

Information Note to the Press (Press Release No. 02/2025)

TELECOM REGULATORY AUTHORITY OF INDIA

New Delhi, 10<sup>th</sup> January, 2025

For Immediate release

New Website: - [www.trai.gov.in](http://www.trai.gov.in)

TRAI releases report on Independent Drive Tests (IDT) conducted in four cities viz. New Delhi (Delhi LSA), Jaipur (Rajasthan LSA), Ahmednagar (Maharashtra LSA), & Hyderabad (Andhra Pradesh LSA), during Sept-Oct 2024.

New Delhi, Jan 10, 2025: TRAI, through its empanelled agency, conducted Independent Drive Tests (IDT) in four cities viz New Delhi (Delhi LSA), Jaipur (Rajasthan LSA), Ahmednagar (Maharashtra LSA), & Hyderabad (Andhra Pradesh LSA). Drive tests were conducted to assess the quality of service provided by Cellular Mobile Telephone Service providers for voice and data services.

2. In IDT, the performance of M/s Bharti Airtel Ltd., M/s BSNL/MTNL, M/s Reliance JIO Infocom 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.
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 four cities are given below:-

S. No.	City / Routes Covered	Licensed Service Area	Period of Drive Test	Distance Covered	Performance summary (attached at)
1	Central Delhi & New Delhi area including five Metro Routes	Delhi	17 <sup>th</sup> Sept. 2024 to 1 <sup>st</sup> Oct. 2024	City :635 Kms Metro: 210 Kms	Annexure A
2	Jaipur City including One Metro Route	Rajasthan	14 <sup>th</sup> Oct. 2024 to 18 <sup>th</sup> Oct. 2024	City :508 Kms Metro: 12 Kms	Annexure B
3	Ahmednagar City including Ahmednagar to Pune Highway	Maharashtra	21 <sup>st</sup> Oct. 2024 to 25 <sup>th</sup> Oct. 2024	City :230 Kms Highway :265 Kms	Annexure C
4	Hyderabad City including two metro routes	Andhra Pradesh	22 <sup>nd</sup> Oct. 2024 to 25 <sup>th</sup> Oct. 2024	City :295 Kms Metro: 56 Kms	Annexure D

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

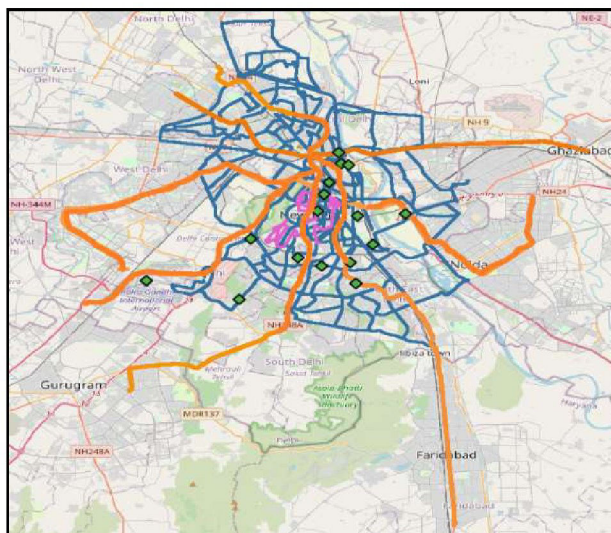
  
(Atul Kumar Chaudhary) 10/1/2025  
Secretary

1. Drive test route Map: (New Delhi – Delhi LSA)

This route map indicates the routes covered in independent drive test. The Delhi Metro routes were also covered during the IDT as indicated in the legend

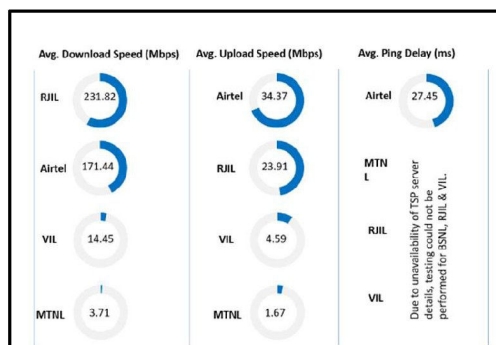
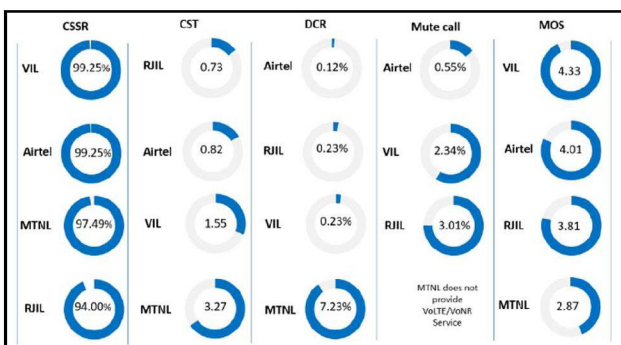
**Legends**

- City
- Metro
- Hotspot
- Interoperator



2. Performance against key QoS parameters:

CSSR: Call setup success rate, CST: Call set up time, DCR: Drop call rate,



**Summary-Voice**

**Call setup success rate:** RJIL has lower call setup success rate (94.00%), whereas Airtel, MTNL and VIL have 99.25%, 97.49% and 99.25% call setup success rate respectively.

[Note: RJIL has reported sever issue on 17.9.2024]

**Call Setup time:** Owing to circuit switched network (3G/2G), MTNL has a call setup time of 3.27 seconds to establish the voice call, whereas Airtel, RJIL and VIL call setup time is 0.82, 0.73 & 1.55 seconds respectively.

**Call Drop Rate:** Overall MTNL's call drop rate (7.23%) is higher (QoS benchmark of 2%), while Airtel, RJIL and VIL have 0.12%, 0.23% and 0.23% drop call rate respectively.

**\*Call Silence/Mute Rate:** In packet switched network (4G/5G), RJIL (3.01%) and VIL (2.34%) have comparatively higher silence call rate (> 2%) than Airtel (0.55%).

**\*Call silence/mute rate measured for 4G/5G Network only.**

**Mean Opinion Score (MOS):** Quality of speech of VIL (4.33) and Airtel (4.01) is having a MOS score >4, whereas RJIL (3.81) and MTNL (2.87) is having a MOS score <4.

**Summary-Data**

**Data Download performance (Dynamic):** MTNL (3.71 Mbps) and VIL (14.45 Mbps) being on 3G & 4G as top technology respectively, have comparatively lower download speeds. While Airtel and RJIL have average download speed of 171.44 Mbps and 231.82 Mbps respectively.

**Data Upload performance:** MTNL (1.67 Mbps) and VIL (4.59 Mbps) being on 3G & 4G as top technology respectively, have comparatively lower upload speeds. While Airtel and RJIL have average upload speed of 34.37 Mbps and 23.91 Mbps respectively.

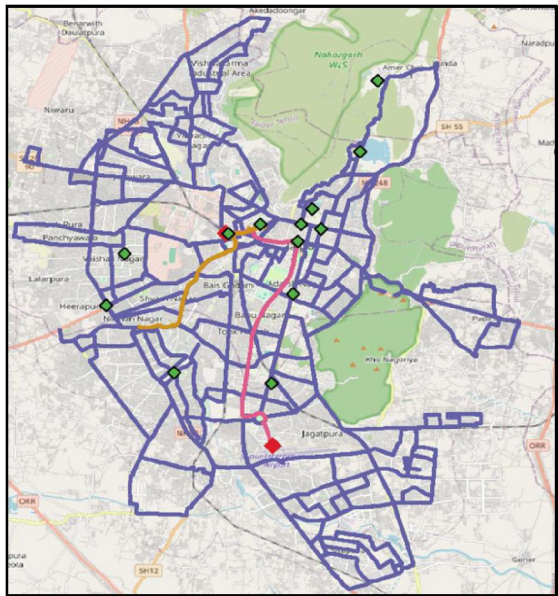


1. Drive test route Map:(Jaipur – Rajasthan LSA)

This route map indicates the routes covered in independent drive test. The Jaipur Metro routes and walk test were also covered during the IDT as indicated in the legend

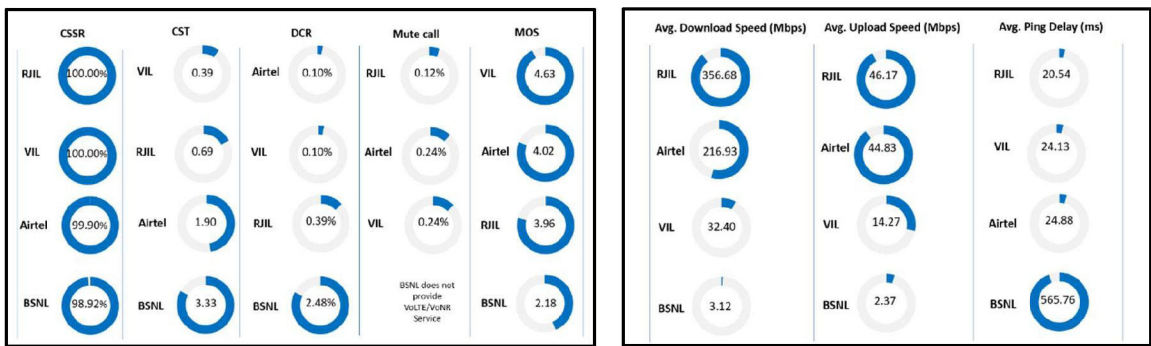
**Legends**

- City
- Interoperator
- Hotspot
- Walk test
- Metro



2. Performance against key QoS parameters:

CSSR: Call setup success rate, CST: Call set up time, DCR: Drop call rate



**Summary-Voice**

**Call setup success rate (CSSR):** RJIL and VIL has call setup success rate (100.00%), whereas Airtel, and BSNL have 99.90% and 98.92% call setup success rate respectively.

**Call Setup time (CST):** Owing to circuit switched network (3G/2G), BSNL has a call setup time of 3.33 seconds to establish the voice call, whereas Airtel, RJIL and VIL call setup time is 1.90, 0.69 & 0.39 seconds respectively.

**Call Drop Rate (DCR):** Overall BSNL's call drop rate (2.48%) is higher (QoS benchmark of 2%), while RJIL, Airtel and VIL have 0.39%, 0.10% and 0.10% drop call rate respectively.

**\*Call Silence/Mute Call rate:** In packet switched network (4G/5G), the call silence rate is VIL(0.24%), Airtel (0.24%) and RJIL (0.12%) respectively.

**\*Call silence/mute rate measured for 4G/5G Network only.**

**Mean Opinion Score (MOS):** Quality of speech of VIL (4.63) and Airtel (4.02) is having a MOS score >4, whereas RJIL (3.96) and BSNL (2.18) is having a MOS score <4.

**Summary-Data**

**Data Download performance (Dynamic):** BSNL (3.12 Mbps) and VIL (32.40 Mbps) being on 3G & 4G as top technology respectively, have comparatively lower download speeds. While Airtel and RJIL have average download speed of 216.93 Mbps and 356.68 Mbps respectively.

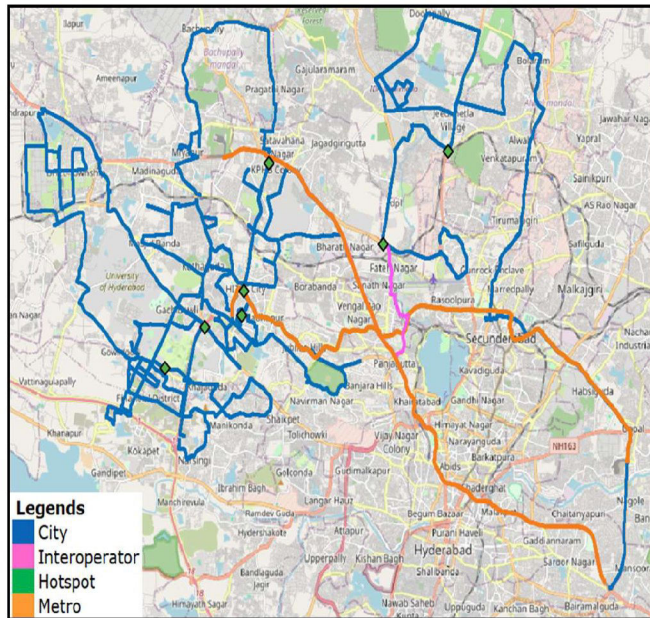
**Data Upload performance:** BSNL (2.37 Mbps) and VIL (14.27 Mbps) being on 3G & 4G as top technology respectively, have comparatively lower upload speeds. While Airtel and RJIL have average upload speed of 44.83 Mbps and 46.17 Mbps respectively.

1. Drive test route Map:( Hyderabad – Andhra Pradesh LSA)

This route map indicates the routes covered in independent drive test. The Hyderabad Metro routes and walk test were also covered during the IDT as indicated in the legend

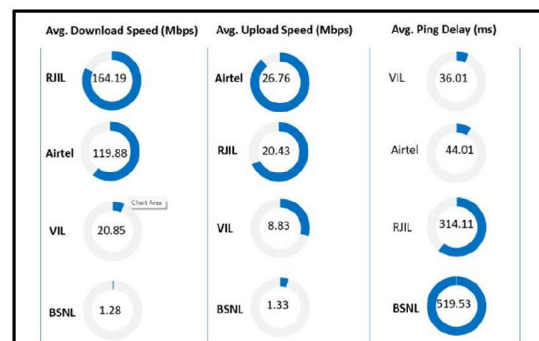
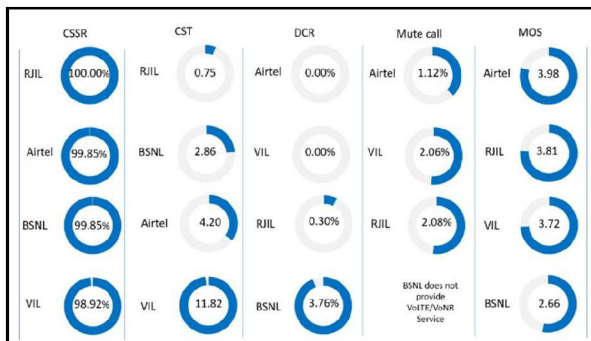
**Legends**

- City
- Interoperators
- Hotspots
- Metro



2. Performance against key QoS parameters:

CSSR: Call setup success rate, CST: Call set up time, DCR: Drop call rate



**Summary-Voice**

**Call setup success rate (CSSR):** RJIL has a call setup success rate (100.00%), whereas Airtel and BSNL have 99.85% and VIL has 98.92% call setup success rate respectively.

**Call Setup time (CST):** Owing to circuit switched network (3G/2G), VIL has a call setup time of 11.82 seconds to establish the voice call, whereas Airtel, BSNL & RJIL call setup time is 4.20, 2.86 & 0.75 seconds respectively.

**Call Drop Rate (DCR):** Overall BSNL's call drop rate (3.76%) is higher (QoS benchmark of 2%), while RJIL, Airtel and VIL have 0.3%, 0.00% and 0.00% drop call rate respectively.

**\*Call Silence/Mute Call rate:** In packet switched network (4G/5G), RJIL (2.08%), and VIL (2.06%) have comparatively higher silence call rate (> 2%) than Airtel (1.12%).

**\*Call silence/mute rate measured for 4G/5G Network only.**

**Mean Opinion Score (MOS):** Quality of speech of Airtel (3.98), RJIL (3.81), VIL (3.72) and BSNL (2.66) all are having a MOS score <4.

**Summary-Data**

**Data Download performance (Dynamic):** BSNL (1.28 Mbps) and VIL (20.85 Mbps) being on 3G & 4G as top technology respectively, have comparatively lower download speeds. While Airtel and RJIL have average download speed of 119.88 Mbps and 164.19 Mbps respectively.

**Data Upload performance:** BSNL (1.33 Mbps) and VIL (8.83 Mbps) being on 3G & 4G as top technology respectively, have comparatively lower upload speeds. While Airtel and RJIL have average upload speed of 26.76 Mbps and 20.43 Mbps respectively.

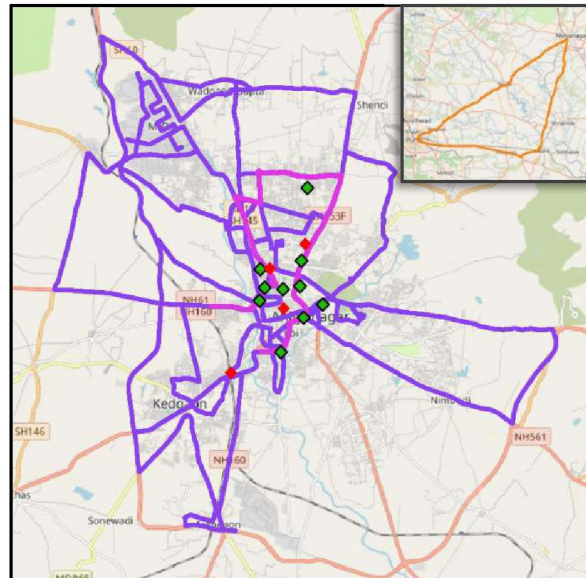


1. Drive test route Map:(Ahmednagar City & Ahmednagar-Pune Highway – Maharashtra LSA)

This route map indicates the routes covered in independent drive test. The Ahmednagar-Pune Highway route was also covered during the IDT as indicated in the legend

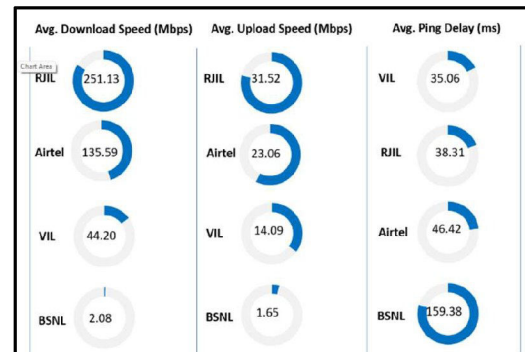
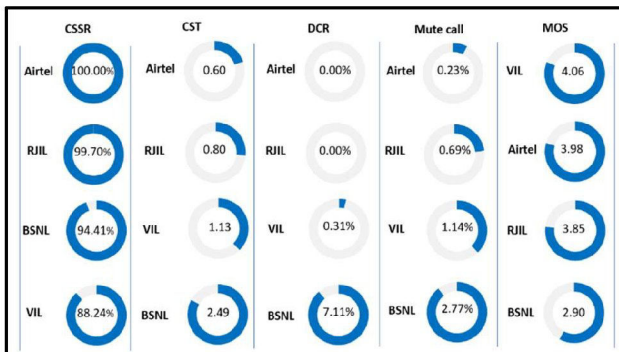
**Legends**

- City
- Interoperators
- Hotspot
- Walk test
- Highway



2. Performance against key QoS parameters:

CSSR: Call setup success rate, CST: Call set up time, DCR: Drop call rate



**Summary-Voice**

**Call setup success rate (CSSR):** Airtel has call setup success rate (100.00%), whereas RJIL has 99.70% BSNL and VIL have 94.41% & 88.24% call setup success rate (QoS bench mark of >=98 % ) respectively.

**Call Setup time (CST):** Owing to circuit switched network (3G/2G), BSNL & VIL has a call setup time of 2.49 seconds & 1.13 seconds respectively to establish the voice call, whereas RJIL & Airtel call setup time is 0.80 & 0.60 seconds respectively.

**Call Drop Rate (DCR):** Overall BSNL's call drop rate (7.11%) is higher (QoS benchmark of 2%), while VIL, RJIL and Airtel have 0.31%, 0.00% and 0.00% drop call rate respectively.

**\*Call Silence/Mute Call rate:** In packet switched network (4G/5G), BSNL (2.77%), has comparatively higher silence call rate (> 2%) than VIL (1.14%) RJIL (0.69%), and Airtel (0.23%).

**\*Call silence/mute rate measured for 4G/5G Network only.**

**Mean Opinion Score (MOS):** Quality of speech of VIL (4.06) has a MOS score >4 whereas Airtel (3.98), RJIL(3.85) and BSNL (2.90) are having a MOS score <4.

**Summary-Data**

**Data Download performance (Dynamic):** BSNL (2.08 Mbps) and VIL (44.20 Mbps) being on 4G as top technology, have comparatively lower download speeds. While Airtel and RJIL have average download speed of 135.59 Mbps and 251.13 Mbps respectively.

**Data Upload performance:** BSNL (1.65 Mbps) and VIL (14.09 Mbps) being on 4G as top technology, have comparatively lower upload speeds. While Airtel and RJIL have average upload speed of 23.06 Mbps and 31.52 Mbps respectively.