

Information Note to the Press (Press Release No. 10/2025)

TELECOM REGULATORY AUTHORITY OF INDIA

New Delhi, 11th February 2025

For Immediate release

New Website: - www.trai.gov.in

TRAI releases report on Independent Drive Tests (IDT) conducted in five cities viz. Mysuru City (Karnataka LSA), Dharamshala City (Himachal Pradesh LSA), Chennai City (Tamil Nadu LSA), Chandigarh City (Punjab LSA) and Kolkata City (Kolkata LSA) during Nov 2024.

New Delhi, Feb 11th, 2025: TRAI, through its empanelled agency, conducted Independent Drive Tests (IDT) in five cities viz. Mysuru City (Karnataka LSA), Dharamshala City (Himachal Pradesh LSA), Chennai City (Tamil Nadu LSA), Chandigarh City (Punjab LSA) and Kolkata City (Kolkata LSA). Drive tests were conducted to assess the quality of service provided by Cellular Mobile Telephone Service providers for voice and data services in November-2024.

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

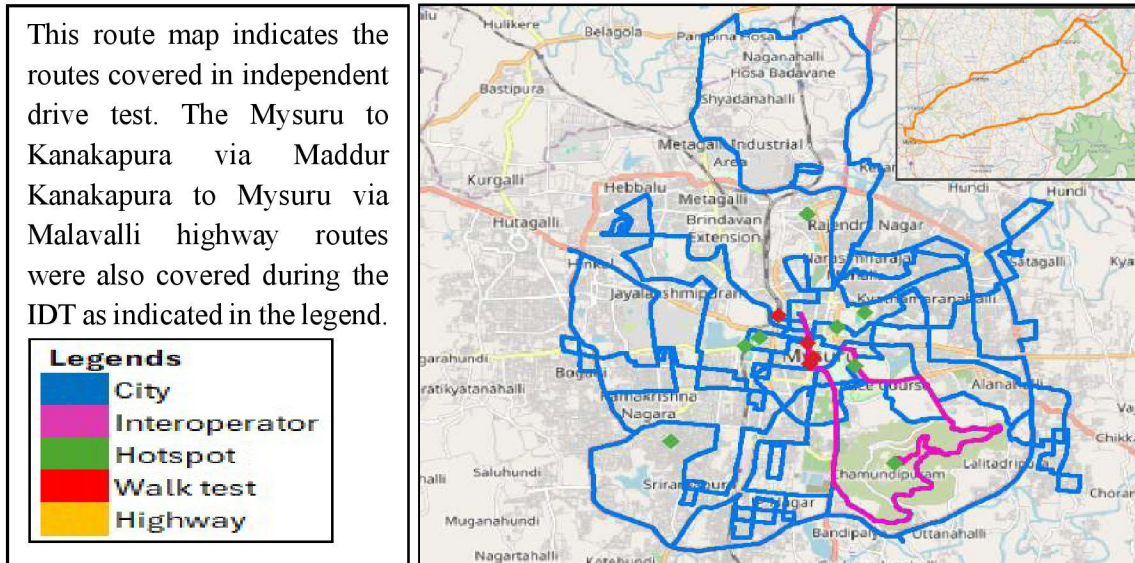
4. The details of drive tests conducted in the four cities are given below:-

| S. No. | City / Routes Covered | Licensed Service Area | Period of Drive Test | Distance Covered | Performance summary (attached at) |
|--------|---|-----------------------|--|--|-----------------------------------|
| 1 | Mysuru City & Mysuru to Malavalli Highway | Karnataka | 19 th Nov. 2024 to 22 nd Nov. 2024 | City :263.5 Kms Walk Test: 10 Kms Highway :215 Kms | Annexure A |
| 2 | Dharamshala City | Himachal Pradesh | 19 th Nov. 2024 to 20 th Nov. 2024 | City :148 Kms | Annexure B |
| 3 | Chennai City | Tamil Nadu | 19 th Nov. 2024 to 22 nd Nov. 2024 | City :352.5 Kms | Annexure C |
| 4 | Chandigarh City | Punjab | 10 th Nov. 2024 to 15 th Nov. 2024 | City :599.5 Kms Walk Test: 2.6 Kms | Annexure D |
| 5 | Kolkata City | Kolkata | 5 th Nov. 2024 to 9 th Nov. 2024 | City :264 Kms Walk Test: 1.34 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) 11/2/25
Secretary

1. Drive test route Map: (Mysuru City & Mysuru-Malavalli Highway - 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 %)



Summary-Voice services

Call Setup Success Rate: Airtel, BSNL, RJIL and VIL have 100.00%, 98.96%, 100.00% and 98.81% call setup success rate respectively.

Call Setup Time: BSNL has taken comparatively longer time (3.80 seconds) to establish the voice call, whereas Airtel, RJIL and VIL call setup time is 1.12, 0.70 & 1.12 second respectively in open mode (5G/4G/3G/2G).

Call Drop Rate: BSNL's overall call drop rate (3.46%) is higher (QoS benchmark of 2%), while Airtel, RJIL and VIL have 0.00%, 0.15% and 0.30% respectively.

Call Silence/Mute Rate: In packet switched network (4G/5G), Airtel, BSNL, RJIL and VIL have 2.40%, 1.50%, 0.22% & 1.30% silence call rate respectively.

Mean Opinion Score (MOS): Quality of speech of Airtel (3.96), BSNL (2.66), RJIL (3.89) and VIL (3.90) and is <4.

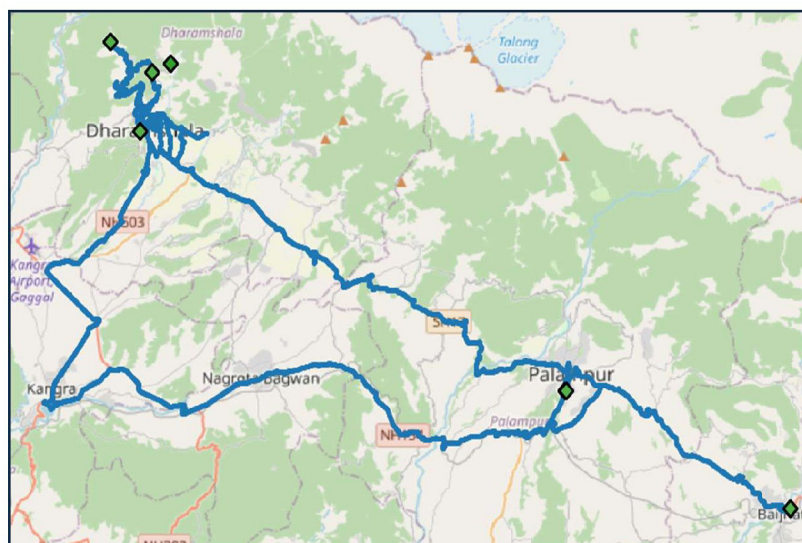
Summary-Data services

Data Download performance (Dynamic): BSNL (3.96 Mbps) and VIL (19.63 Mbps), operating on 4G/3G technologies, have comparatively lower average download speeds. In contrast, Airtel and RJIL achieve significantly higher average download speeds of 164.66 Mbps and 243.10 Mbps in 4G/5G technology.

Data Upload performance (Dynamic): BSNL (2.57 Mbps) and VIL (11.90 Mbps), operating on 4G/3G technologies, have comparatively lower average upload speeds. In contrast, Airtel and RJIL offer faster speeds of 37.76 Mbps and 25.14 Mbps, respectively in 4G/5G technology.

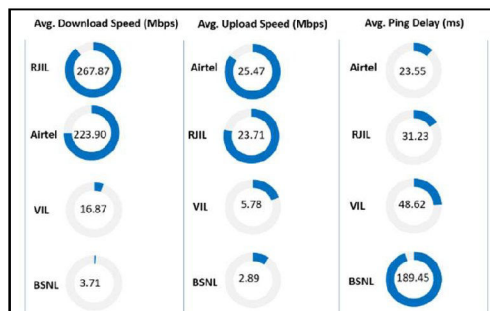
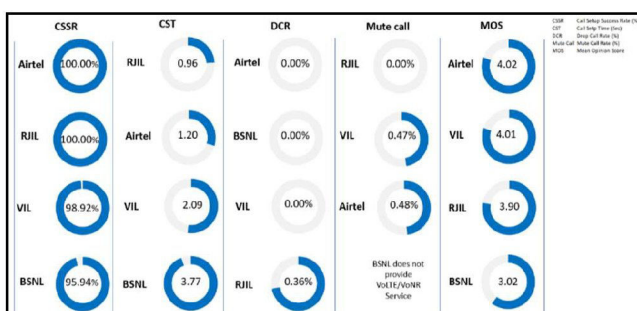
1. Drive test route Map: (Dharamshala City, Kangra, Palampur & Baijnath Connecting route- Himachal Pradesh LSA)

This route map indicates the routes covered in Independent drive test of Dharamshala and nearby area. Covered drive test route during the IDT indicates in the legends.



2. Performance against key QoS parameters:

CSSR: Call setup success rate(in %), CST: Call setup time (in milli seconds), DCR: Drop call rate(in %)



Summary-Voice service

Call setup success rate: Airtel, BSNL, RJIL and VIL have 100.00%, 95.94%, 100.00% and 98.92% call setup success rate respectively.

Call Setup time: Owing to circuit switched network (3G/2G), BSNL has taken comparatively longer time (3.77 second) to establish the voice call, whereas Airtel, RJIL and VIL call setup time is 1.20, 0.96 & 2.09 second respectively in Auto-selection mode (5G/4G/3G/2G)

Call Drop Rate: Airtel, BSNL and VIL all have 0% call drop rate, while RJIL has call drop rate of 0.36%.

Call Silence/Mute Rate: In packet switched network (4G/5G), Airtel, RJIL and VIL have 0.48%, 0.00% and 0.47% silence call rate respectively.

Mean Opinion Score (MOS): Quality of speech of Airtel (4.02) and VIL (4.01) having MOS score > 4, whereas RJIL (3.90) and BSNL (3.02) has relatively lower MOS score.

Summary-Data service

Data Download performance (Dynamic): BSNL (3.71 Mbps) and VIL (16.87 Mbps) being on 3G & 4G as top technology respectively, have comparatively lower average download speeds. While Airtel and RJIL have average download speed of 223.90 Mbps and 267.87 Mbps respectively in 4G/5G technology.

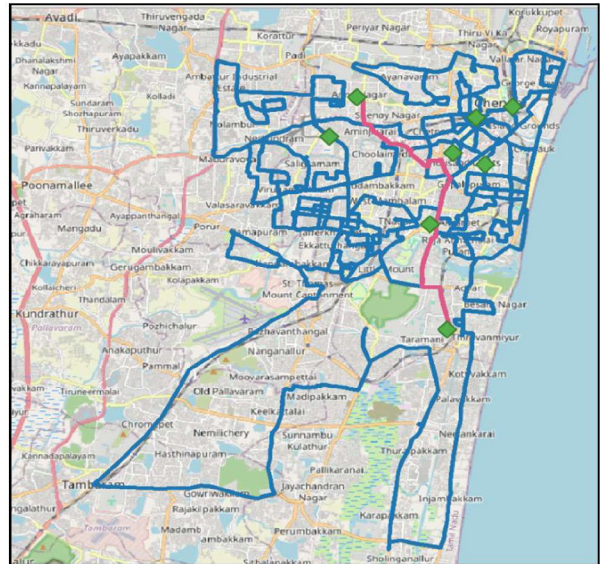
Data Upload performance (Dynamic): BSNL (2.89 Mbps) and VIL (5.78 Mbps), operating on 3G and 4G technologies respectively, have comparatively lower average upload speeds. In contrast, Airtel and RJIL have faster speeds of 25.47 Mbps and 23.71 Mbps, respectively in 4G/5G technology.

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

This route map indicates the routes covered in Independent drive test of Chennai and nearby area. Covered drive test route during the IDT indicates in the legends.

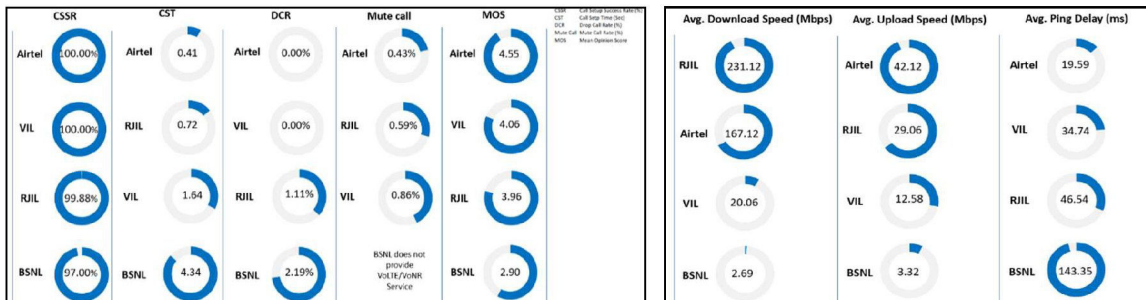
Legends

- City
- Hotspot
- Interoperator



2. Performance against key QoS parameters:

CSSR: Call setup success rate(in %), CST: Call setup time (in milli seconds), DCR: Drop call rate(in %)



Summary-Voice Service

Call Setup Success Rate: Airtel, BSNL, RJIL and VIL have 100.00%, 97.00%, 99.88% and 100.00% call setup success rate (CSSR) respectively in Auto-selection mode (5G/4G/3G/2G).

Call Setup Time: BSNL has taken comparatively longer Call setup time (4.34 second) to establish the voice call, whereas Airtel, RJIL and VIL call setup time is 0.41, 0.72 and 1.64 seconds respectively in Auto-selection mode (5G/4G/3G/2G).

Call Drop Rate: BSNL's overall Drop call rate (2.19%) is higher (QoS benchmark is 2%), while Airtel, RJIL and VIL have 0.00%, 1.11% and 0.00% drop call rate respectively in Auto-selection mode (5G/4G/3G/2G).

Call Silence/Mute Rate: In packet switched network (4G/5G), Airtel, RJIL and VIL have 0.43, 0.59% & 0.86% silence call rate respectively.

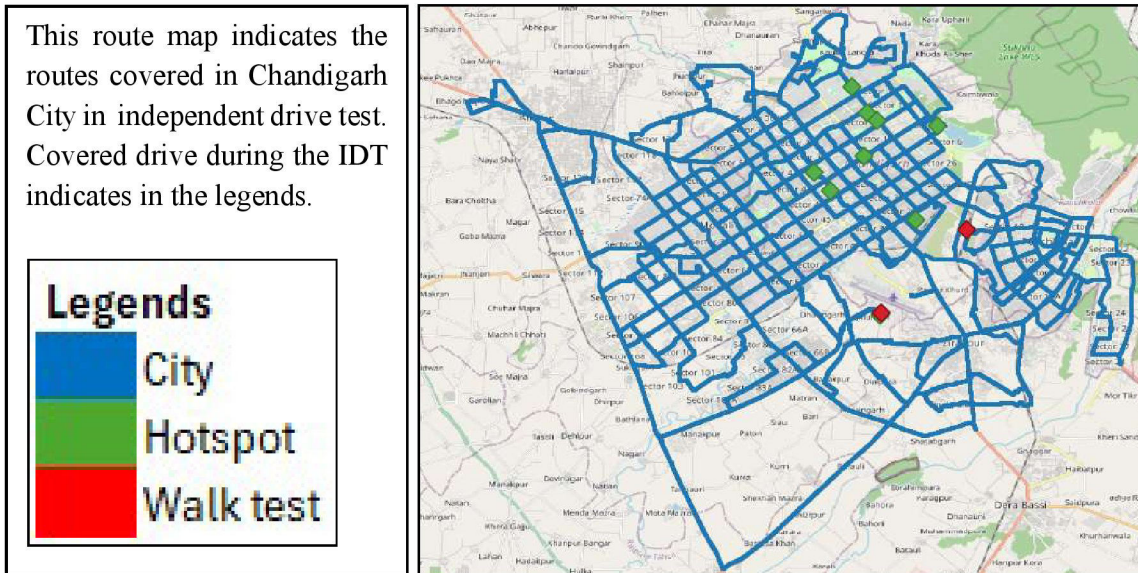
Mean Opinion Score (MOS): Quality of speech of Airtel (4.55) and VIL (4.06) having MOS score > 4, whereas RJIL (3.96) and BSNL (2.90) has relatively lower MOS score.

Summary-Data Service

Data Download performance (Dynamic): BSNL (2.69 Mbps) and VIL (20.06 Mbps), being on 3G & 4G as top technology respectively, have comparatively lower average download speeds. While Airtel and RJIL have average download speed of 167.12 Mbps and 231.12 Mbps respectively in 4G/5G technology.

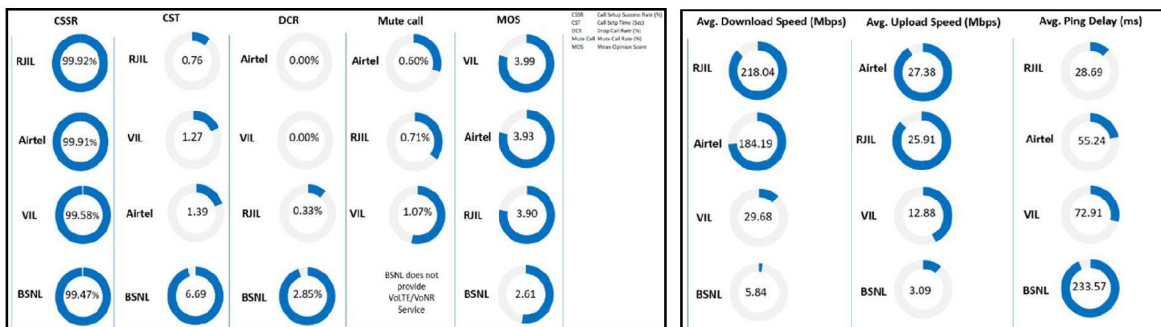
Data Upload performance (Dynamic): BSNL (3.32 Mbps) and VIL (12.58 Mbps) being on 3G & 4G as top technology respectively, have comparatively lower average upload data speeds. While Airtel and RJIL have average upload speed of 42.12 Mbps and 29.06 Mbps respectively in 4G/5G technology.

1. Drive test route Map: (Chandigarh City - 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 %)



Summary-Voice Services

Call Setup Success Rate: Airtel, BSNL, RJIL and VIL have 99.91%, 99.47%, 99.92% and 99.58% call setup success rate respectively.

Call Setup Time: Owing to circuit switched network (3G/2G), BSNL has taken comparatively longer time (6.69 second) to establish the voice call, whereas Airtel, RJIL and VIL call setup time is 1.39, 0.76 & 1.27 second respectively.

Call Drop Rate: BSNL's overall call drop rate (2.85%) is higher (QoS benchmark of 2%), while Airtel, RJIL and VIL have 0.00%, 0.33% and 0.00% drop call rate respectively.

Call Silence/Mute Rate: In packet switched network (4G/5G), Airtel, RJIL and VIL have 0.60%, 0.71% and 1.07% silence call rate respectively.

Mean Opinion Score (MOS): Quality of speech of VIL (3.99), Airtel (3.93), RJIL (3.90) and BSNL (2.61) is <4.

Summary-Data Services

Data Download performance (Dynamic): BSNL (5.84 Mbps) and VIL (29.68 Mbps) being on 3G & 4G as top technology respectively, have comparatively lower average download speeds. While Airtel and RJIL have average download speed of 184.19 Mbps and 218.04 Mbps respectively in 4G/5G technology.

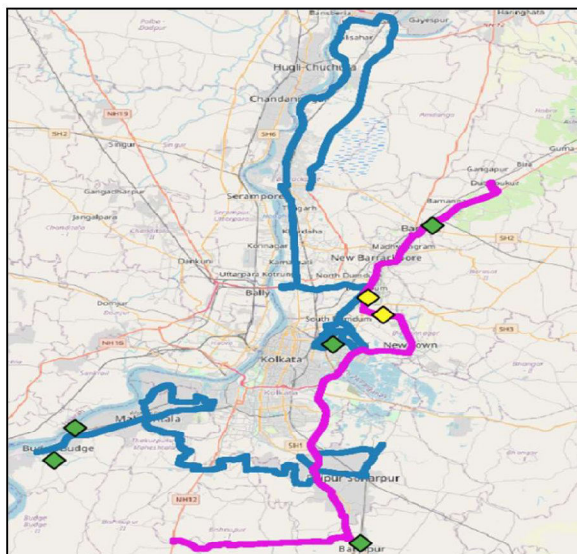
Data Upload performance (Dynamic): BSNL (3.09 Mbps) and VIL (12.88 Mbps) being on 3G & 4G as top technology respectively, have comparatively lower average upload speeds. While Airtel and RJIL have average upload speed of 27.38 Mbps and 25.91 Mbps respectively in 4G/5G technology.

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

This route map indicates the routes covered in Kolkata City in independent drive test. Covered drive during the IDT indicates in the legends.

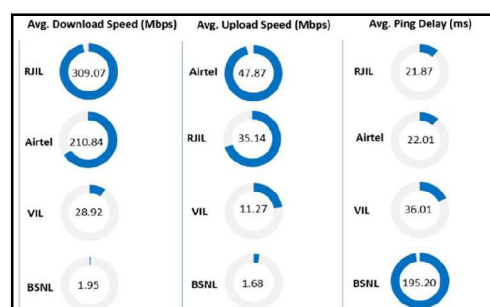
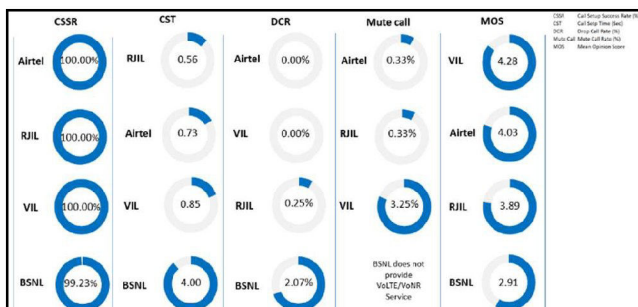
Legends

- City
- Interoperator
- Hotspot
- Walk test



2. Performance against key QoS parameters:

CSSR: Call setup success rate(in %), CST: Call setup time (in milli seconds), DCR: Drop call rate(in %)



Summary-Voice Service

Call Setup Success Rate: Airtel, BSNL, RJIL and VIL have 100.00%, 99.23%, 100.00% and 100.00% call setup success rate respectively in auto-selection mode (5G/4G/3G/2G).

Call Setup Time: Owing to circuit switched network (3G/2G), BSNL has taken comparatively longer time (4.00 second) to establish the voice call, whereas Airtel, RJIL and VIL call setup time is 0.73, 0.56 & 0.85 second respectively in auto-selection mode (5G/4G/3G/2G).

Call Drop Rate: Overall BSNL's call drop rate (2.07%) is higher (QoS benchmark of 2%), while Airtel, RJIL and VIL have 0.00%, 0.25% and 0.00% drop call rate respectively in auto-selection mode (5G/4G/3G/2G).

Call Silence/Mute Rate: In packet switched network (4G/5G), Airtel, RJIL and VIL have 0.33%, 0.33% and 3.25% silence call rate respectively.

Mean Opinion Score (MOS): Quality of speech of VIL (4.28) and Airtel (4.03) having MOS score > 4, whereas RJIL (3.89) and BSNL (2.91) has relatively lower MOS score.

Summary-Data Service

Data Download performance (Dynamic): BSNL (1.95 Mbps) and VIL (28.92 Mbps) being on 3G & 4G as top technology respectively, have comparatively lower average download speeds. While Airtel and RJIL have average download speed of 210.84 Mbps and 309.07 Mbps respectively in 4G/5G technology.

Data Upload performance (Dynamic): BSNL (1.68 Mbps) and VIL (11.27 Mbps) being on 3G & 4G as top technology respectively, have comparatively lower average upload speeds. While Airtel and RJIL have average upload speed of 47.87 Mbps and 35.14 Mbps respectively in 4G/5G technology.