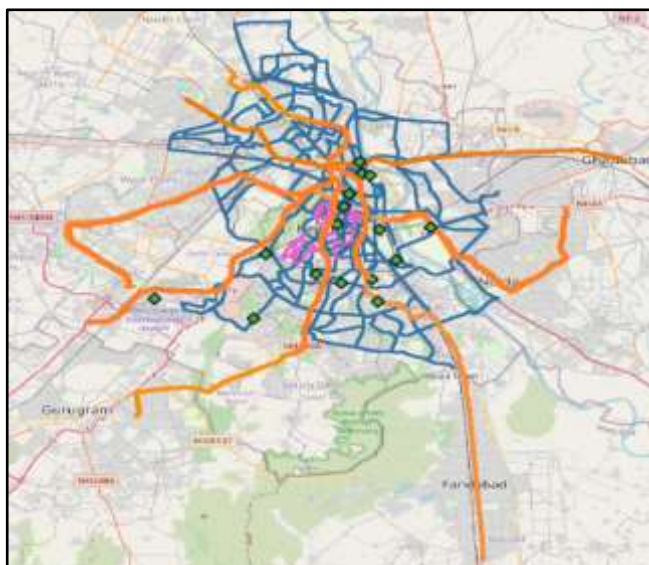
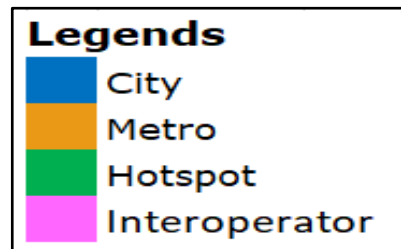


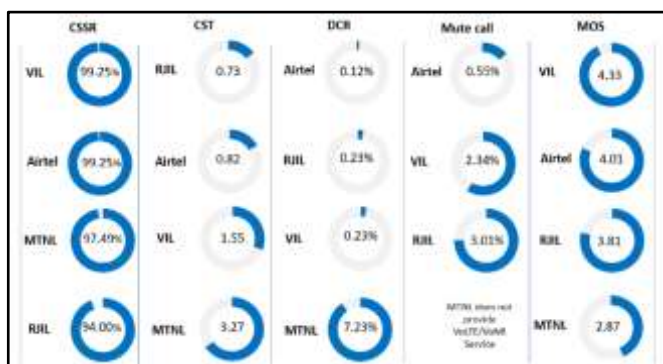
1. Drive test route Map: (New Delhi – Delhi LSA)

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



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.

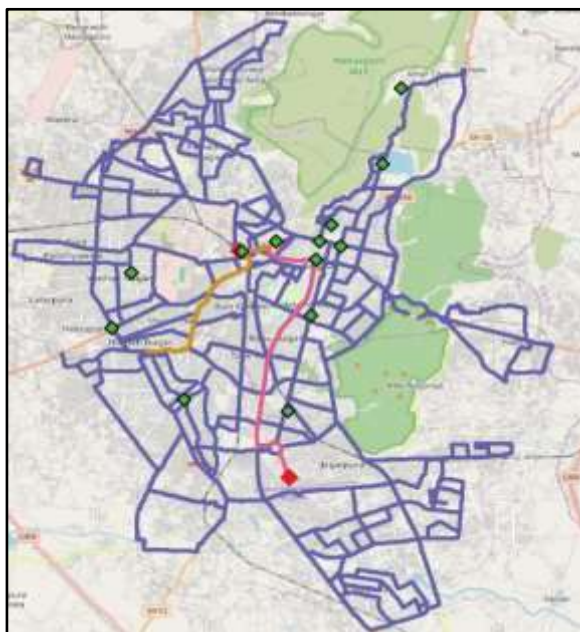
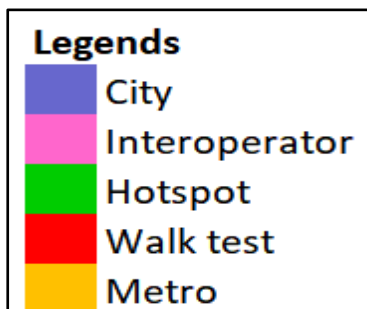
Summary-Data

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



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

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.

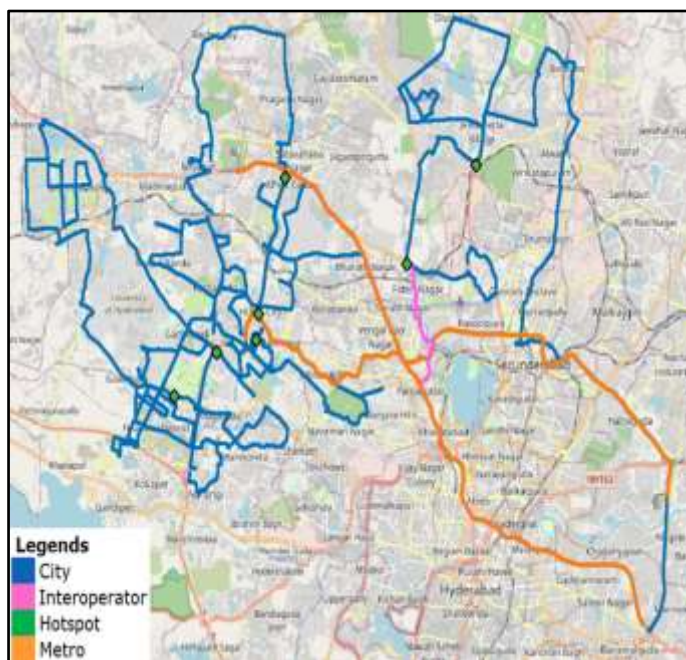
Data Upload performance: BSNL (2.37 Mbps) and VIL (14.27 Mbps) being on 3G & 4G as top technology respectively, have comparatively lower upload speeds. While Airtel and RJIL have average upload speed of 44.83 Mbps and 46.17 Mbps respectively.

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 11.82seconds 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.

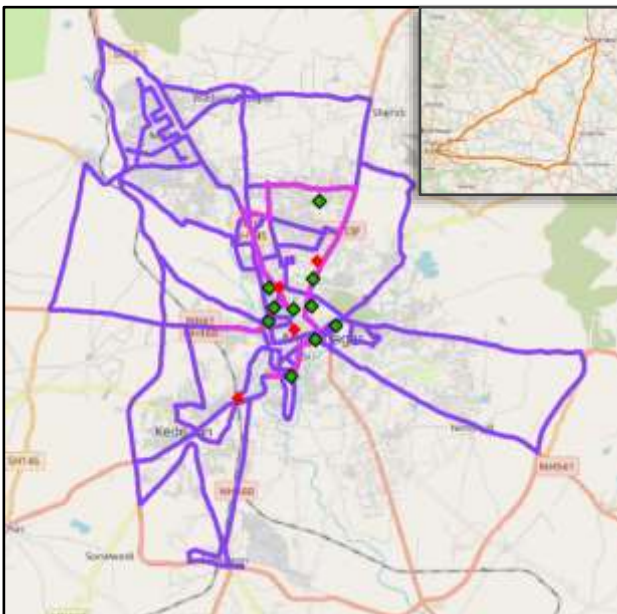
Summary-Data

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 26.76Mbps 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



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.