

TELECOM REGULATORY AUTHORITY OF INDIA

New Delhi, 16th May 2025

For Immediate release

New Website www.trai.gov.in

TRAI releases report on Independent Drive Tests (IDT) conducted in eight LSAs covering City/ Highways/ Railway routes/ coastal areas of Maharashtra LSA, UP East LSA, Mumbai & Maharashtra LSA, Haryana LSA, Tamil Nadu LSA, Jammu & Kashmir LSA and Madhya Pradesh LSA during March-2025.

1. **New Delhi, May 16th, 2025:** TRAI, through its appointed agency, conducted Independent Drive Tests (IDT) in Cities/ Highways/ Railway/ Coastal area of Nagpur city (Maharashtra LSA), Prayagraj city and railway route from Prayagraj to Kanpur (UP East LSA), Mumbai city and highway route from Mumbai to Pune Expressway, Railway route from Mumbai Central to Vasai Road and coastal area from the Gateway of India to Elephanta Caves (Mumbai & Maharashtra LSA), Ambala city (Haryana LSA), Chennai city and highway route from Chennai to Coimbatore and railway routes from Vijayawada to Chennai and Coimbatore to Chennai (Tamil Nadu LSA), Srinagar city (Jammu & Kashmir LSA) and Indore city (Madhya Pradesh LSA). Drive tests were conducted to assess the quality of service provided by Cellular Mobile Telephone Service providers for voice and data services in **March -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 eight LSAs are given below:

S. No.	City / Routes Covered	Licensed Service Area	Period of Drive Test	Distance Covered	Performance summary (attached at)
1	Nagpur City	Maharashtra	04-03-2025 to 07-03-2025	City: 338.7 Kms Walk Test: 9.4 Kms	Annexure A
2	Prayagraj City, Railway: Prayagraj to Kanpur	UP East	04-03-2025 to 08-03-2025	City: 270.2 Kms Walk Test: 2.9 Kms Railway: 194.0 Kms	Annexure B
3	Mumbai City, Highway: Mumbai to Pune Express Highway Railway: Mumbai Central to Vasai Road Costal: Gateway of India to Elephanta Caves, Mumbai	Mumbai & Maharashtra	18-03-2025 to 20-03-2025	Highway: 252.2 Kms Railway: 47.6 Kms Coastal: 12.9 Kms	Annexure C
4	Ambala City	Haryana	24-03-2025 to 27-03-2025	City: 294.3 Kms Walk Test: 1.2 Kms	Annexure D
5	Chennai City, Highway: Chennai to Coimbatore Railway: Vijayawada to Chennai and Coimbatore to Chennai	Tamil Nadu	25-03-2025 to 28-03-2025	Walk Test: 7.0 Kms Highway: 545.7 Kms Railway: 926.3 Kms	Annexure E
6	Srinagar City	Jammu & Kashmir	18-03-2025 to 20-03-2025	City: 162.0 Kms	Annexure F
7	Indore City	Madhya Pradesh	25-03-2025 to 29-03-2025	City: 414.1 Kms Walk Test: 1.2 Kms	Annexure G

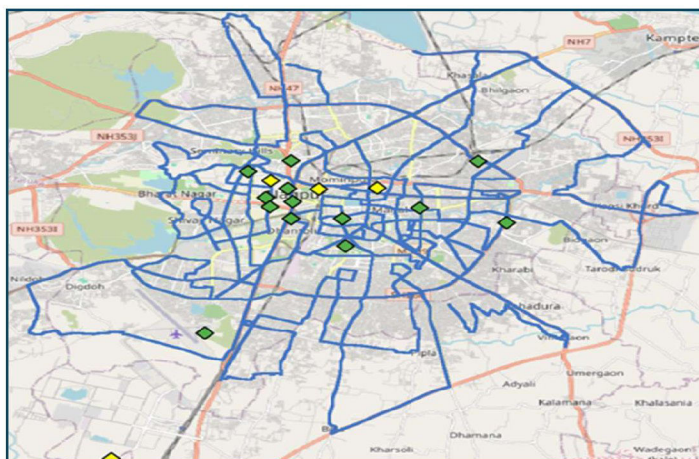
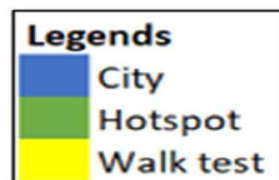
5. The detailed reports are available at TRAI website www.traigov.in. For any clarification/information, Shri Tejpal Singh, Advisor (QoS-I) TRAI may be contacted on email: adv-qos1@traigov.in or at Tel. No. +91-11-20907759.


 (Atul Kumar Chaudhary)
 Secretary

1. Drive test route Map: (Nagpur City- Maharashtra LSA)

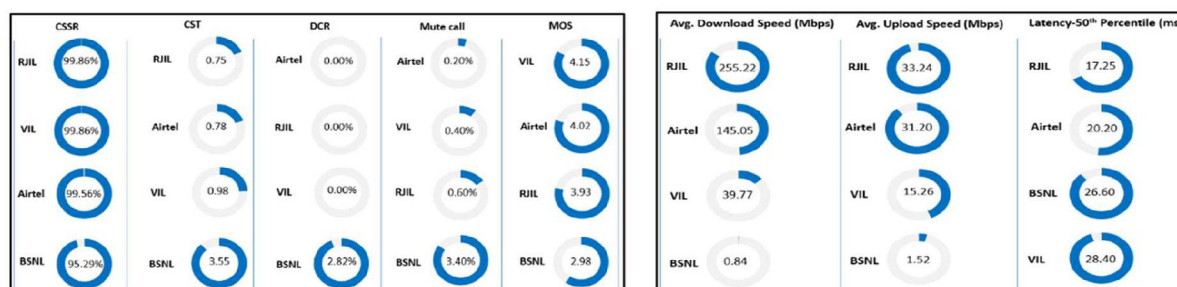
This route map indicates the routes covered in independent drive test in Nagpur City under Maharashtra LSA.

Legends for the Drive Tests route & area are as below



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 99.56%, 95.29%, 99.86% and 99.86% respectively in Auto-selection mode (5G/4G/3G/2G).

Call Setup Time: Airtel, BSNL, RJIL and VIL have call setup time of 0.78, 3.55, 0.75 & 0.98 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%, 2.82%, 0.00% and 0.00% respectively in Auto selection mode (5G/4G/3G/2G).

Call Silence/Mute Rate: Airtel, BSNL, RJIL and VIL have silence call rate of 0.20%, 3.40%, 0.60% & 0.40% respectively in packet switched network (4G/5G).

Mean Opinion Score (MOS): Airtel, BSNL, RJIL and VIL have MOS score of 4.02, 2.98, 3.93 & 4.15 respectively.

Summary-Data Service

Data Download performance (Overall): Average download speed of Airtel (5G/4G) is 145.05 Mbps, BSNL (4G/3G/2G) is 0.84 Mbps, RJIL (5G/4G) is 255.22 Mbps and VIL (4G/3G/2G) is 39.77 Mbps.

Data Upload performance (Overall): Average upload speed of Airtel (5G/4G) is 31.20 Mbps, BSNL (4G/3G/2G) is 1.52 Mbps, RJIL (5G/4G) is 33.24 Mbps and VIL (4G/3G/2G) is 15.26 Mbps.

Data performance - Hotspots (in Mbps):

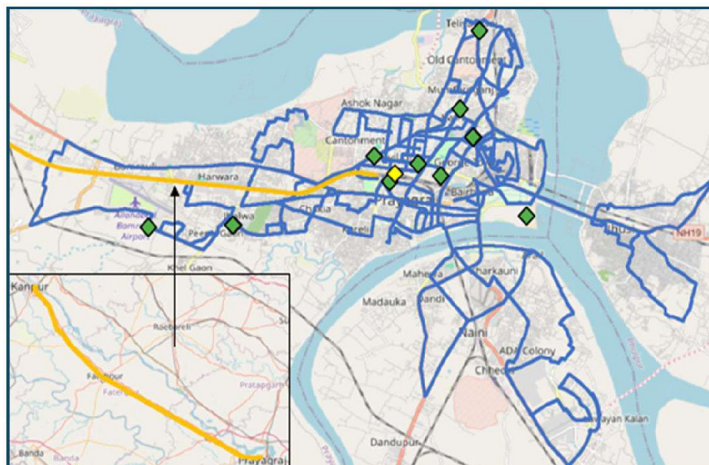
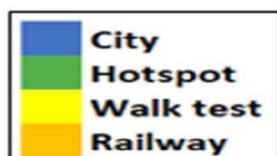
Airtel- 4G D/L: 37.92	4G U/L: 11.59
5G D/L: 228.11	5G U/L: 36.59
BSNL- 4G D/L: 0.89	4G U/L: 2.31
RJIL- 4G D/L: 38.88	4G U/L: 13.15
5G D/L: 317.60	5G U/L: 38.64
VIL- 4G D/L: 47.91	4G U/L: 22.48

Note- "D/L" Download speed, "U/L" Upload speed

1. Drive test route Map: (Prayagraj city & Prayagraj to Kanpur Railway Route- UP East LSA)

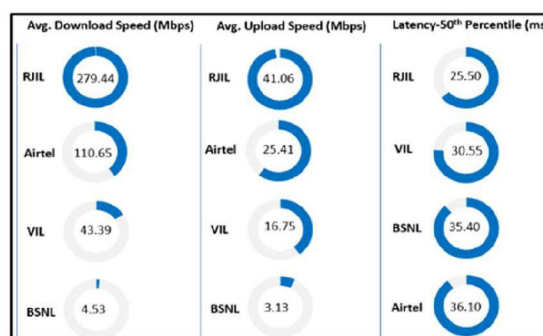
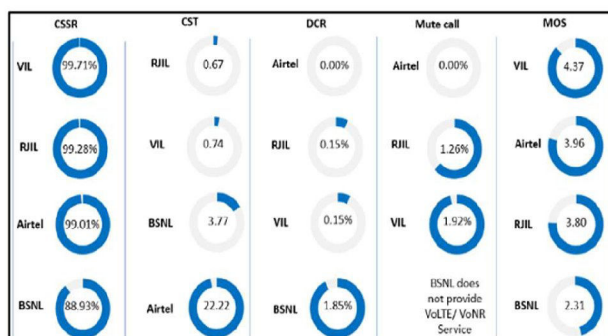
This route map indicates the routes covered in independent drive test in Prayagraj city & Prayagraj to Kanpur Railway Route under UP (East) LSA.

Legends for the Drive Tests route & area are as below



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 99.01%, 88.93%, 99.28% and 99.71% respectively in Auto-selection mode (5G/4G/3G/2G).

Call Setup Time: Airtel, BSNL, RJIL and VIL have call setup time of 22.22, 3.77, 0.67, & 0.74 seconds in Auto-selection mode (5G/4G/3G/2G).

Drop Call Rate: Airtel, BSNL, RJIL and VIL have drop call rate of 0.00%, 1.85%, 0.15% and 0.15% respectively in Auto-selection mode (5G/4G/3G/2G).

Call Silence/Mute Rate: Airtel, RJIL and VIL have silence call rate 0.00%, 1.26% & 1.92% respectively in packet switched network (4G/5G).

Mean Opinion Score (MOS): Airtel, BSNL, RJIL and VIL have MOS score of 3.96, 2.31, 3.80 & 4.37 respectively.

Summary-Data Service

Data Download performance (Overall): Average download speed of Airtel (5G/4G) is 110.65 Mbps, BSNL (4G/3G/2G) is 4.53 Mbps, RJIL (5G/4G) is 279.44 Mbps and VIL (4G/3G/2G) is 43.39 Mbps.

Data Upload performance (Overall): Average upload speed of Airtel (5G/4G) is 25.41 Mbps, BSNL (4G/3G/2G) is 3.13 Mbps, RJIL (5G/4G) is 41.06 Mbps and VIL (4G/3G/2G) is 16.75 Mbps.

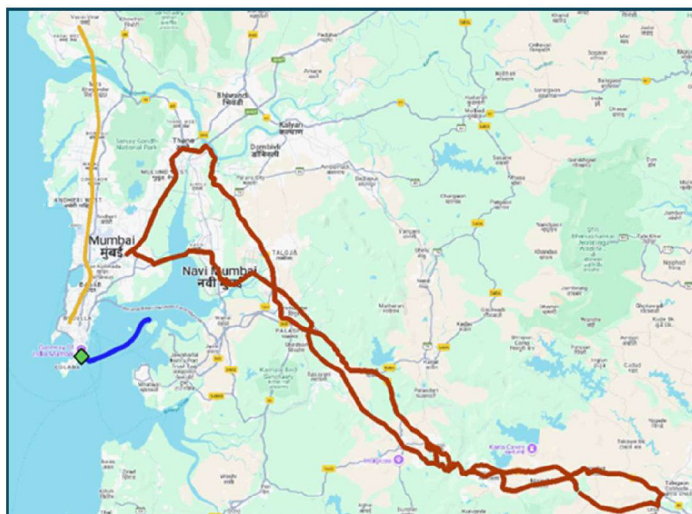
Data performance - Hotspots (in Mbps):

Airtel- 4G D/L: 39.90	4G U/L: 10.97
5G D/L: 175.95	5G U/L: 25.23
BSNL- 4G D/L: 10.70	4G U/L: 7.44
RJIL- 4G D/L: 61.04	4G U/L: 16.31
5G D/L: 267.29	5G U/L: 48.15
VIL- 4G D/L: 54.99	4G U/L: 19.99

Note- "D/L" Download speed, "U/L" Upload speed

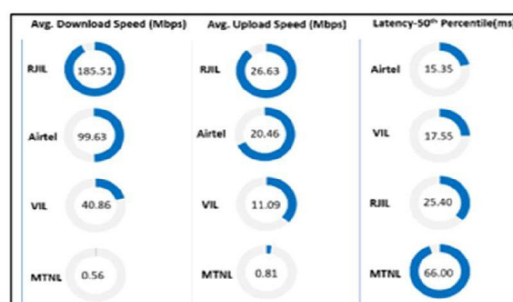
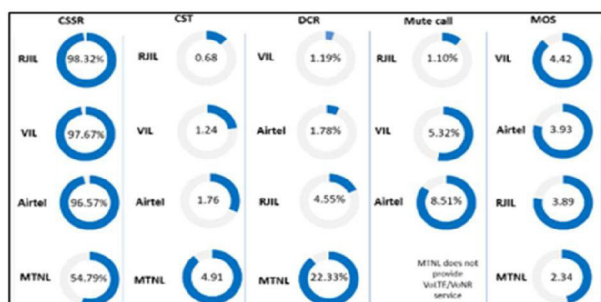
1. Drive test route Map: (Mumbai City & Mumbai to Pune Express Highway, Mumbai Central to Vasai Road Railway Route & Gateway of India to Elephanta Caves Coastal area - Mumbai & Maharashtra LSA)

This route map indicates the routes covered in independent drive test in Mumbai city & Mumbai to Pune Express Highway, Mumbai Central to Vasai Road Railway Route & Gateway of India to Elephanta Caves Coastal area under Mumbai & Maharashtra LSA. Legends for the Drive Tests route & area are as below



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, MTNL, RJIL and VIL have call setup success rate of 96.57%, 54.79%, 98.32% and 97.67% respectively in Auto-selection mode (5G/4G/3G/2G).

Call Setup Time: Airtel, MTNL, RJIL and VIL have call setup time of 1.76, 4.91, 0.68, & 1.24 seconds respectively in Auto-selection mode (5G/4G/3G/2G).

Drop Call Rate: Airtel, MTNL, RJIL and VIL have drop call rate of 1.78%, 22.33%, 4.55% and 1.19% respectively in Auto-selection mode (5G/4G/3G/2G).

Call Silence/Mute Rate: Airtel, RJIL and VIL have silence call rate of 8.51%, 1.10% & 5.32% respectively in packet switched network (4G/5G).

Mean Opinion Score (MOS): Airtel, MTNL, RJIL and VIL have MOS score of Quality of 3.93, 2.34, 3.89 & 4.42 respectively.

Summary-Data Service

Data Download performance (Overall): Average download speed of Airtel (5G/4G) is 99.63 Mbps, MTNL (3G/2G) is 0.56 Mbps, RJIL (5G/4G) is 185.51 Mbps and VIL (4G/3G/2G) is 40.86 Mbps.

Data Upload performance (Overall): Average upload speed of Airtel (5G/4G) is 20.46 Mbps, MTNL (3G/2G) is 0.81 Mbps, RJIL (5G/4G) is 26.63 Mbps and VIL (4G/3G/2G) is 11.09 Mbps.

Data performance - Hotspots (in Mbps):

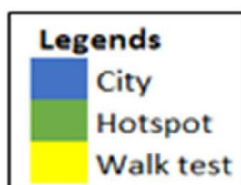
Airtel- 4G D/L: 44.67 4G U/L: 6.57
 5G D/L: 195.74 5G U/L: 58.74
 RJIL- 4G D/L: 44.82 4G U/L: 6.01
 5G D/L: 509.86 5G U/L: 43.56
 VIL- 4G D/L: 58.29 4G U/L: 4.77
 5G D/L: 218.18 5G U/L: 21.76

**Note- "D/L" Download speed, "U/L" Upload speed
 4G & 5G technology have not been observed in MTNL**

1. Drive test route Map: (Ambala City- Haryana LSA)

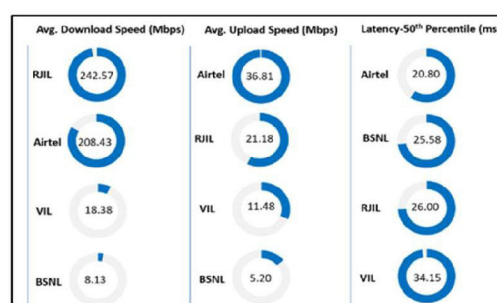
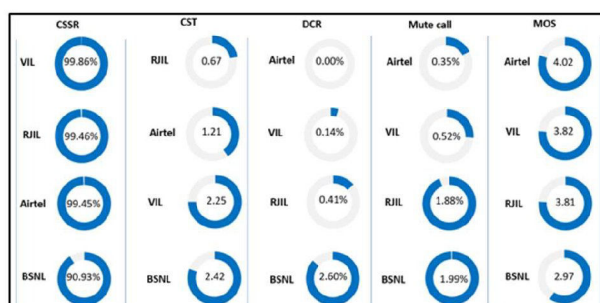
This route map indicates the routes covered in independent drive test in Ambala City under Haryana LSA.

Legends for the Drive Tests route & area are as below



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 99.45%, 90.93%, 99.46% and 99.86% respectively in Auto-selection mode (5G/4G/3G/2G).

Call Setup Time: Airtel, BSNL, RJIL and VIL have call setup time of 1.21, 2.42, 0.67, & 2.25 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%, 2.60%, 0.41% & 0.14% respectively in Auto-selection mode (5G/4G/3G/2G).

Call Silence/Mute Rate: Airtel, BSNL, RJIL and VIL have silence rate of 0.35%, 1.99%, 1.88% & 0.52% respectively in packet switched network (4G/5G).

Mean Opinion Score (MOS): Airtel, BSNL, RJIL and VIL have MOS score of 4.02, 2.97, 3.81, & 3.82 respectively.

Summary-Data Service

Data Download performance (Overall): Average download speed of Airtel (5G/4G) is 208.43 Mbps, BSNL (4G/3G/2G) is 8.13 Mbps, RJIL (5G/4G) is 242.57 Mbps and VIL (4G/3G/2G) is 18.38 Mbps.

Data Upload performance (Overall): Average upload speed of Airtel (5G/4G) is 36.81 Mbps, BSNL (4G/3G/2G) is 5.20 Mbps, RJIL (5G/4G) is 21.18 Mbps and VIL (4G/3G/2G) is 11.48 Mbps.

Data performance - Hotspots (in Mbps):

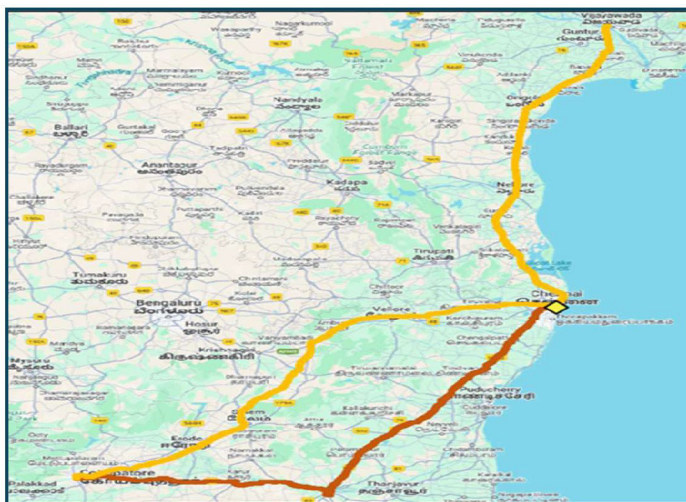
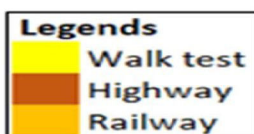
Airtel- 4G D/L: 31.71	4G U/L: 16.34
5G D/L: 296.15	5G U/L: 63.84
BSNL- 4G D/L: 13.27	4G U/L: 9.42
RJIL- 4G D/L: 41.21	4G U/L: 10.59
5G D/L: 301.49	5G U/L: 27.20
VIL- 4G D/L: 38.74	4G U/L: 24.64

Note- "D/L" Download speed, "U/L" Upload speed

1. Drive test route Map: (Chennai City & Chennai to Coimbatore Highway Route, Railway Routes from Vijayawada to Chennai & Coimbatore to Chennai– Tamil Nadu LSA)

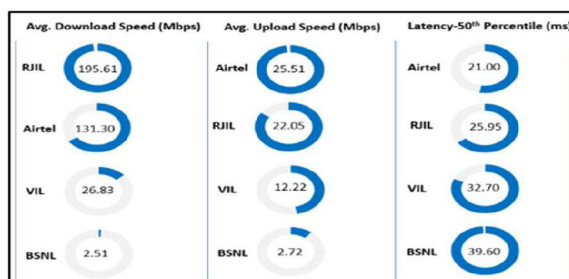
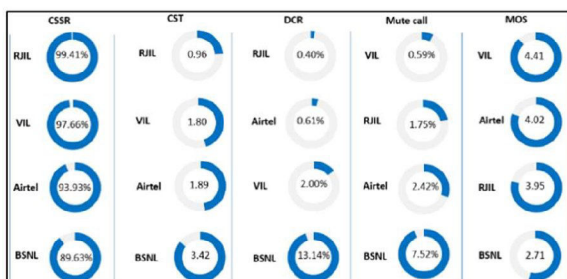
This route map indicates the routes covered in independent drive test in Chennai City & Chennai to Coimbatore Highway Route, Railway Routes from Vijayawada to Chennai & Coimbatore to Chennai under Tamil Nadu LSA.

Legends for the Drive Tests route & area are as below



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 93.93%, 89.63%, 99.41% and 97.66% respectively in Auto-selection mode (5G/4G/3G/2G).

Call Setup Time: Airtel, BSNL, RJIL and VIL have call setup time of 1.89, 3.42, 0.96 & 1.80 seconds respectively in Auto-selection mode (5G/4G/3G/2G).

Drop Call Rate: Airtel, BSNL, RJIL and VIL have drop call rate of 0.61%, 13.14%, 0.40% & 2.00% respectively in Auto selection mode (5G/4G/3G/2G).

Call Silence/Mute Rate: Airtel, BSNL, RJIL and VIL have silence rate of 2.42%, 7.52%, 1.75% & 0.59% respectively in packet switched network (4G/5G).

Mean Opinion Score (MOS): Airtel, BSNL, RJIL and VIL have MOS score of 4.02, 2.71, 3.95 & 4.41 respectively.

Summary-Data Service

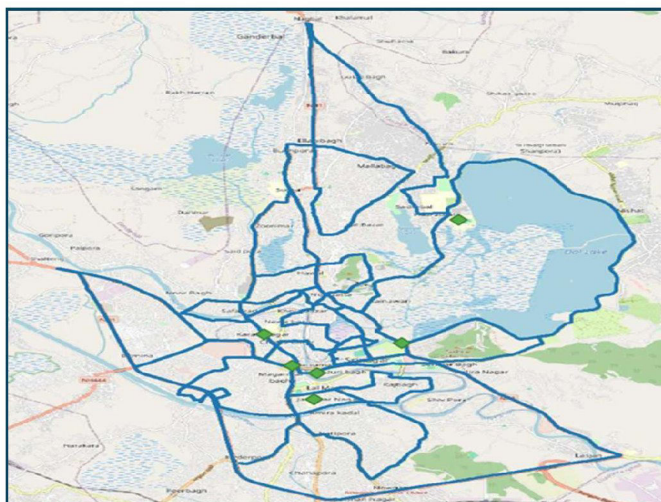
Data Download performance (Overall): Average download speed of Airtel (5G/4G) is 131.30 Mbps, BSNL (4G/3G/2G) is 2.51 Mbps, RJIL (5G/4G) is 195.61 Mbps and VIL (4G/3G/2G) is 26.83 Mbps.

Data Upload performance (Overall): Average upload speed of Airtel (5G/4G) is 25.51 Mbps, BSNL (4G/3G/2G) is 2.72 Mbps, RJIL (5G/4G) is 22.05 Mbps and VIL (4G/3G/2G) is 12.22 Mbps.

1. Drive test route Map: (Srinagar City– Jammu & Kashmir LSA)

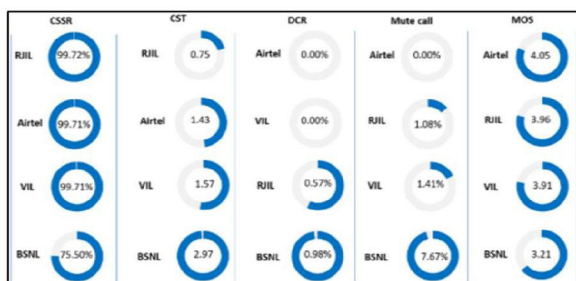
This route map indicates the routes covered in independent drive test in Srinagar City under Jammu & Kashmir LSA.

Legends for the Drive Tests route & area are as below



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

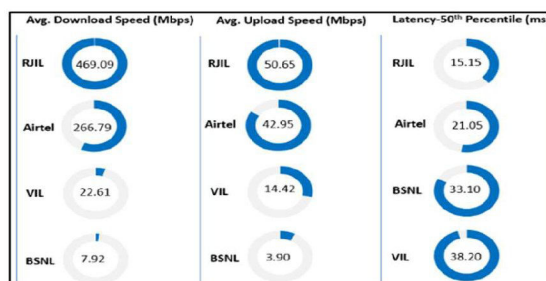
Call Setup Success Rate: Airtel, BSNL, RJIL and VIL have call setup success rate of 99.71%, 75.50%, 99.72% and 99.71% respectively in Auto-selection mode (5G/4G/3G/2G).

Call Setup Time: Airtel, BSNL, RJIL and VIL have call setup time of 1.43, 2.97, 0.75 & 1.57 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%, 0.98%, 0.57% & 0.00 % respectively in Auto selection mode (5G/4G/3G/2G).

Call Silence/Mute Rate: Airtel, BSNL, RJIL and VIL have silence rate of 0.00%, 7.67%, 1.08% & 1.41% respectively in packet switched network (4G/5G).

Mean Opinion Score (MOS): Airtel, BSNL, RJIL and VIL have MOS score of 4.05, 3.21, 3.96 & 3.91 respectively.



Summary-Data Service

Data Download performance (Overall): Average download speed of Airtel (5G/4G) is 266.79 Mbps, BSNL (4G/3G/2G) is 7.92 Mbps, RJIL (5G/4G) is 469.09 Mbps and VIL (4G/3G/2G) is 22.61 Mbps.

Data Upload performance (Overall): Average upload speed of Airtel (5G/4G) is 42.95 Mbps, BSNL (4G/3G/2G) is 3.90 Mbps, RJIL (5G/4G) is 50.65 Mbps and VIL (4G/3G/2G) is 14.42 Mbps.

Data performance - Hotspots (in Mbps):

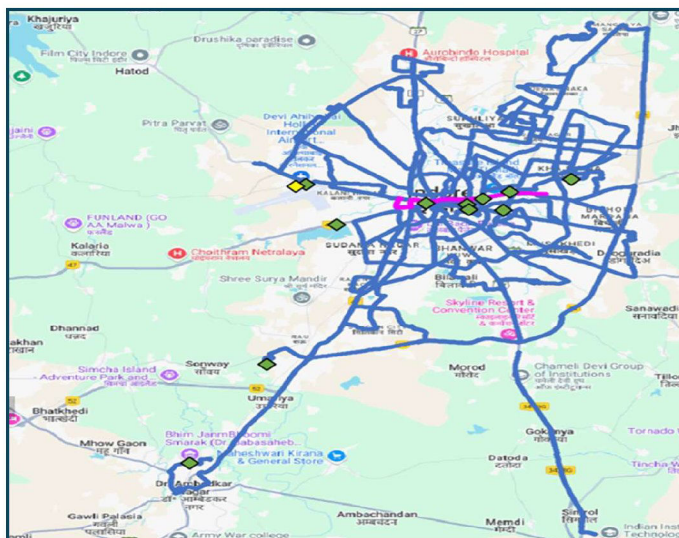
Airtel- 4G D/L: 44.64	4G U/L: 10.43
5G D/L: 281.46	5G U/L: 51.32
BSNL- 4G D/L: 8.96	4G U/L: 6.24
RJIL- 4G D/L: 85.49	4G U/L: 17.67
5G D/L: 481.27	5G U/L: 48.18
VIL- 4G D/L: 22.03	4G U/L: 16.53

Note- "D/L" Download speed, "U/L" Upload speed

1. Drive test route Map: (Indore City– Madhya Pradesh LSA)

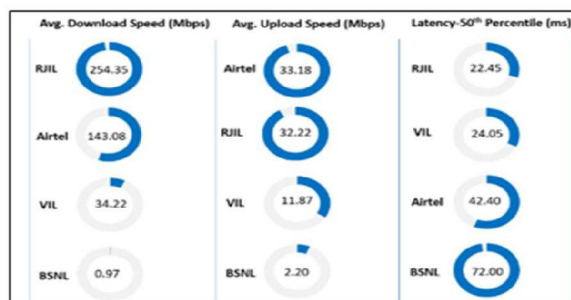
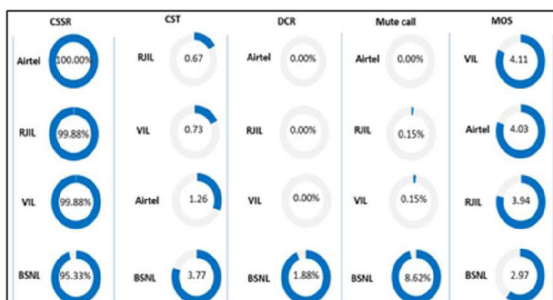
This route map indicates the routes covered in independent drive test in Indore City under Madhya Pradesh LSA.

Legends for the Drive Tests route & area are as below



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%, 95.33%, 99.88% and 99.88% respectively in Auto-selection mode (5G/4G/3G/2G).

Call Setup Time: Airtel, BSNL, RJIL and VIL have call setup time of 1.26, 3.77, 0.67 & 0.73 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%, 1.88%, 0.00% & 0.00% respectively in Auto selection mode (5G/4G/3G/2G).

Call Silence/Mute Rate: Airtel, BSNL, RJIL and VIL have silence rate of 0.00%, 8.62%, 0.15% & 0.15% respectively in packet switched network (4G/5G).

Mean Opinion Score (MOS): Airtel, BSNL, RJIL and VIL have MOS score of 4.03, 2.97, 3.94 & 4.11 respectively.

Summary-Data Service

Data Download performance (Overall): Average download speed of Airtel (5G/4G) is 143.08 Mbps, BSNL (4G/3G/2G) is 0.97 Mbps, RJIL (5G/4G) is 254.35 Mbps and VIL (4G/3G/2G) is 34.22 Mbps.

Data Upload performance (Overall): Average upload speed of Airtel (5G/4G) is 33.18 Mbps, BSNL (4G/3G/2G) is 2.20 Mbps, RJIL (5G/4G) is 32.22 Mbps and VIL (4G/3G/2G) is 11.87 Mbps.

Data performance - Hotspots (in Mbps):

Airtel- 4G D/L: 36.46	4G U/L: 10.81
5G D/L: 200.19	5G U/L: 33.84
BSNL- 4G D/L: 1.60	4G U/L: 2.82
RJIL- 4G D/L: 28.61	4G U/L: 7.21
5G D/L: 267.18	5G U/L: 23.65
VIL- 4G D/L: 22.58	4G U/L: 7.14

Note- "D/L" Download speed, "U/L" Upload speed