idea Ltd., providing services in a Licensed Service Area (LSA) through various technologies (like 2G/ 3G/ 4G/ 5G) for voice and data, has been measured by conducting drive test. The observations presented in drive test reports represent the performance of the service providers on the area/ route under test on the day/ time of conducting the drive test.
3. The following Key Performance Indicators (KPIs) for Voice as well as Data service were assessed for the networks of all Telecom service providers operating in the region.

I. Voice services:

- a) Call setup success rate
- b) Drop call rate (DCR)
- c) Speech Quality using MOS (mean opinion score)
- d) Downlink & Uplink packet (voice) drop rate
- e) Call Silence Rate
- f) Coverage (%)- Signal strength

II. Data Service:

- a) Data Throughput (Downlink and uplink both)
- b) Packet drop rate (Downlink & Uplink)
- c) Video streaming delay
- d) Latency
- e) Jitter

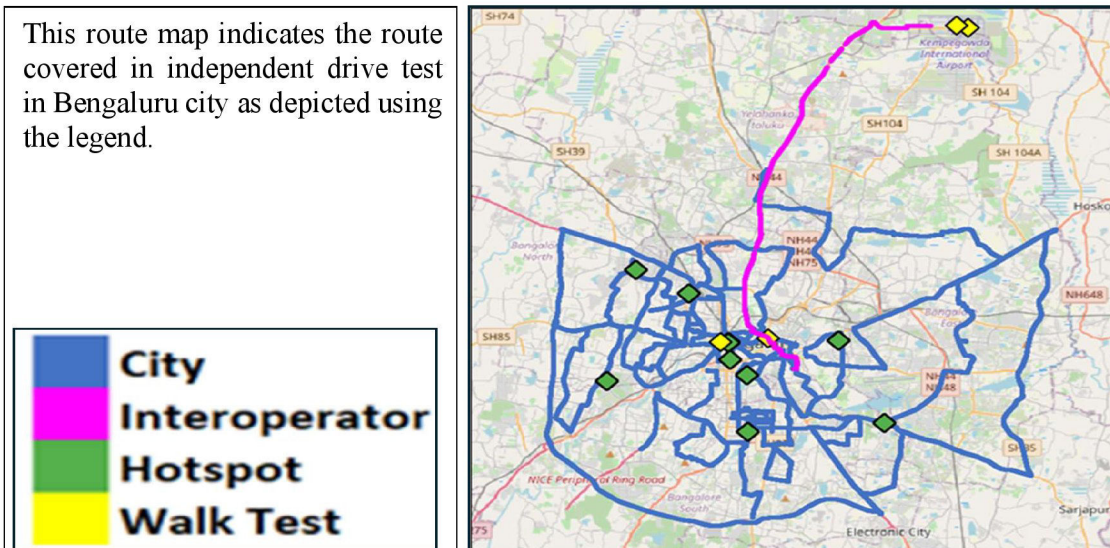
4. The details of drive tests conducted in the five cities are given below:-

S. No.	City / Routes Covered	Licensed Service Area	Period of Drive Test	Distance Covered	Performance summary (attached at)
1	Bengaluru city	Karnataka	15-01-2025 to 20-01-2025	City: 506 Kms Walk Test: 13.4 Kms	Annexure A
2	Jabalpur city & Raipur-Bilaspur-Raigarh Highway	Madhya Pradesh	27-01-2025 to 01-02-2025	City: 243.6 Kms Walk Test: 2.5 Kms Highway: 243.7 Kms	Annexure B
3	Delhi city & Sohna to Dausa Highway	Delhi	20-01-2025 to 31-01-2025	City: 606.9 Kms Highway: 193.5 Kms	Annexure C
4	Vijayawada-Guntur city & Hyderabad - Vijayawada Highway	Andhra Pradesh	27-01-2025 to 31-01-2025	City: 363.7 Kms Walk Test: 5.5 Kms Highway: 2.7 Kms	Annexure D
5	Jaipur Junction to Madhopur Punjab Railway route	Rajasthan, Haryana, Delhi & Punjab	09-01-2025 to 09-01-2025	Railway: 803 Kms	Annexure E

5. The detailed reports are available at TRAI website www.traigov.in. For any clarification/information, Shri Tejpal Singh, Advisor (QoS-I) TRAI may be contacted on email: adv-qos1@traigov.in or at Tel. No. +91-11-20907759.

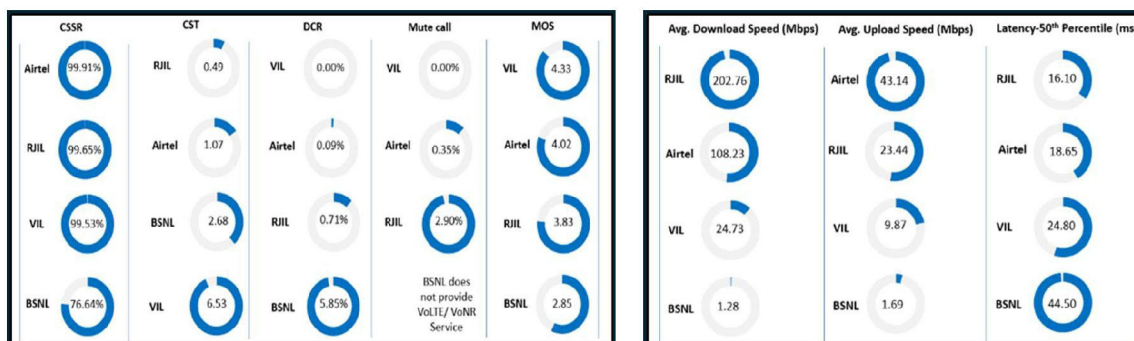

(Atul Kumar Chaudhary)
Secretary

1. Drive test route Map: (Bengaluru City- Karnataka LSA)



2. Performance against key QoS parameters:

CSSR: Call setup success rate (in %), CST: Call setup time (in milli seconds), DCR: Drop call rate (in %) & MOS: Mean Opinion Score



Summary-Voice services

Call Setup Success Rate: BSNL's call setup success rate (76.64%) is lower (QoS benchmark of 98%), whereas Airtel, RJIL and VIL have call setup success rate of 99.91%, 99.65% and 99.53% respectively in Auto-selection mode (5G/4G/3G/2G).

Call Setup Time: VIL has taken comparatively longer time (6.53 seconds) to establish the voice call, whereas, Airtel, BSNL and RJIL's call setup time is 1.07, 2.68 and 0.49 seconds respectively in Auto-selection mode (5G/4G/3G/2G).

Drop Call Rate: BSNL's overall call drop rate (5.85%) is higher (QoS benchmark of 2%), while Airtel, RJIL and VIL have drop call rate of 0.09%, 0.71% and 0.00% respectively in Auto-selection mode (5G/4G/3G/2G).

Call Silence/Mute Rate: In packet switched network (4G/5G), Airtel, RJIL and VIL have silence call rate of 0.35%, 2.90% and 0.00% respectively.

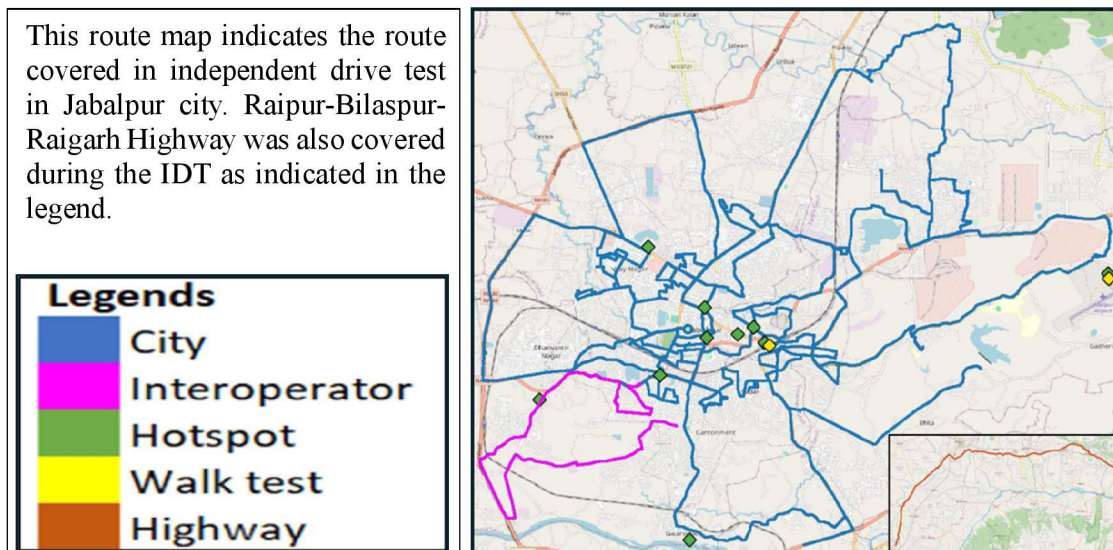
Mean Opinion Score (MOS): Quality of speech of VIL (4.33) and Airtel (4.02) is having a MOS score > 4, whereas BSNL (2.85) and RJIL (3.83) are having a MOS score <4.

Summary-Data services

Data Download performance (Dynamic): BSNL (1.28 Mbps) and VIL (24.73 Mbps), operating on 4G/3G technologies, have comparatively lower average download speed. Whereas Airtel and RJIL have achieved significantly higher average download speed of 108.23 Mbps and 202.76 Mbps in 4G/5G technology.

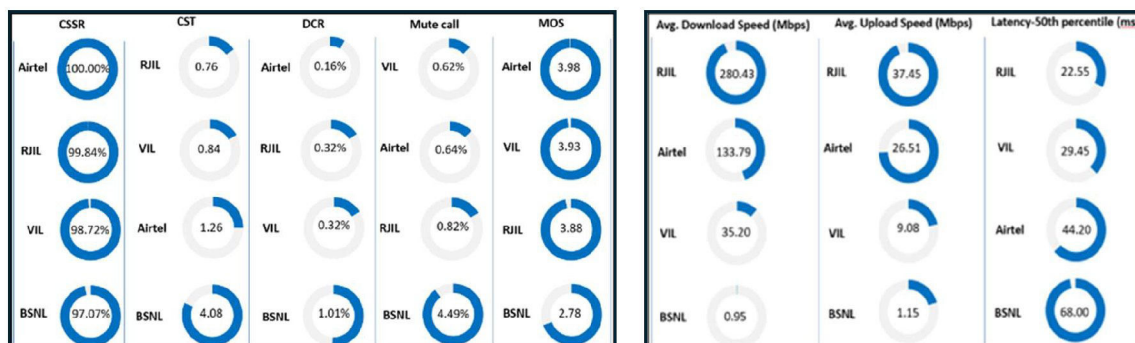
Data Upload performance (Dynamic): BSNL (1.69 Mbps) and VIL (9.87 Mbps), operating on 4G/3G technologies, have comparatively lower average upload speed. Whereas Airtel and RJIL have achieved significantly higher average upload speed of 43.14 Mbps and 23.44 Mbps, respectively in 4G/5G technology.

1. Drive test route Map: (Jabalpur city & Raipur-Bilaspur-Raigarh Highway - Madhya Pradesh LSA)



2. Performance against key QoS parameters:

CSSR: Call setup success rate (in %), CST: Call setup time (in milli seconds), DCR: Drop call rate (in %) & MOS: Mean Opinion Score



Summary-Voice Service

Call Setup Success Rate: Airtel, BSNL, RJIL and VIL have call setup success rate of 100.00%, 97.07%, 99.84% and 98.72% respectively in Auto-selection mode (5G/4G/3G/2G).

Call Setup Time: BSNL has taken comparatively longer time (4.08 seconds) to establish the voice call, whereas Airtel, RJIL and VIL's call setup time is 1.26, 0.76 & 0.84 seconds respectively in Auto-selection mode (5G/4G/3G/2G).

Drop Call Rate: Airtel, BSNL, RJIL and VIL have drop call rate of 0.16%, 1.01%, 0.32% and 0.32% respectively in Auto-selection mode (5G/4G/3G/2G).

Call Silence/Mute Rate: In packet switched network (4G/5G) Airtel, BSNL, RJIL and VIL have silence call rate of 0.64%, 4.49%, 0.82% and 0.62% respectively.

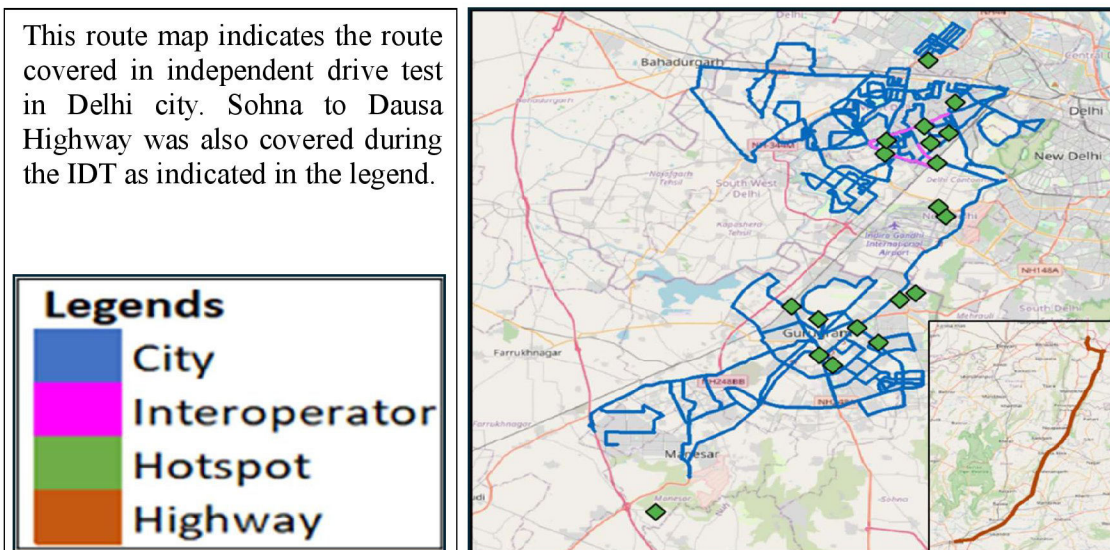
Mean Opinion Score (MOS): Quality of speech of Airtel (3.98), BSNL (2.78), RJIL (3.88) and VIL (3.93) is having a MOS score <4.

Summary-Voice Service

Data Download performance (Dynamic): BSNL (0.95 Mbps) and VIL (35.20 Mbps), operating on 4G/3G technologies, have comparatively lower average download speed. Whereas Airtel and RJIL have achieved significantly higher average download speed of 133.79 Mbps and 280.43 Mbps in 4G/5G technology.

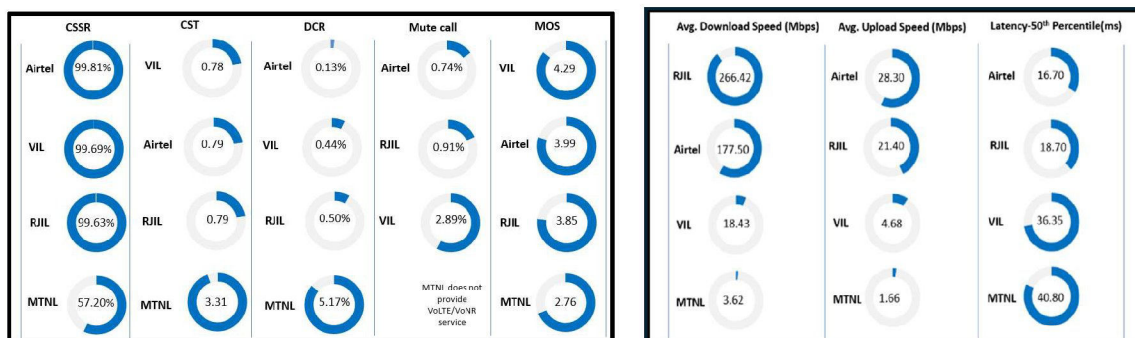
Data Upload performance (Dynamic): BSNL (1.15 Mbps) and VIL (9.08 Mbps) operating on 4G technology, have comparatively lower average upload speed. Whereas Airtel and RJIL have achieved significantly higher average upload speed of 26.51 Mbps and 37.45 Mbps, respectively in 4G/5G technology.

1. Drive test route Map: (Delhi city & Sohna to Dausa Highway - Delhi LSA)



2. Performance against key QoS parameters:

CSSR: Call setup success rate (in %), CST: Call setup time (in milli seconds), DCR: Drop call rate (in %) & MOS: Mean Opinion Score



Summary-Voice services

Call Setup Success Rate: MTNL's call setup success rate (57.20%) is lower (QoS benchmark of 98%), whereas Airtel, RJIL and VIL have call setup success rate of 99.81%, 99.63% and 99.69% respectively in Auto-selection mode (5G/4G/3G/2G).

Call Setup Time: MTNL has taken comparatively longer time (3.31 seconds) to establish the voice call, whereas Airtel, RJIL and VIL's call setup time is 0.79, 0.79 and 0.78 seconds respectively in Auto-selection mode (5G/4G/3G/2G).

Drop Call Rate: MTNL's overall drop call rate (5.17%) is higher (QoS benchmark of 2%), whereas Airtel, RJIL and VIL have call drop rate of 0.13%, 0.50% and 0.44% respectively in Auto-selection mode (5G/4G/3G/2G).

Call Silence/Mute Rate: In packet switched network (4G/5G), Airtel, RJIL and VIL have silence call rate of 0.74%, 0.91% and 2.89% respectively.

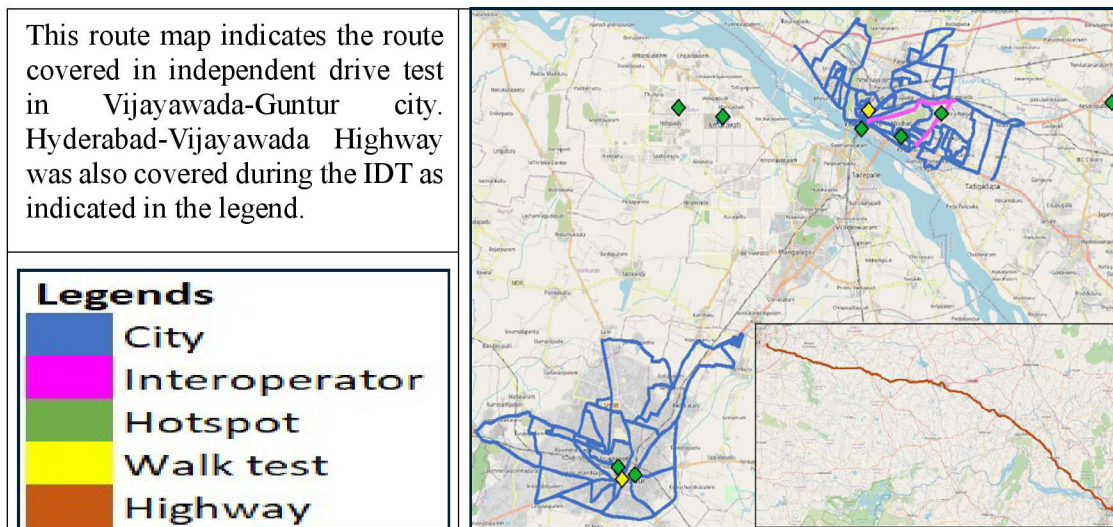
Mean Opinion Score (MOS): Quality of speech of VIL (4.29) is having a MOS score > 4, whereas Airtel (3.99), MTNL (2.76) and RJIL (3.85) are having a MOS score < 4.

Summary-Data services

Data Download performance (Dynamic): MTNL (3.62 Mbps) and VIL (18.43 Mbps), operating on 4G/3G technologies, have comparatively lower average download speed. Whereas Airtel and RJIL have achieved significantly higher average download speed of 177.50 Mbps and 266.42 Mbps in 4G/5G technology.

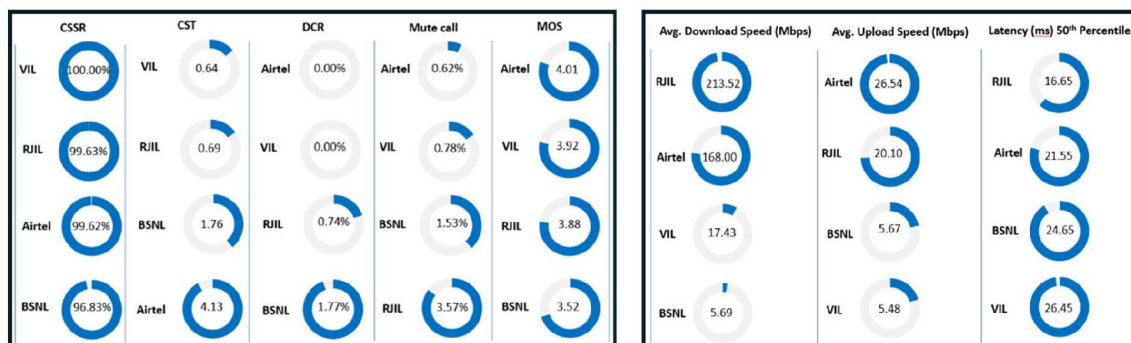
Data Upload performance (Dynamic): MTNL (1.66 Mbps) and VIL (4.68 Mbps) operating on 4G/3G technology, have comparatively lower average upload speed. Whereas Airtel and RJIL have achieved significantly higher average upload speed of 28.30 Mbps and 21.40 Mbps, respectively in 4G/5G technology.

1. Drive test route Map: (Vijayawada-Guntur city & Hyderabad -Vijayawada Highway – Andhra Pradesh LSA)



2. Performance against key QoS parameters:

CSSR: Call setup success rate (in %), CST: Call setup time (in milli seconds), DCR: Drop call rate (in %) & MOS: Mean Opinion Score



Summary-Voice services

Call Setup Success Rate: Airtel, BSNL, RJIL and VIL have call setup success rate of 99.62%, 96.83%, 99.63% and 100.00% respectively in Auto-selection mode (5G/4G/3G/2G).

Call Setup Time: Airtel has taken comparatively longer time (4.13 seconds) to establish the voice call, whereas BSNL, RJIL and VIL's call setup time is 1.76, 0.69 and 0.64 seconds respectively in Auto-selection mode (5G/4G/3G/2G).

Drop Call Rate: Airtel, BSNL, RJIL and VIL have drop call rate of 0.00%, 1.77%, 0.74% and 0.00% respectively in Auto-selection mode (5G/4G/3G/2G).

Call Silence/Mute Rate: In packet switched network (4G/5G) Airtel, BSNL, RJIL and VIL have silence call rate of 0.62%, 1.53%, 3.57% and 0.78% respectively.

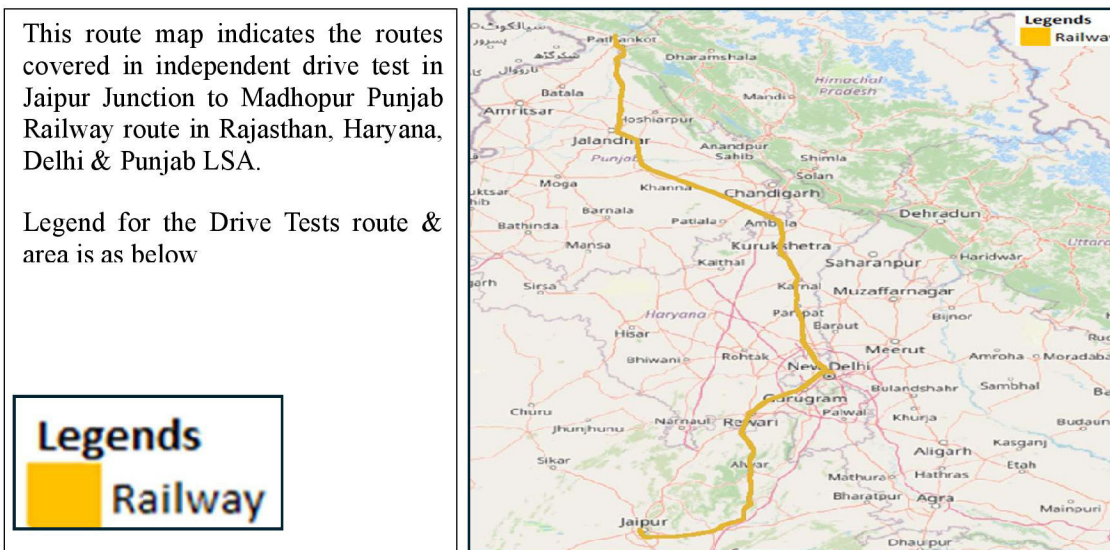
Mean Opinion Score (MOS): Quality of speech of Airtel (4.01) is having a MOS score > 4, whereas VIL (3.92), RJIL (3.88) and BSNL (3.52) are having a MOS score < 4.

Summary-Data services

Data Download performance (Dynamic): BSNL (5.69 Mbps) and VIL (17.43 Mbps), operating on 4G/3G technologies, have comparatively lower average download speed. Whereas Airtel and RJIL have achieved significantly higher average download speed of 168.00 Mbps and 213.52 Mbps in 4G/5G technology.

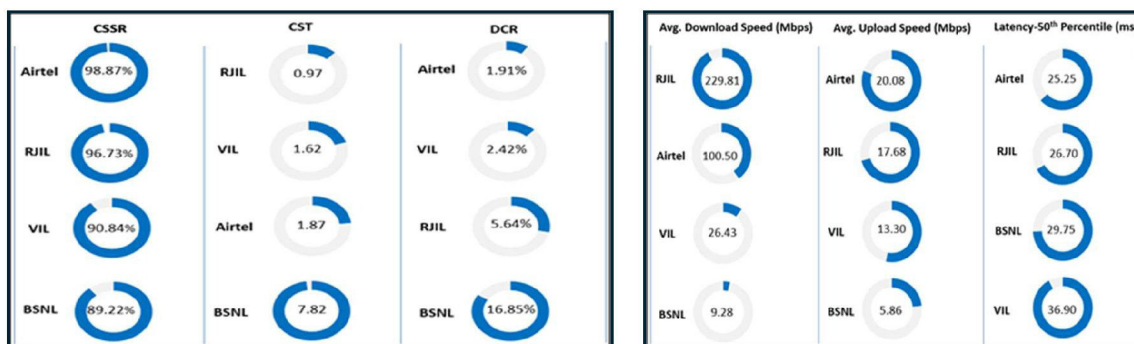
Data Upload performance (Dynamic): BSNL (5.67 Mbps) and VIL (5.48 Mbps) operating on 4G/3G technology, have comparatively lower average upload speed. Whereas Airtel and RJIL have achieved significantly higher average upload speed of 26.54 Mbps and 20.10 Mbps, respectively in 4G/5G technology.

1. Drive test route Map: (Jaipur Junction to Madhopur Punjab Railway route - Rajasthan, Haryana, Delhi & Punjab LSA)



2. Performance against key QoS parameters:

CSSR: Call setup success rate (in %), CST: Call setup time (in milli seconds), DCR: Drop call rate (in %) & MOS: Mean Opinion Score



Summary-Voice services

Call Setup Success Rate: Airtel, BSNL, RJIL and VIL have call setup success rate of 98.87%, 89.22%, 96.73% and 90.84% respectively in auto-selection mode (5G/4G/3G/2G).

Call Setup Time: BSNL has taken longer time (7.82 seconds) to establish the voice call, whereas Airtel, RJIL and VIL call setup time is 1.87, 0.97 and 1.62 seconds respectively in auto-selection mode (5G/4G/3G/2G).

Drop Call Rate: BSNL, RJIL and VIL's overall call drop rate is 16.85%, 5.64% and 2.24% is higher (QoS benchmark of 2%), whereas Airtel have drop call rate of 1.91% in auto-selection mode (5G/4G/3G/2G).

Summary-Data services

Data Download performance (Dynamic): BSNL (9.28 Mbps) and VIL (26.43 Mbps), operating on 4G/3G technologies, have comparatively lower average download speed. Whereas Airtel and RJIL have achieved significantly higher average download speed of 100.50 Mbps and 229.81 Mbps in 4G/5G technology.

Data Upload performance (Dynamic): BSNL (5.86 Mbps) and VIL (13.30 Mbps) operating on 4G/3G technology, have comparatively lower average upload speed. Whereas Airtel and RJIL have achieved significantly higher average upload speed of 20.08 Mbps and 17.68 Mbps, respectively in 4G/5G technology.