

TELECOM REGULATORY AUTHORITY OF INDIA

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New Delhi, 1st July 2025

For Immediate release

**TRAI releases findings from Independent Drive Tests (IDT)
Report for May 2025,
Thirteen Cities and Routes Assessed**

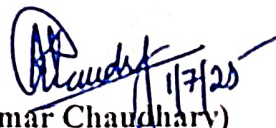
The Telecom Regulatory Authority of India (TRAI) today released the results of Independent Drive Tests (IDTs) conducted in May 2025, covering thirteen cities, highway, railway and coastal corridors in eight Licensed Service Areas (LSAs). The thirteen cities, highway, railway and coastal area fall under Ranchi City and Latehar District, Ahmedabad City, Railway route from Ahmedabad to Bhavnagar, Coastal area at Ghogha Port, Bhavnagar, Panipat City, Una & Mandi City, Chikmagalur City, Chennai City, Ayodhya City, Moradabad City, Highway from Dehradun to Badrinath. These assessments were part of TRAI's periodic Quality of Service (QoS) audits, aimed at evaluating real-time network performance. The tests were carried out using calibrated equipment and standardised protocols, under direct supervision of TRAI officials across diverse on-ground environments.

2. The drive tests were undertaken through TRAI-appointed agency and evaluated both voice and data services across 2G, 3G, 4G, and 5G technologies. The scope included City Drive tests, Walk tests, Highway/ Railway/ Coastal area test and hotspot analysis. The networks of Bharti Airtel Limited, Reliance Jio Infocomm Limited, Vodafone Idea Limited, and BSNL were covered in auto-selection and locked mode as per the requirement of tests.
3. Key Parameters Assessed:
 - a) **Voice Services:** Call Setup Success Rate (CSSR), Drop Call Rate (DCR), Call Setup Time, Call Silence Rate, Speech Quality (MOS), Coverage.
 - b) **Data Services:** Download/Upload Throughput, Latency, Jitter, Packet Drop Rate, and Video Streaming Delay.
4. Key findings of Independent Drive Tests (IDTs) are as under:
 - a) Panipat and Ayodhya have demonstrated better network performance of operators in respect of Drop Call Rate and Call Setup Success Rates (CSSR). Data Download and Upload speeds are observed better in Ahmedabad, Chennai, Panipat and Ranchi.
 - b) Ranchi and Una & Mandi have recorded comparatively higher Drop Call Rates. Call Setup Success Rates (CSSR) in Ahmedabad, Chikmagalur, Moradabad and Ranchi have observed much below the benchmark of 98%.

5. 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	Ranchi City and Latehar District	Bihar	24-05-2025 to 28-05-2025	City: 218.6 Kms Walk Test: 3.4 Kms	<u>Annexure A</u>
2	Ahmedabad City Railway: Ahmedabad to Bhavnagar Coastal: Ghogha Port, Bhavnagar	Gujarat	05-05-2025 to 14-05-2025	City: 381.7 Kms Railway: 247.1 Kms Coastal: 15.6 Kms	<u>Annexure B</u>
3	Panipat City	Haryana	20-05-2025 to 23-05-2025	City: 254.7 Kms Walk Test: 1.2 Kms	<u>Annexure C</u>
4	Una & Mandi City Highway: Una to Mandi Railway: New Delhi to Una	Himachal Pradesh	26-05-2025 to 28-05-2025	City: 116.6 Kms Walk Test: 2.3 Kms Highway: 283.9 Kms Railway: 384.8 Kms	<u>Annexure D</u>
5	Chikmagalur City Highway: Bengaluru to Chikmagalur	Karnataka	21-05-2025 to 24-05-2025	City: 308.7Kms Walk Test: 6.7 Kms Highway: 239.8 Kms	<u>Annexure E</u>
6	Chennai City	Tamil Nadu	06-05-2025 to 09-05-2025	City: 398.6 Kms	<u>Annexure F</u>
7	Ayodhya City	UP(East)	10-05-2025 to 12-05-2025	City: 215.8 Kms Walk Test: 3.0 Kms	<u>Annexure G</u>
8	Moradabad City Highway: Dehradun to Badrinath	UP(West)	05-05-2025 to 21-05-2025	City: 278.3 Kms Highway: 325 Kms	<u>Annexure H</u>

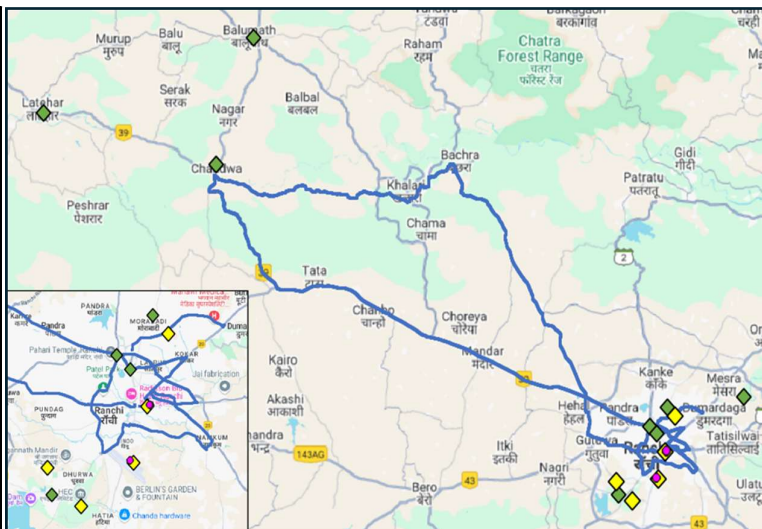
6. The detailed reports are available at TRAI website www.traigov.in. For any clarification/information, Shri Tejpal Singh, Advisor (QoS-I) TRAI may be contacted on email: adv-qos1@traigov.in or at Tel. No. +91-11-20907759.


 (Atul Kumar Chaughary)
 Secretary, TRAI

1. Drive test route Map: (Ranchi City and Latehar District - Bihar LSA)

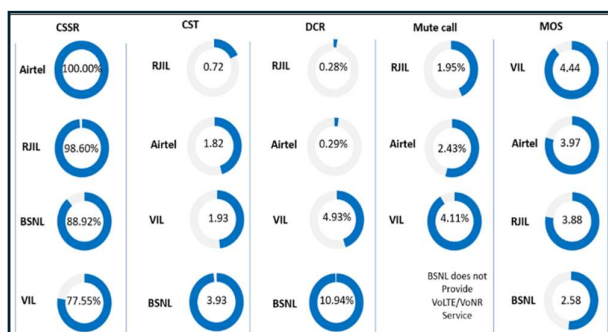
This route map indicates the routes covered in independent drive test in Ranchi City and Latehar District under Bihar LSA.

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 services

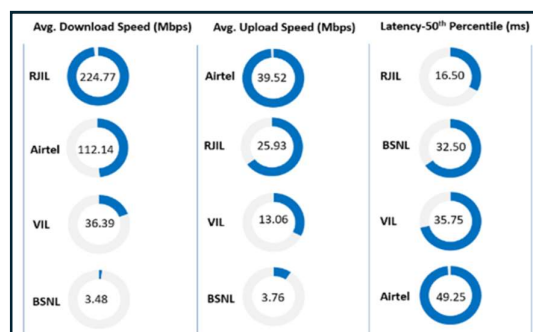
Call Setup Success Rate: Airtel, BSNL, RJIL and VIL have call setup success rate of 100.00%, 88.92%, 98.60% and 77.55% respectively in Auto-selection mode (5G/4G/3G/2G).

Call Setup Time: Airtel, BSNL, RJIL and VIL have Call setup time of 1.82, 3.93, 0.72 & 1.93 seconds respectively in Auto-selection mode (5G/4G/3G/2G).

Drop Call Rate: Airtel, BSNL, RJIL and VIL have drop call rate of 0.29%, 10.94%, 0.28% & 4.93% respectively in Auto-selection mode (5G/4G/3G/2G).

Call Silence/Mute Rate: Airtel, RJIL and VIL have silence call rate 2.43%, 1.95% and 4.11% respectively in packet switched network (5G/4G).

Mean Opinion Score (MOS): Airtel, BSNL, RJIL and VIL have Average MOS of 3.97, 2.58, 3.88 & 4.44 respectively.



Summary-Data services

Data Download performance (Overall): Average download speed of Airtel (5G/4G/2G) is 112.14 Mbps, BSNL (4G/3G/2G) is 3.48 Mbps, RJIL (5G/4G) is 224.77 Mbps and VIL (4G/2G) is 36.39 Mbps.

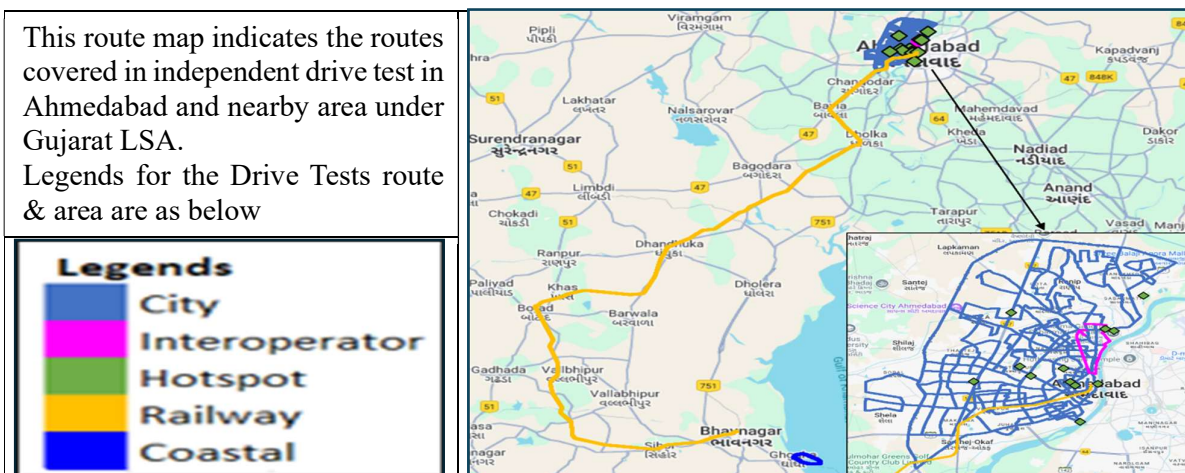
Data Upload performance (Overall): Average upload speed of Airtel (5G/4G/2G) is 39.52 Mbps, BSNL (4G/3G/2G) is 3.76 Mbps, RJIL (5G/4G) is 25.93 Mbps and VIL (4G/2G) is 13.06 Mbps.

Data performance - Hotspots (in Mbps):

Airtel- 4G D/L: 77.85	4G U/L: 12.28
5G D/L: 138.16	5G U/L: 35.18
BSNL- 4G D/L: 6.08	4G U/L: 5.17
RJIL- 4G D/L: 62.19	4G U/L: 13.37
5G D/L: 289.62	5G U/L: 34.25
VIL- 4G D/L: 38.95	4G U/L: 15.40

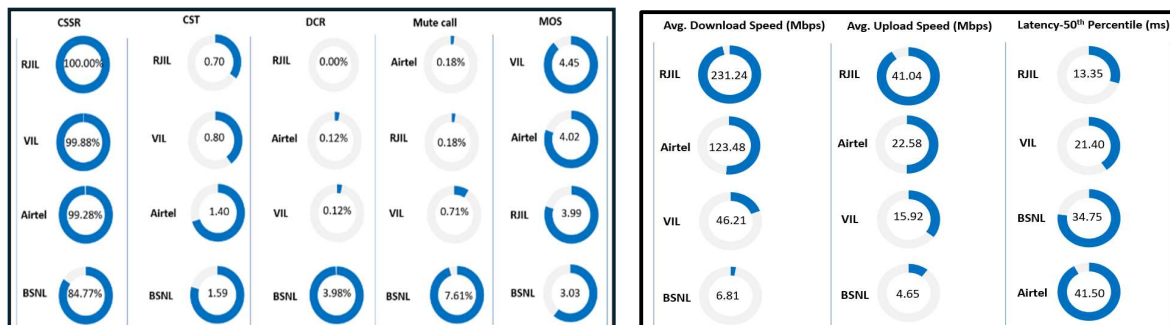
Note- “D/L” Download speed, “U/L” Upload speed

1. Drive test route Map: (Ahmedabad and nearby area - Gujarat 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 99.28%, 84.77%, 100.00% 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 1.40, 1.59, 0.70 & 0.80 seconds respectively in Auto-selection mode (5G/4G/3G/2G).

Drop Call Rate: Airtel, BSNL, RJIL and VIL have drop call rate of 0.12%, 3.98%, 0.00% & 0.12% respectively in Auto-selection mode (5G/4G/3G/2G).

Call Silence/Mute Rate: Airtel, BSNL, RJIL and VIL have silence call rate of 0.18%, 7.61%, 0.18% and 0.71% respectively in packet switched network (4G/5G).

Mean Opinion Score (MOS): Airtel, BSNL, RJIL and VIL have average MOS of 4.02, 3.03, 3.99 & 4.45 respectively.

Summary-Data Service

Data Download performance (Overall): Average download speed of Airtel (5G/4G/2G) is 123.48 Mbps, BSNL (4G/3G/2G) is 6.81 Mbps, RJIL (5G/4G) is 231.24 Mbps and VIL (4G/2G) is 46.21 Mbps.

Data Upload performance (Overall): Average upload speed of Airtel (5G/4G/2G) is 22.58 Mbps, BSNL (4G/3G/2G) is 4.65 Mbps, RJIL (5G/4G) is 41.04 Mbps and VIL (4G/2G) is 15.92 Mbps.

Data performance - Hotspots (in Mbps):

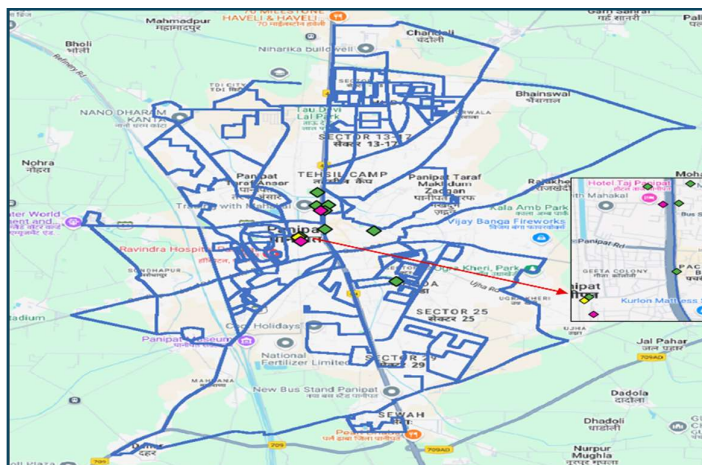
Airtel- 4G D/L: 27.25 4G U/L: 7.92
 5G D/L: 132.50 5G U/L: 34.05
 BSNL- 4G D/L: 9.63 4G U/L: 11.14
 RJIL- 4G D/L: 62.74 4G U/L: 21.82
 5G D/L: 355.92 5G U/L: 55.07
 VIL- 4G D/L: 35.17 4G U/L: 12.54

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

1. Drive test route Map: (Panipat city - Haryana LSA)

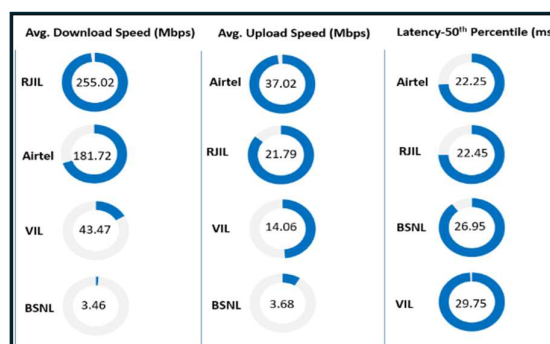
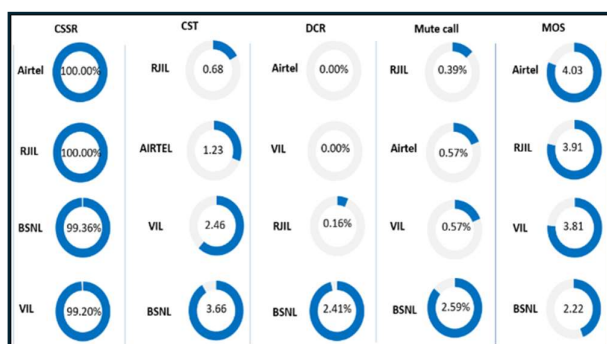
This route map indicates the routes covered in independent drive test in Panipat city under Haryana LSA.

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 100.00%, 99.36%, 100.00% and 99.20% respectively in Auto-selection mode (5G/4G/3G/2G).

Call Setup Time: Airtel, BSNL, RJIL and VIL have call setup time of 1.23, 3.66, 0.68 & 2.46 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%, 2.41%, 0.16% & 0.00% respectively in Auto-selection mode (5G/4G/3G/2G).

Call Silence/Mute Rate: Airtel, BSNL, RJIL and VIL have silence call rate 0.57%, 2.59%, 0.39% and 0.57% respectively in packet switched network (4G/5G).

Mean Opinion Score (MOS): Airtel, BSNL, RJIL and VIL have average MOS of 4.03, 2.22, 3.91 & 3.81 respectively.

Summary-Data Service

Data Download performance (Overall): Average download speed of Airtel (5G/4G) is 181.72 Mbps, BSNL (4G/3G/2G) is 3.46 Mbps, RJIL (5G/4G) is 255.02 Mbps and VIL (4G/2G) is 43.47 Mbps.

Data Upload performance (Overall): Average upload speed of Airtel (5G/4G) is 37.02 Mbps, BSNL (4G/3G/2G) is 3.68 Mbps, RJIL (5G/4G) is 21.79 Mbps and VIL (4G/2G) is 14.06 Mbps.

Data performance - Hotspots (in Mbps):

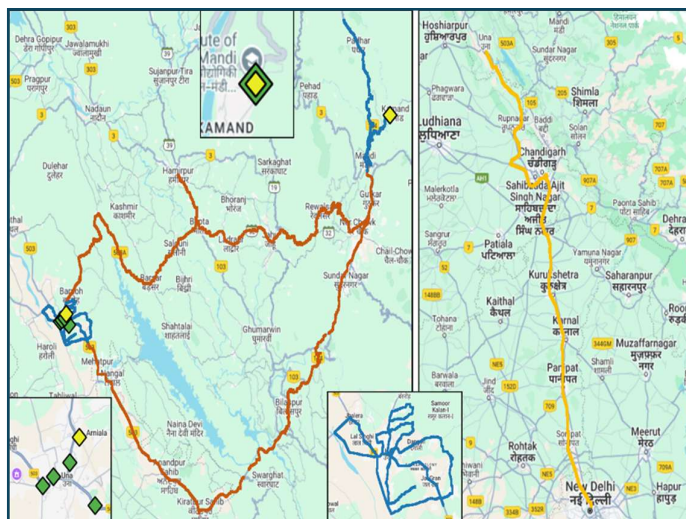
Airtel- 4G D/L: 11.57	4G U/L: 12.30
5G D/L: 189.06	5G U/L: 42.50
BSNL- 4G D/L: 4.03	4G U/L: 9.85
RJIL- 4G D/L: 40.86	4G U/L: 7.24
5G D/L: 194.05	5G U/L: 20.73

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

1. Drive test route Map: (Una & Mandi City and nearby area – Himachal Pradesh LSA)

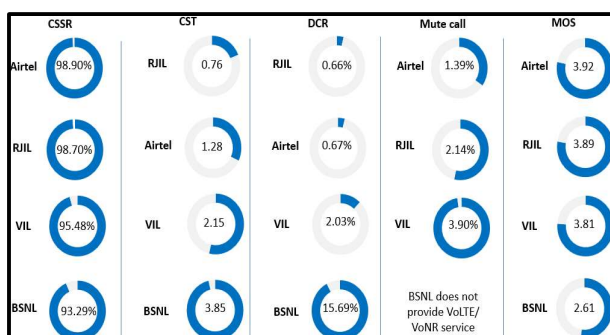
This route map indicates the routes covered in independent drive test in Una & Mandi City and nearby area under Himachal Pradesh LSA.

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 services

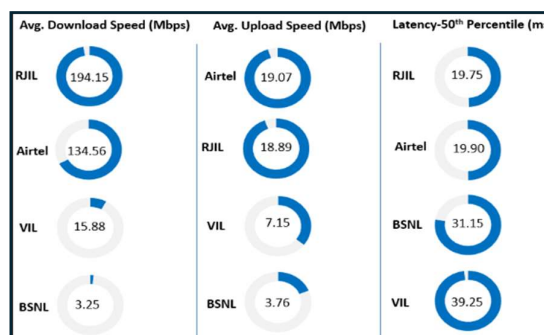
Call Setup Success Rate: Airtel, BSNL, RJIL and VIL have call setup success rate of 98.90%, 93.29%, 98.70% and 95.48% respectively in Auto-selection mode (5G/4G/3G/2G).

Call Setup Time: Airtel, BSNL, RJIL & VIL have call setup time of 1.28, 3.85, 0.76 and 2.15 seconds respectively in Auto-selection mode (5G/4G/3G/2G).

Drop Call Rate: Airtel, BSNL, RJIL and VIL have drop call rate of 0.67%, 15.69%, 0.66% and 2.03% respectively in Auto-selection mode (5G/4G/3G/2G).

Call Silence/Mute Rate: Airtel, RJIL and VIL have silence call rate of 1.39%, 2.14% and 3.90% respectively in packet switched network (4G/5G).

Mean Opinion Score (MOS): Airtel, BSNL, RJIL and VIL have average MOS of 3.92, 2.61, 3.89 and 3.81 respectively.



Summary-Data services

Data Download performance (Overall): Average download speed of Airtel (5G/4G/2G) is 134.56 Mbps, BSNL (4G/3G/2G) is 3.25 Mbps, RJIL (5G/4G) is 194.15 Mbps and VIL (4G/2G) is 15.88 Mbps.

Data Upload performance (Overall): Average upload speed of Airtel (5G/4G/2G) is 19.07 Mbps, BSNL (4G/3G/2G) is 3.76 Mbps, RJIL (5G/4G) is 18.89 Mbps and VIL (4G/2G) is 7.15 Mbps.

Data performance - Hotspots (in Mbps):

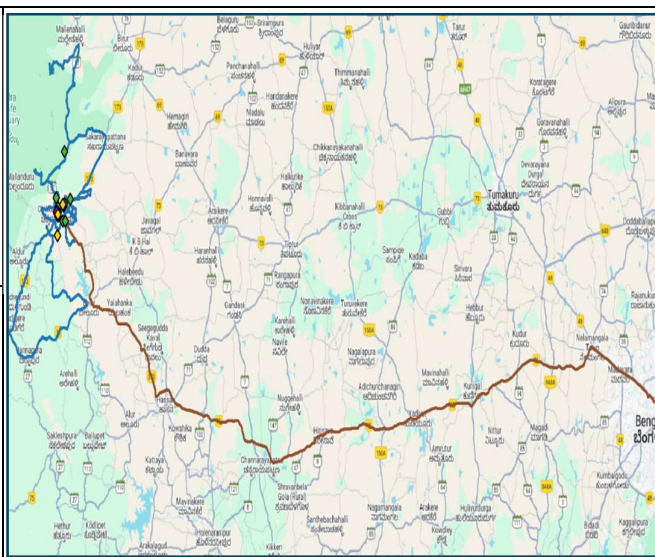
Airtel- 4G D/L: 59.56 4G U/L: 18.20
 5G D/L: 572.97 5G U/L: 62.30
 BSNL- 4G D/L: 5.27 4G U/L: 12.73
 RJIL- 4G D/L: 59.52 4G U/L: 14.55
 5G D/L: 326.39 5G U/L: 53.38
 VIL- 4G D/L: 14.30 4G U/L: 6.55

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

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

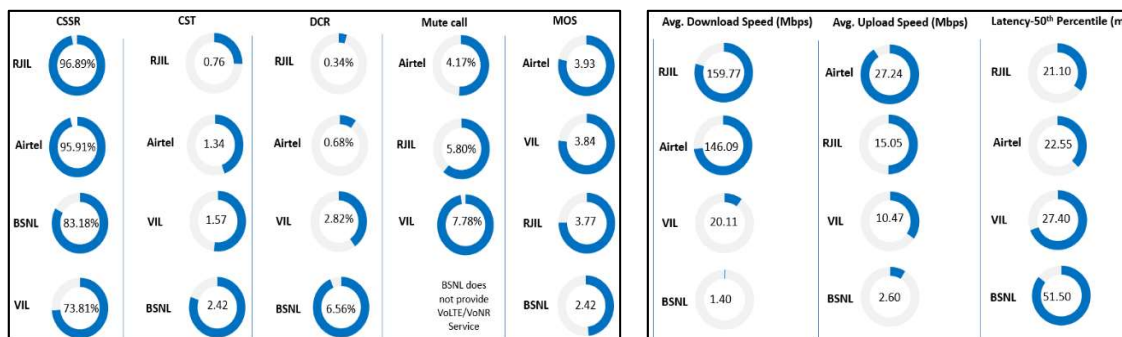
This route map indicates the routes covered in independent drive test in Chikmagalur City under Karnataka LSA.

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 services

Call Setup Success Rate: Airtel, BSNL, RJIL and VIL have call setup success rate of 95.91%, 83.18%, 96.89%, and 73.81% respectively in Auto-selection mode (5G/4G/3G/2G).

Call Setup Time: Airtel, BSNL, RJIL & VIL have call setup time of 1.34, 2.42, 0.76 and 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 0.68%, 6.56%, 0.34% and 2.82% respectively in Auto-selection mode (5G/4G/3G/2G).

Call Silence/Mute Rate: Airtel, RJIL and VIL have silence call rate of 4.17%, 5.80% and 7.78% respectively in packet switched network (4G/5G).

Mean Opinion Score (MOS): Airtel, BSNL, RJIL and VIL have average MOS of 3.93, 2.42, 3.77 and 3.84 respectively.

Summary-Data services

Data Download performance (Overall): Average download speed of Airtel (5G/4G) is 146.09 Mbps, BSNL (4G/3G) is 1.40 Mbps, RJIL (5G/4G) is 159.77 Mbps and VIL (4G/2G) is 20.11 Mbps.

Data Upload performance (Overall): Average upload speed of Airtel (5G/4G) is 27.24 Mbps, BSNL (4G/3G) is 2.60 Mbps, RJIL (5G/4G) is 15.05 Mbps and VIL (4G/2G) is 10.47 Mbps.

Data performance - Hotspots (in Mbps):

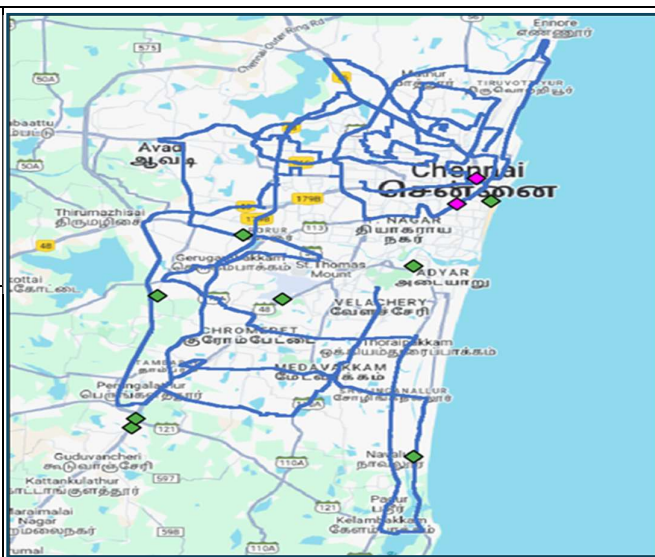
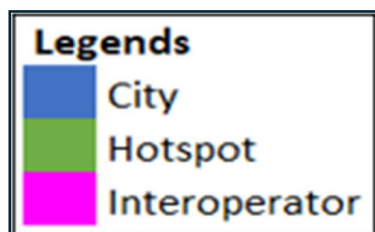
Airtel- 4G D/L: 25.70	4G U/L: 13.24
5G D/L: 260.34	5G U/L: 38.00
BSNL- 4G D/L: 1.23	4G U/L: 5.44
RJIL- 4G D/L: 38.16	4G U/L: 6.76
5G D/L: 137.86	5G U/L: 17.77
VIL- 4G D/L: 26.65	4G U/L: 15.86

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

1. Drive test route Map: (Chennai City- Tamil Nadu LSA)

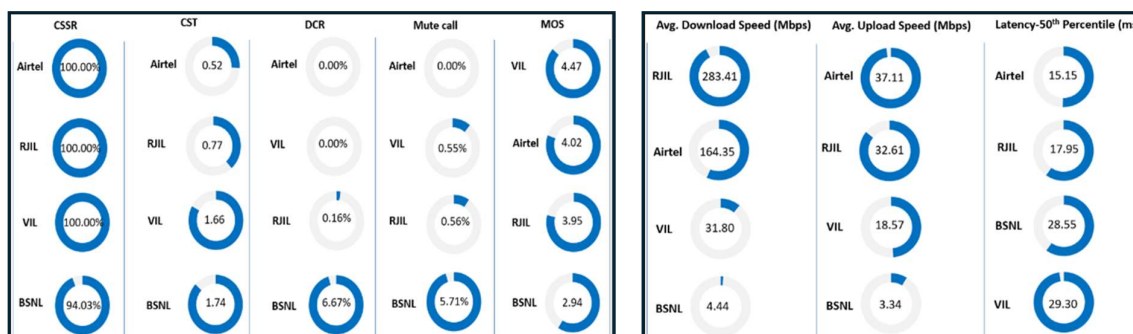
This route map indicates the routes covered in independent drive test in Chennai City under Tamil Nadu LSA.

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 100.00%, 94.03%, 100.00% and 100.00% respectively in Auto-selection mode (5G/4G/3G/2G).

Call Setup Time: Airtel, BSNL, RJIL and VIL have call setup time of 0.52, 1.74, 0.77 & 1.66 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%, 6.67%, 0.16% & 0.00% respectively in Auto-selection mode (5G/4G/3G/2G).

Call Silence/Mute Rate: Airtel, BSNL, RJIL and VIL have silence call rate 0.00%, 5.71%, 0.56% and 0.55% respectively in packet switched network (4G/5G).

Mean Opinion Score (MOS): Airtel, BSNL, RJIL and VIL have average MOS of 4.02, 2.94, 3.95 & 4.47 respectively.

Summary-Data Service

Data Download performance (Overall): Average download speed of Airtel (5G/4G) is 164.35 Mbps, BSNL (4G/3G/2G) is 4.44 Mbps, RJIL (5G/4G) is 283.41 Mbps and VIL (4G/2G) is 31.80 Mbps.

Data Upload performance (Overall): Average upload speed of Airtel (5G/4G) is 37.11 Mbps, BSNL (4G/3G/2G) is 3.34 Mbps, RJIL (5G/4G) is 32.61 Mbps and VIL (4G/2G) is 18.57 Mbps.

Data performance - Hotspots (in Mbps):

Airtel- 4G D/L: 41.08	4G U/L: 14.56
5G D/L: 142.27	5G U/L: 50.83
BSNL- 4G D/L: 6.55	4G U/L: 6.31
RJIL- 4G D/L: 52.41	4G U/L: 9.36
5G D/L: 249.07	5G U/L: 26.61
VIL- 4G D/L: 54.57	4G U/L: 23.78

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

1. Drive test route Map: (Ayodhya city– UP (East) LSA)

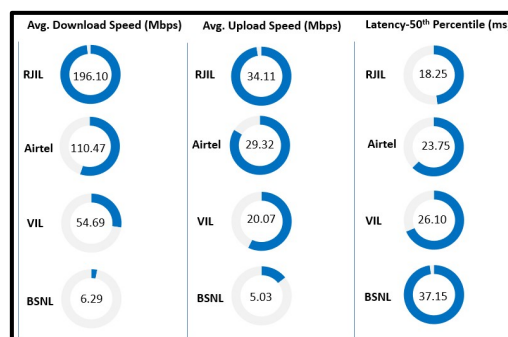
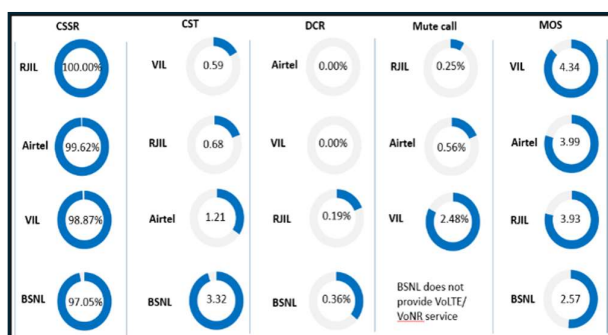
This route map indicates the routes covered in independent drive test in Ayodhya city under UP (East) LSA LSA.

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



Summary-Voice Service

Call Setup Success Rate: Airtel, BSNL, RJIL and VIL have call setup success rate of 99.62%, 97.05%, 100.00% and 98.87% respectively in auto-selection mode (5G/4G/3G/2G).

Call Setup Time: Airtel, BSNL, RJIL and VIL have call setup time of 1.21, 3.32, 0.68 & 0.59 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%, 0.36%, 0.19% & 0.00% respectively in auto-selection mode (5G/4G/3G/2G).

Call Silence/Mute Rate: Airtel, RJIL and VIL have silence call rate 0.56%, 0.25% & 2.48% respectively in packet switched network (5G/4G).

Mean Opinion Score (MOS): Airtel, BSNL, RJIL and VIL have average MOS of 3.99, 2.57, 3.93 & 4.34 respectively.

Summary-Data Service

Data Download performance (Overall): Average download speed of Airtel (5G/4G) is 110.47 Mbps, BSNL (4G/3G) is 6.29 Mbps, RJIL (5G/4G) is 196.10 Mbps and VIL (4G/2G) is 54.69 Mbps.

Data Upload performance (Overall): Average upload speed of Airtel (5G/4G) is 29.32 Mbps, BSNL (4G/3G) is 5.03 Mbps, RJIL (5G/4G) is 34.11 Mbps and VIL (4G/2G) is 20.07 Mbps.

Data performance - Hotspots (in Mbps):

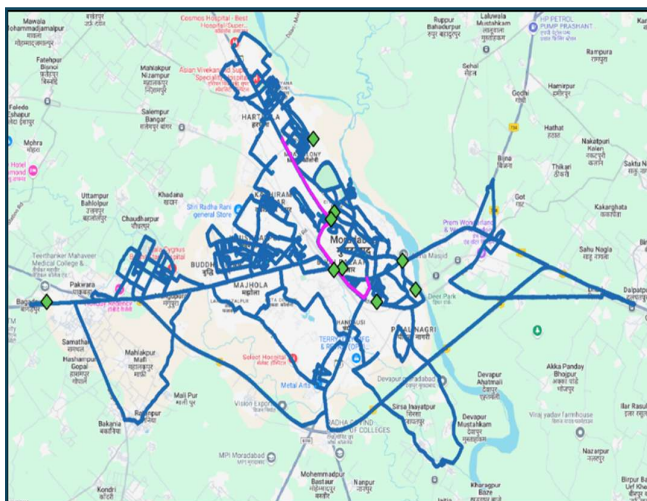
Airtel- 4G D/L: 22.42	4G U/L: 6.86
5G D/L: 109.90	5G U/L: 49.45
BSNL- 4G D/L: 5.34	4G U/L: 8.57
RJIL- 4G D/L: 58.56	4G U/L: 15.07
5G D/L: 105.84	5G U/L: 42.64
VIL- 4G D/L: 58.37	4G U/L: 17.38

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

1. Drive test route Map: (Moradabad City and Highway: Dehradun to Badrinath – UP (West) LSA)

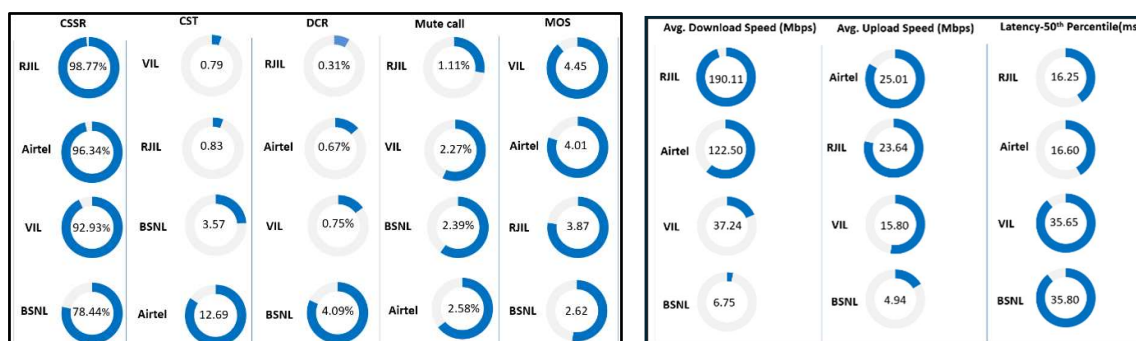
This route map indicates the routes covered in independent drive test in Moradabad City and Highway from Dehradun to Badrinath under UP (West) LSA.

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



Summary-Voice services

Call Setup Success Rate: Airtel, BSNL, RJIL and VIL have 96.34%, 78.44%, 98.77% and 92.93% Call setup success rate respectively in Auto-selection mode (5G/4G/3G/2G).

Call Setup Time: Airtel, BSNL, RJIL & VIL have Call setup time of 12.69, 3.57, 0.83 and 0.79 seconds respectively in Auto-selection mode (5G/4G/3G/2G).

Drop Call Rate: Airtel, BSNL, RJIL and VIL have drop call rate 0.67%, 4.09%, 0.31% and 0.75% respectively in Auto-selection mode (5G/4G/3G/2G).

Call Silence/Mute Rate: Airtel, BSNL, RJIL and VIL have silence call rate 2.58%, 2.39%, 1.11% and 2.27% respectively in packet switched network (4G/5G).

Mean Opinion Score (MOS): Airtel, BSNL, RJIL and VIL have average MOS of 4.01, 2.62, 3.87 and 4.45 respectively.

Summary-Data services

Data Download performance (Overall): Average download speed of Airtel (5G/4G/2G) is 122.50 Mbps, BSNL (4G/3G/2G) is 6.75 Mbps, RJIL (5G/4G) is 190.11 Mbps and VIL (4G/2G) is 37.24 Mbps.

Data Upload performance (Overall): Average upload speed of Airtel (5G/4G/2G) is 25.01 Mbps, BSNL (4G/3G/2G) is 4.94 Mbps, RJIL (5G/4G) is 23.64 Mbps and VIL (4G/2G) is 15.80 Mbps.

Data performance - Hotspots (in Mbps):

Airtel- 4G D/L: 20.48 4G U/L: 13.89
 5G D/L: 274.99 5G U/L: 46.51
 BSNL- 4G D/L: 10.06 4G U/L: 4.81
 RJIL- 4G D/L: 24.95 4G U/L: 13.46
 5G D/L: 240.16 5G U/L: 36.99
 VIL- 4G D/L: 33.43 4G U/L: 16.42

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