

Operator Assisted Drive Test Report

For

Hingoli

28th to 30th Jan 2025

Hingoli-Washim-Malegaon-Risod-Hingoli – 147 Kms

28-01-2025 (NH)

Hingoli-Injangaon-Ardhapur-Hingoli

Hingoli city

(29th & 30th Jan 2025 - 273 kms)

TRAI RO, Bengaluru

Key Performance Indicators:

- All TSPs have met the 2% QOS benchmark of Drop Call Rate except BSNL 2G & 4G.
- All TSPs have met the 3% QOS benchmark of Call Block Rate except BSNL 2G.
- All 2G TSPs have met the Rx Quality except 4G of ALL Four TSPs.
- All 2G/3G/4G TSPs have met the Mobility HOSR except BSNL 2G.
- All TSPs have met CSSR%(Accessibility) except BSNL 2G & 4G.

The Operator Assisted Drive Test has been carried out by the Regional Office, Bangalore with the help of Service Providers from 28th to 30th Jan 2025. The drive test covered the route of **420 Kms** including NH/SH of **147 Kms** & **6** hotspots. Approximately 375 calls were made for each of the 7 networks: three 2G networks, and four 4G networks covering four TSPs.

Overview

Voice
Summary

Data
Summary

Overview

Regional Office, TRAI Bengaluru conducted Operator Assisted Drive Test from 28th to 30^h **Jan 2025** covering various locations in Hingoli & Surrounding Region. The performance of Airtel, BSNL, Vodafone Idea, and Jio were monitored across various technologies (2G, 3G, and 4G/4G). The test results obtained from these drive tests were utilized to assess the network quality for Voice and Data services in terms of

Voice: Coverage, Quality, Hand Over Success Rate, Call Setup Success Rate, Drop Call Rate and Block Call Rate.

Data: Download and Upload Throughputs, Web Browsing Delay and Latency

Drive Test Details:

Voice Tests: Calls were made for 90 sec duration with a wait time of 10 sec between calls in all technologies. The drive test covered a drive route of approximately **420 KMs** including **NH/SH of 147 Kms** over a period of 3 days from 28th to 30th **JAN 2025**. Approximately 375 calls were made for each of the 7 networks: three 2G (Lock Mode) networks, and four 4G networks covering 4 unique TSPs.

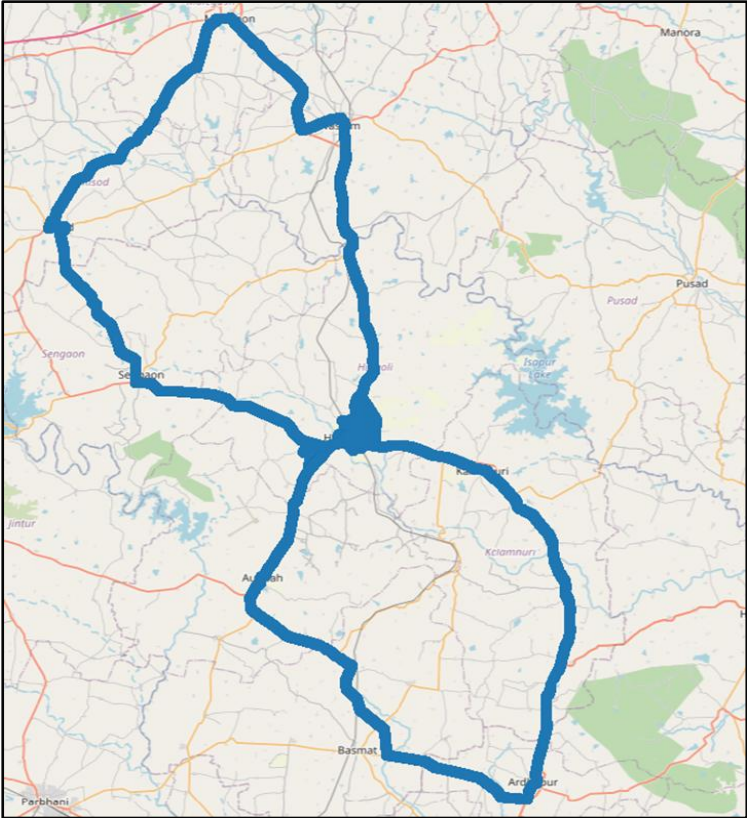
Data Tests: Dynamic data test (Test Data on Move) was conducted for **420 KMs** including **NH/SH of 147 Kms** over a period of 3 days for download throughput for 4G technology. Data Tests were performed at 6 static locations; three 2G (Lock mode) networks, and four 4G (Free mode) networks covering 4 unique TSPs were tested. **All the data through put figure mentioned in the report are based on the average value.**

* For Voice and Data KPI's, 2G measurement is done with UE locked on 2G, and 4G measurement is done with UE in Free Mode.

* 4G KPI's which are calculated from the UE in Free Mode included samples and events of 2G & 3G.

Service	Specifications
Download	2G (Locked) - 500KB, 3G (Dual) - 20 MB, 4G (Free) - 40 MB
Upload	2G (Locked) - 100KB, 3G (Dual) - 5 MB, 4G (Free) - 10 MB
Web Browsing	3 links of e/m commerce website www.amazon.in , www.flipkart.com and PayTm
Latency	32 Bytes on www.google.com
Video Streaming	130 secs clip

Voice & Dynamic Data Test (Data Test on Move)
Drive Route



Day	Areas Covered
Day1	Hingoli- Washim- Malegaon- Risod- Hingoli
Day2	Hingoli-Aundah-Basmat- Ardhapur- Kalamnuri- Hingoli
Day3	Hingoli City and Surrounding Areas

Data Service Test- Static Locations



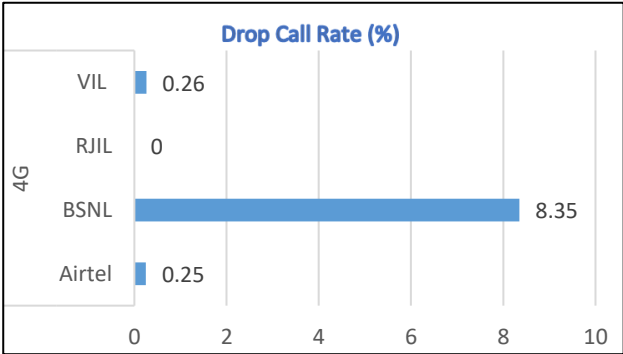
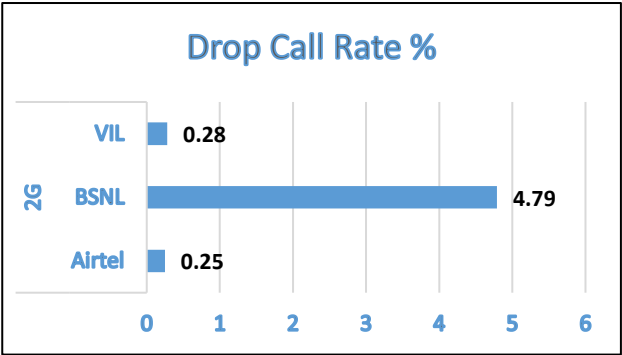
Location Name
Railway Station
Government Medical College
MSRTC Bus Stand
Government Polytechnic College
District Collector Office
RTO Office

Voice Calls

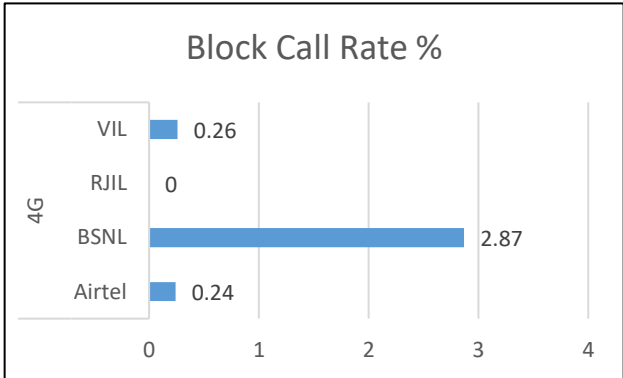
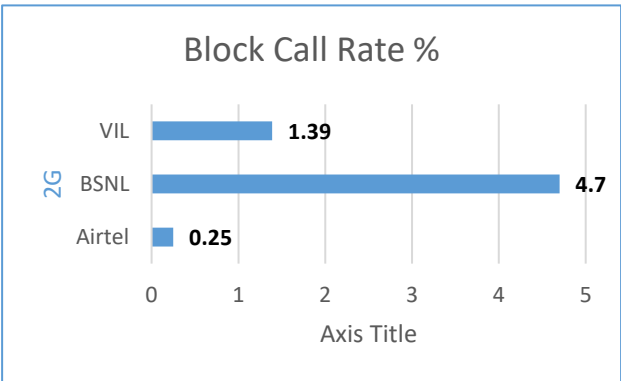
Key Observations

QoS compliance of the TSPs for Voice across technologies 2G/3G/4G-4G:

Drop Call Rate (%)



Block Call Rate (%)



KPIs	2G				4G		
	Airtel	BSNL	VIL	Airtel	BSNL	RJIL	VIL
Drop Call Rate %	0.25	4.79	0.28	0.25	8.35	0	0.26
Block Call Rate %	0.25	4.7	1.39	0.24	2.87	0	0.26

- a) All TSPs have met the 2% QOS benchmark of Drop Call Rate. Except BSNL 2G & 4G
- b) All TSPs have met the 3% QOS benchmark of Call Block except BSNL 2G

Voice Calls

Key Observations

Coverage

a) Percentage of coverage samples for 2G \geq -85 dBm.

TSPs	2G		
	Airtel	BSNL	VIL
Coverage%	65.77	51.79	71.85

b) Percentage of coverage samples for 3G \geq -90 dBm & LTE \geq -110 dBm.

TSPs	4G			
	Airtel	BSNL	JIO	VIL
Coverage %	89.88	79.72	97.5	93.59

c) Percentage of time spent on 3G/4G network

TSPs		4G		
	Airtel	BSNL	JIO	VIL
Time Spent on 3G/4G%	100	100	100	98.7

Summary

City Level Summary

Voice Call	2G		
	Airtel	BSNL	VIL
Call Attempt	400	319	360
Blocked Call Rate (%)	0.25	4.7	1.39
CSSR% (Accessibility)	99.75	95.3	98.61
Drop Call Rate (%)	0.25	4.79	0.28
Rx Quality (%)	96.35	97.83	95.07
Mobility HOSR (%)	96	65.24	98.1

Voice Call				
	Airtel VoLTE	BSNL 4G	JIO VoLTE	VIL 4G
Call Attempt	403	452	324	387
Blocked Call Rate (%)	0.24	2.87	0	0.26
CSSR% (Accessibility)	99.76	97.13	100	99.74
Drop Call Rate (%)	0.25	8.35	0	0.26
Rx Quality (%)	82.74	89.51	87.4	89.37
Mobility HOSR (%)	98.7	98.36	100	99.61

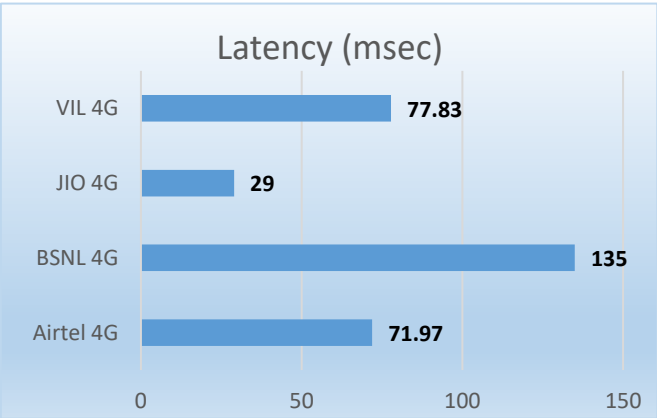
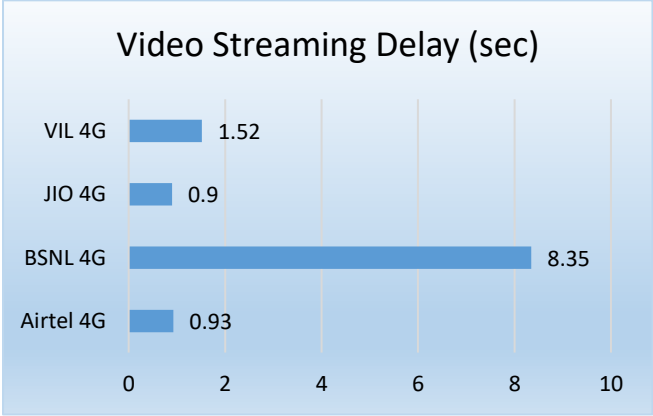
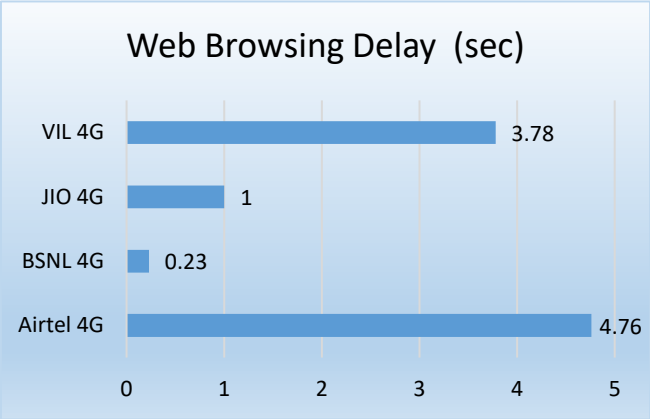
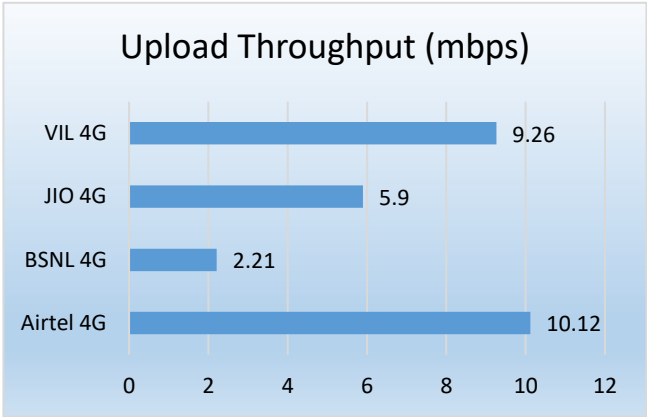
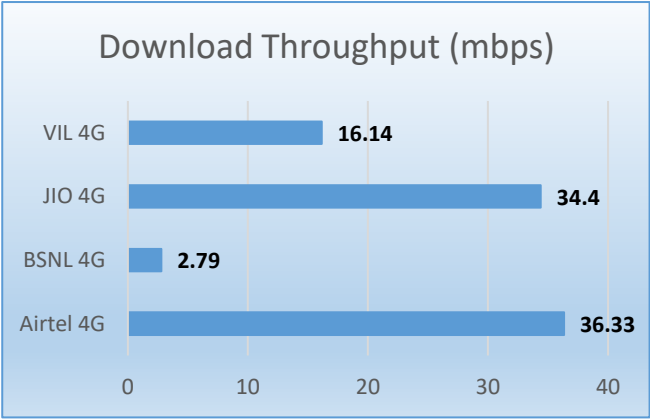
Data Services Static

Key Observations

Data was tested at 6 locations. The following services were tested: Data Download/Upload, Latency (www.google.com), and Web browsing (Flipkart, Amazon, Paytm)

Data Download, Upload Performance (Mbps), Web Browsing delay, Video Streaming and Latency 3G/4G

3G/4G/ Network:



Summary

City Level Summary(contd.)

Data Services Static				
Data Services Static	3G/VoLTE			
	Airtel VoLTE	BSNL 4G	JIO VoLTE	VIL VoLTE
Download Throughput (mbps)	36.33	2.79	34.4	16.14
Upload Throughput (mbps)	10.12	2.21	5.9	9.26
Browsing (sec)	4.76	0.23	1	3.78
Video Streaming Delay (sec)	0.93	8.35	0.9	1.52
Latency (msec)	71.97	135	29	77.83

Data Services Dynamic				
Data Services Dynamic				
	Airtel VoLTE	BSNL 4G	JIO VoLTE	VIL VoLTE
Download Throughput (mbps)	34.62	*	15.2	34.76
Upload Throughput (mbps)	12.6	*	3.9	7.2

* BSNL has not recorded Dynamic Data due to unavailability of Handset.

Data Services Static	4G			
Location 1 (Railway station Hingoli)	BSNL 4G	AIRTEL	JIO	VIL
Download Throughput (mbps)	4.97	47.58	21.94	11.13
Upload Throughput (mbps)	0.59	8.15	4.8	6.18
Web Browsing Delay (sec)	0.02	5.38	0.6	3.78
Video Streaming Delay (sec)	2.76	0.78	0.9	1.88
Latency (ms)	130.65	76	28.4	76.4

Data Services Static	4G			
Location 2 (Govt Medical College)	BSNL 4G	AIRTEL	JIO	VIL
Download Throughput (mbps)	1.63	36.82	85.5	5.88
Upload Throughput (mbps)	0.43	12.31	10.2	6.77
Web Browsing Delay (sec)	0.106	4.86	0.6	3.82
Video Streaming Delay (sec)	4.88	0.85	0.9	2.28
Latency (ms)	76.88	67.2	25.4	55.2

Data Services Static	4G			
Location 3 (MSRTC Bus Stand)	BSNL 4G	AIRTEL	JIO	VIL
Download Throughput (mbps)	3.47	48.82	28.9	26.69
Upload Throughput (mbps)	2.45	8.87	5.4	12.61
Web Browsing Delay (sec)	0.31	4.73	1	3.85
Video Streaming Delay (sec)	3.87	1.1	1	1.29
Latency (ms)	129.12	68.2	25.6	91.6

Data Services Static	4G			
Location 4 (Govt Polytechnic College)	BSNL 4 G	AIRTEL	JIO	VIL
Download Throughput (mbps)	1.1	32.38	12.58	7.75
Upload Throughput (mbps)	0	9.16	2.1	11.27
Web Browsing Delay (sec)	0.21	4.71	1.3	3.78
Video Streaming Delay (sec)	28.02	0.95	1.2	1
Latency (ms)	217.56	79.4	33.4	55.8

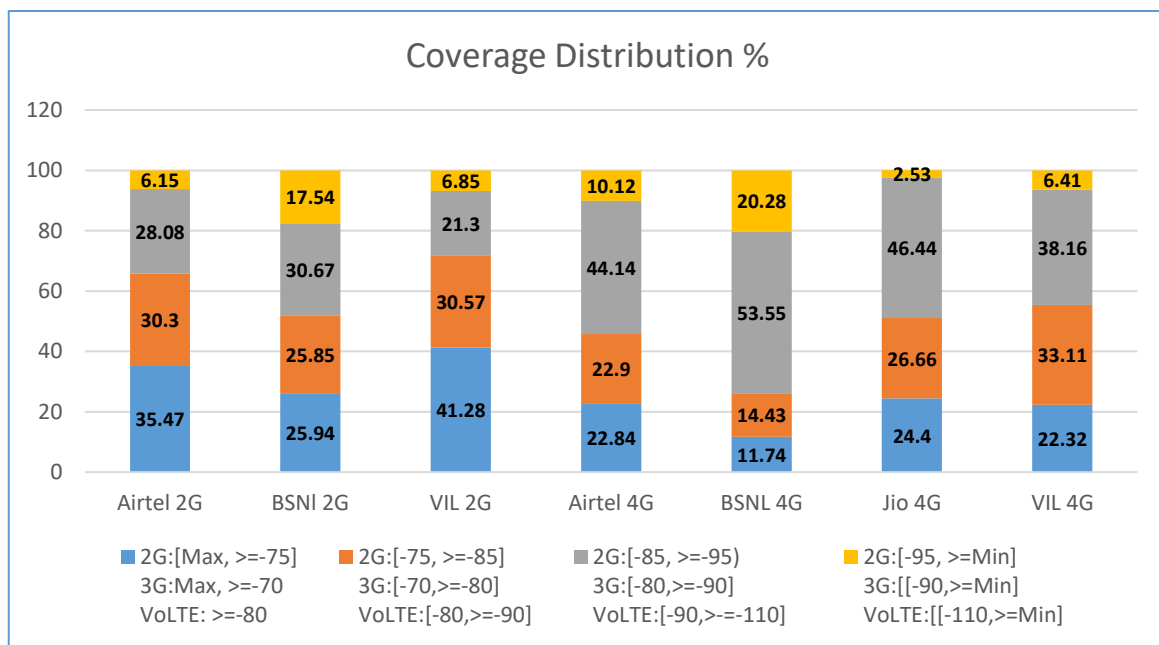
Data Services Static	4G			
Location 5 (District Collector office)	BSNL 4 G	AIRTEL	JIO	VIL
Download Throughput (mbps)	3.54	36.53	31.08	25.9
Upload Throughput (mbps)	7.68	12.47	5.7	13.06
Web Browsing Delay (sec)	0.62	4.43	1.8	3.65
Video Streaming Delay (sec)	4.43	0.92	0.48	1.21
Latency (ms)	126.97	69.6	33.8	90.8

Data Services Static	4G			
Location 6 (RTO Office)	BSNL 4 G	AIRTEL	JIO	VIL
Download Throughput (mbps)	1.99	15.83	26.4	19.52
Upload Throughput (mbps)	2.08	9.75	7.2	5.65
Web Browsing Delay (sec)	0.076	4.22	0.8	3.77
Video Streaming Delay (sec)	6.11	1.0	1.08	1.43
Latency (ms)	130.68	71.4	30	97.2

I. Coverage Details

RF Coverage relates to the geographical footprint within the system that has sufficient RF signal strength to provide for a call session. The Coverage rate is calculated on the basis of % of samples in which the Rx level ≥ -85 dBm, RSCP is ≥ -90 dBm & RSRP ≥ -110 dBm. The details are as follows.

Coverage	
TSP	Coverage Rate %
Airtel 2G	65.77
BSNI 2G	51.79
VIL 2G	71.85
Airtel 4G	89.88
BSNL 4G	79.72
Jio 4G	97.50
VIL 4G	93.59

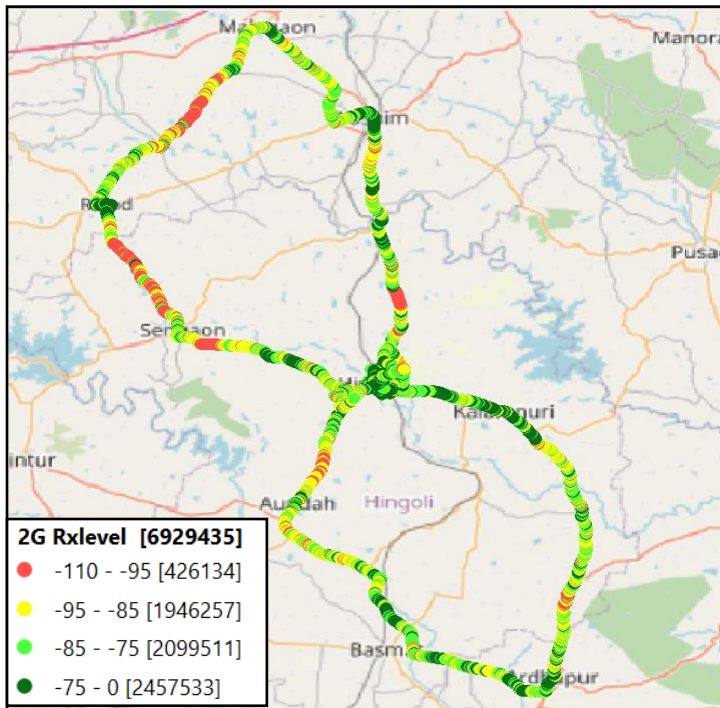


I. Coverage Details

AIRTEL

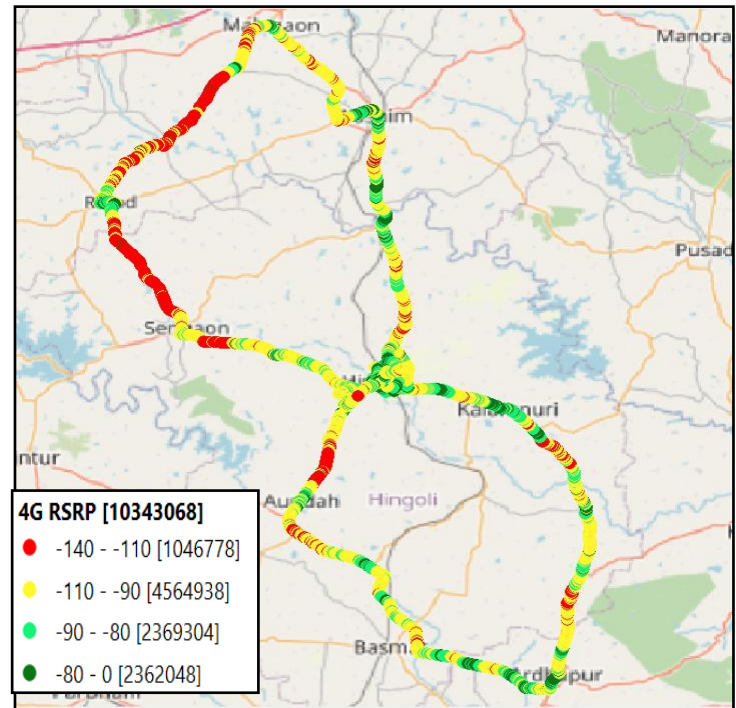
Technology	Coverage Rate %
2G	65.77
4G	89.88

2G



2G		
Overall RxLevel	# Samples	% PDF
[Max, >=-75]	2457533	35.47
[-75, >=-85)	2099511	30.30
[-85, >=-95)	1946257	28.08
[-95, >=Min)	426134	6.15
Total	6929435	100

4G



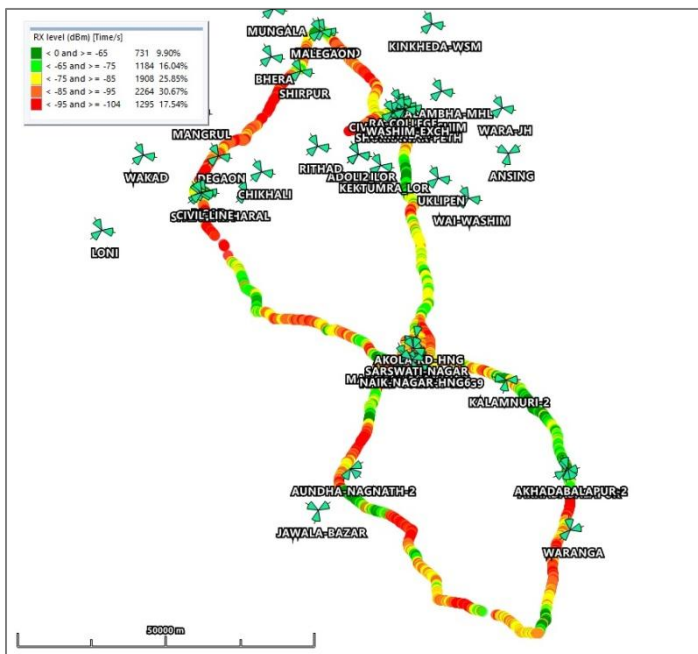
4G/VoLTE		
Overall RSRP	# Samples	% PDF
[Max, >=-80]	2362048	22.84
[-80, >=-90)	2369304	22.90
[-90, >=-110)	4564938	44.14
[-110, >=Min)	1046778	10.12
Total	10343068	100

I. Coverage Details

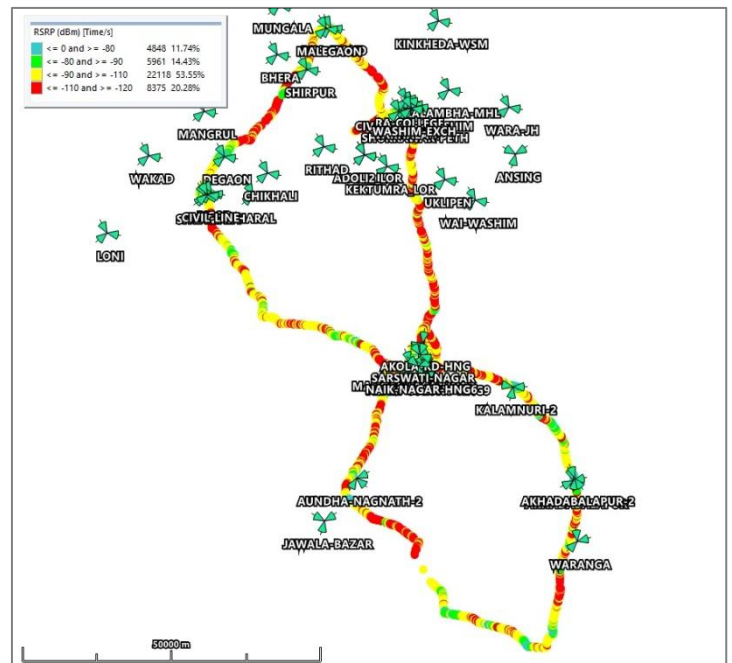
BSNL

Technology	Coverage Rate %
2G	51.79
4G	79.72

2G



4G



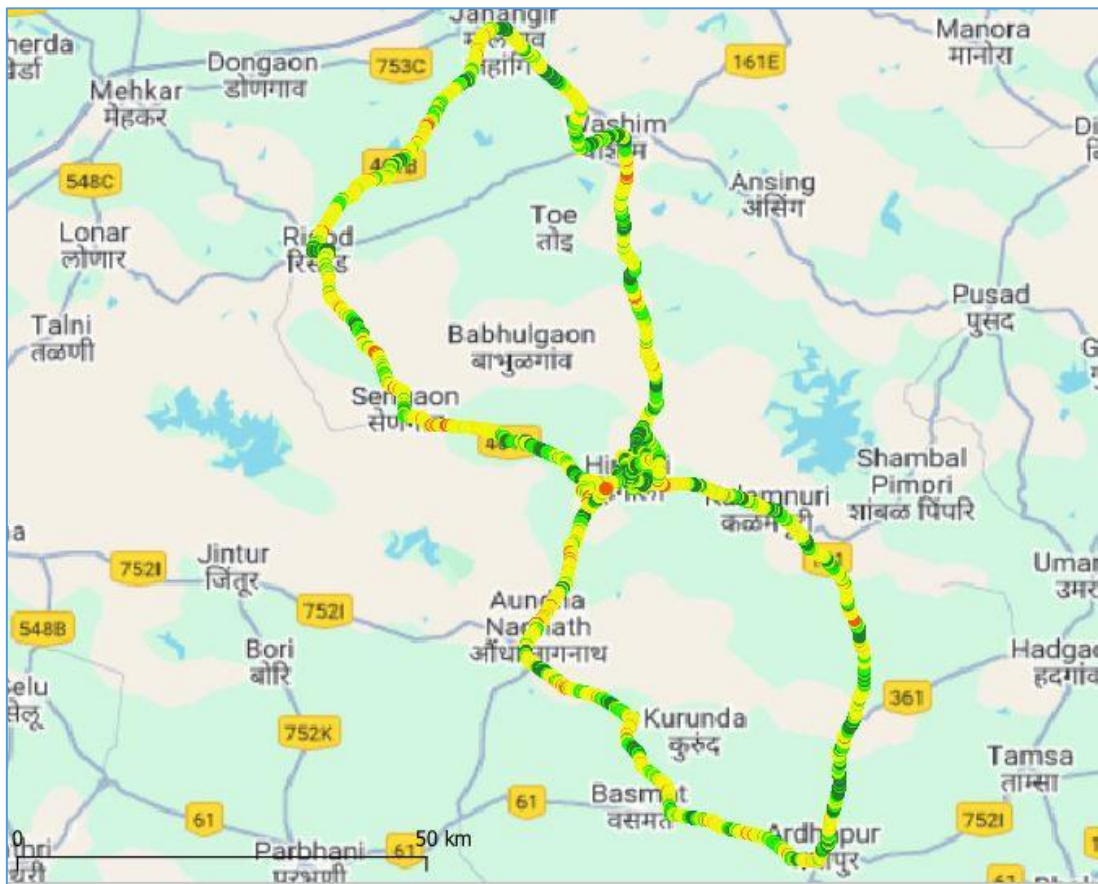
2G		
Overall RxLevel	# Samples	% PDF
[Max, >=-75]	1915	25.94%
[-75, >=-85]	1908	25.85%
[-85, >=-95]	2264	30.67%
[-95, >=Min]	1295	17.54%
Total	7382	

4G/VoLTE		
Overall RSRP	# Samples	% PDF
[Max, >=0]	4848	11.74%
[-80, >=-90]	5961	14.43%
[-90, >=-110]	22118	53.55%
[-110, >=MIN]	8375	20.28%
Total	41303	

I. Coverage Details

JIO

Technology	Coverage Rate %
4G	97.50



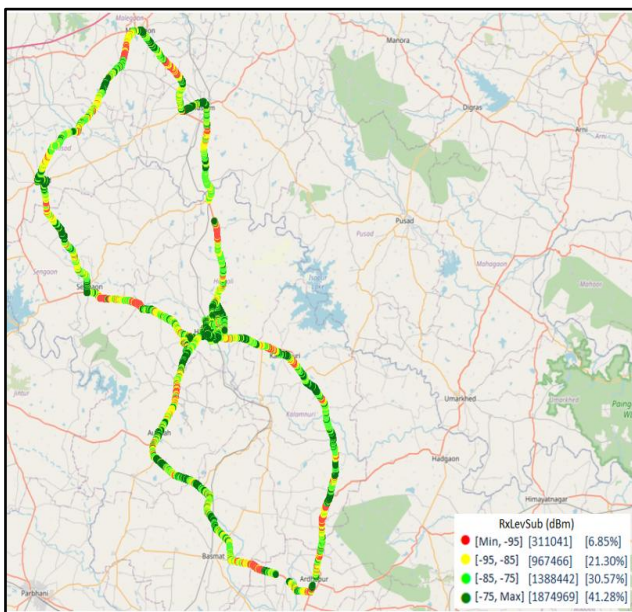
4G/VoLTE		
Overall RSRP	# Samples	% PDF
[Max, >=-80]	10,387	24.4%
[-80, >=-90)	11,299	51.0%
[-90, >=-110)	19,739	97.5%
[-110, >=Min)	1077	100.0%
Total	42,502	

I. Coverage Details

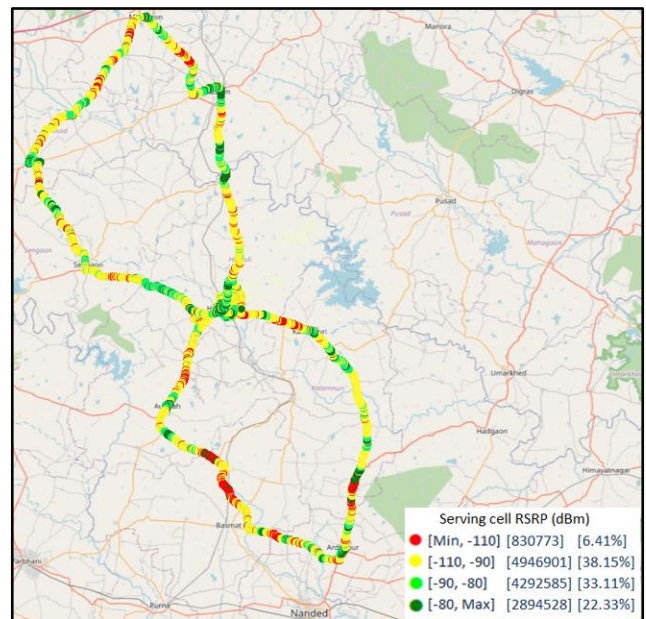
VIL

Technology	Coverage Rate %
2G	71.85
4G	93.59

2G



4G



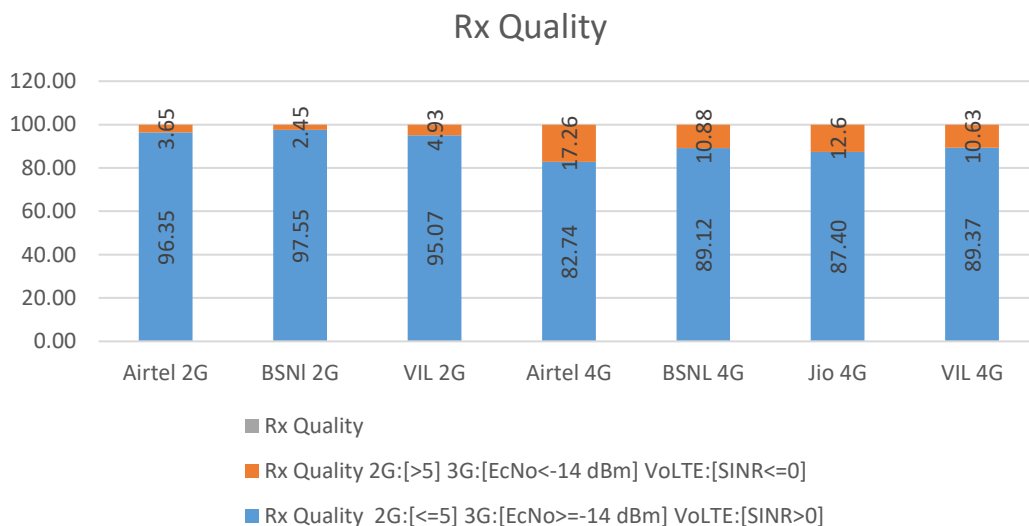
2G		
Overall RxLevel	# Samples	% PDF
[Max, >=-75]	1874969	41.28
[-75, >=-85]	1388442	30.57
[-85, >=-95]	967466	21.30
[-95, >=Min)	311041	6.85
Total	4541918	100

VoLTE		
Overall RSRP	# Samples	% PDF
[Max, >=-80]	2894528	22.32
[-80, >=-90]	4292585	33.11
[-90, >=-110]	4946901	38.16
[-110, >=Min)	830773	6.41
Total	12964787	100

II. Quality Details

For measuring voice quality, as per the QoS norms, RxQual ≤ 5 for GSM TSPs, EcNo ≥ -14 dBm for 3G TSP sand SINR > 0 in case of 4G is considered to be good, where as quality beyond this benchmark is considered to be bad. The benchmark should usually be $\geq 95\%$.

TSP	Rx Quality %
Airtel 2G	96.35
BSNI 2G	97.55
VIL 2G	95.07
Airtel 4G	82.74
BSNL 4G	89.12
Jio 4G	87.40
VIL 4G	89.37

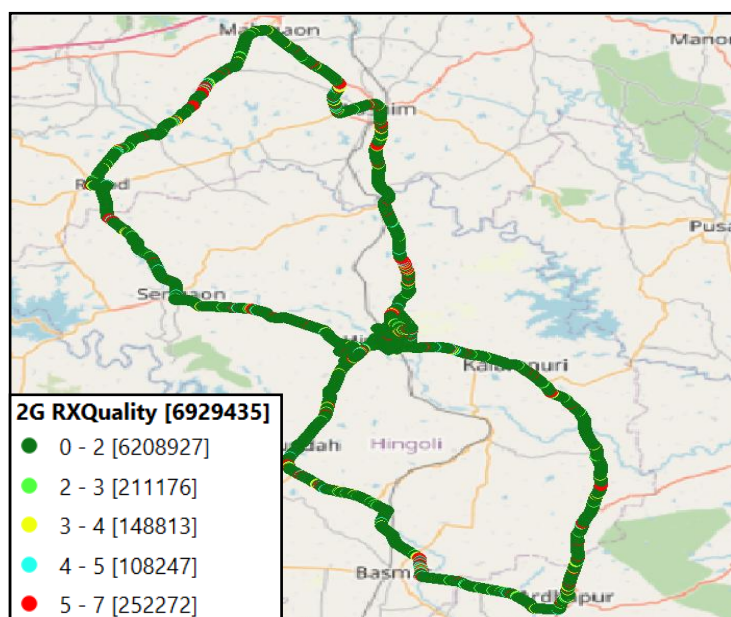


II. Quality Details

Airtel

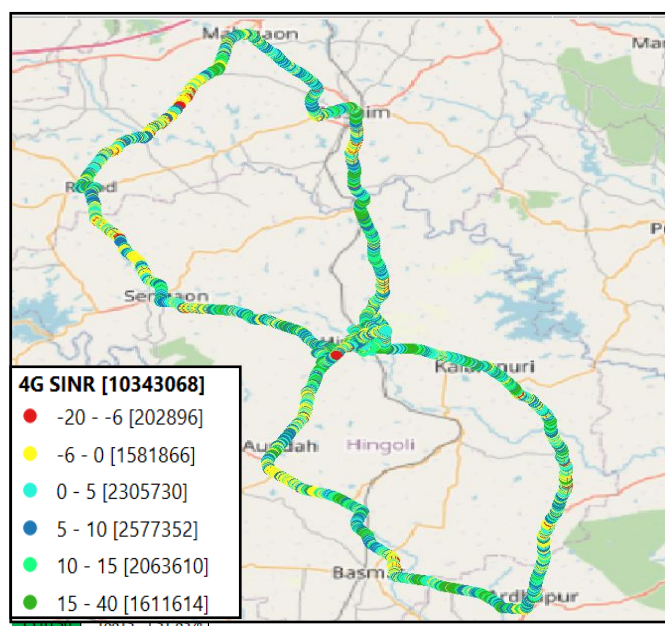
Technology	Rx Quality %
2G	96.35
4G	82.74

2G



Overall Rx Quality	# Samples	% PDF
(Min, <=2)	6208927	89.60
(2, <=3)	211176	3.06
(3, <=4)	148813	2.14
(4, <=5)	108247	1.56
(5, <=Max)	252272	3.64
Total	6929435	100

4G



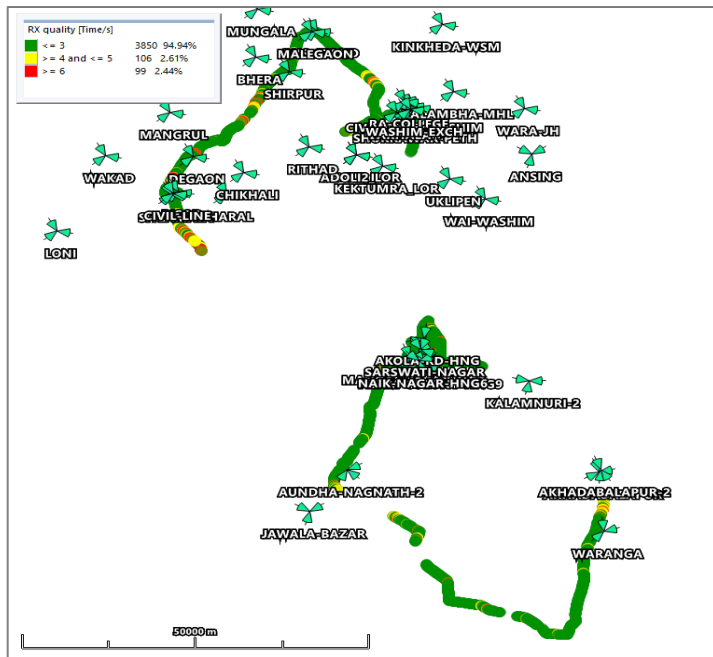
Overall SINR	# Samples	% PDF
(-20, <-6)	202896	1.96
(-6, <=0)	1581866	15.30
(0, <=5)	2305730	22.30
(5, <=10)	2577352	24.91
(10, <=15)	2063610	19.95
(15, <=Max)	1611614	15.58
Total	10343068	100

II. Quality Details

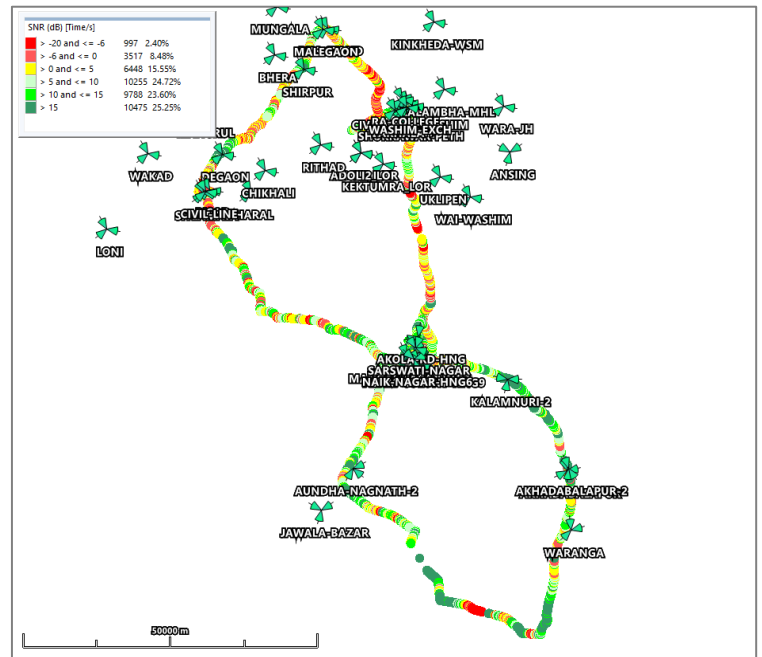
BSNL

Technology	Rx Quality %
2G	97.55
4G	89.12

2G



4G



Overall Rx Quality	# Samples	% PDF
(Min, <=3)	3850	94.94%
(4, <=5)	106	2.61%
(5, <=Max)	99	2.44%
Total	4055	

Overall SINR	# Samples	% PDF
(-20, <-6)	997	2.40%
(-6, <=0)	3517	8.48%
(0, <=5)	6448	15.55%
(5, <=10)	10255	24.72%
(10, <=15)	9788	23.60%
(15, <=Max)	10475	25.25%
Total	41480	

II. Quality Details

JIO

Technology	Rx Quality (%)
4G/4G	87.40



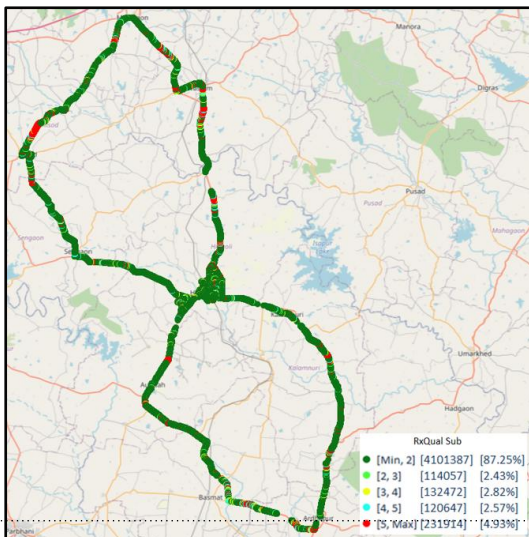
Overall SINR	# Samples	% PDF
(15, <=Max)	6,112	14.4%
(10, <=15)	8,078	33.4%
(5, <=10)	11,932	61.5%
(0, <=5)	11,018	87.4%
(Min, <=0)	5,362	100.00%
Total	42,502	

II. Quality Details

VIL

Technology	Rx Quality %
2G	95.07
4G	89.37

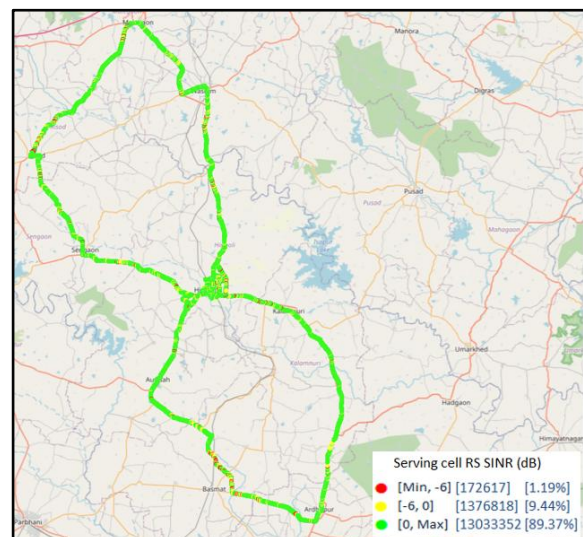
2G



2G

Overall RxQuality	# Samples	% PDF
[Min, <=2]	4101387	87.25
[2, <=3)	114057	2.43
[3, <=4)	132472	2.82
[4, <=5)	120647	2.57
[5, <=Max)	231914	4.93
Total	4700477	100

4G

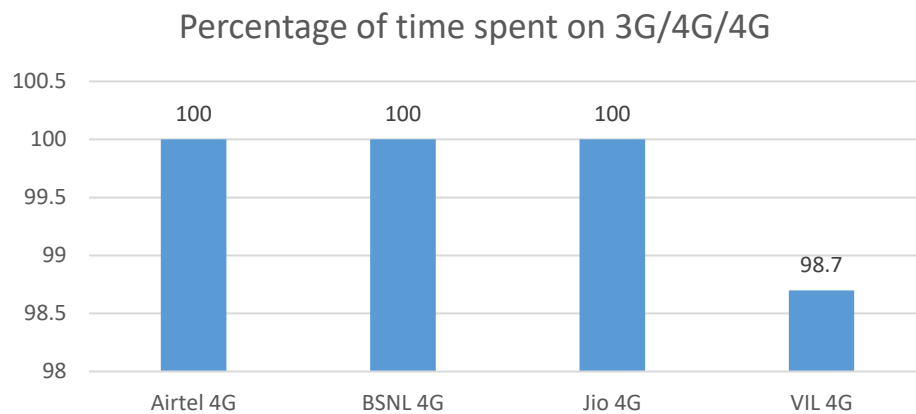


VoLTE

Overall SINR	# Samples	% PDF
[Min, <=0]	1549435	10.63
[0, <=5)	2632385	18.05
[5, <=10)	3362002	23.05
[10, <=15)	3473072	23.82
[15, <=Max)	3565893	24.45
Total	14582787	100

III. Technology Details

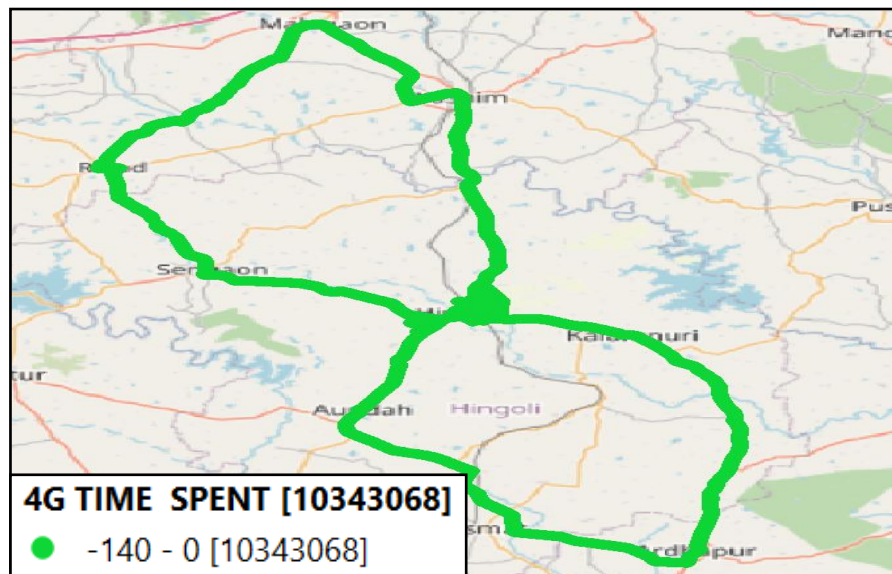
TSP	Percentage of time spent on 3G/4G/4G
Airtel 4G	100
BSNL 4G	100
Jio 4G	100
VIL 4G	98.7



III. Technology Details

Airtel

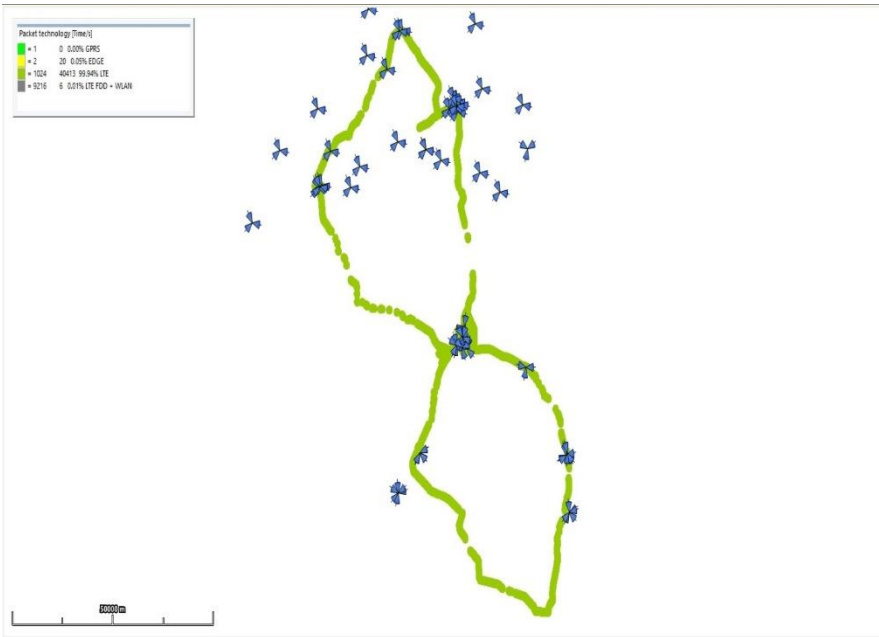
Technology	Time Spent %
4G	100



III. Technology Details

BSNL

Technology	Time Spent %
4G	100



III. Technology Details

JIO

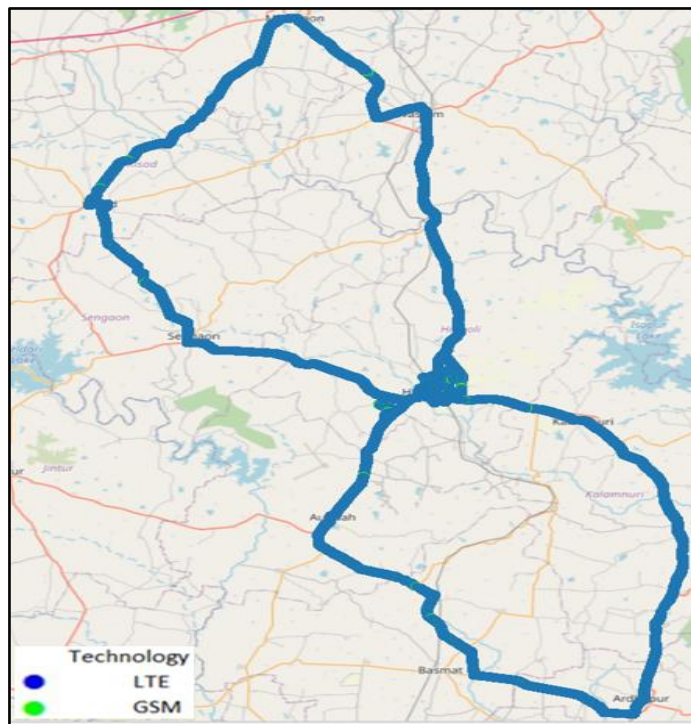
Technology	Time Spent %
4G	100



III. Technology Details

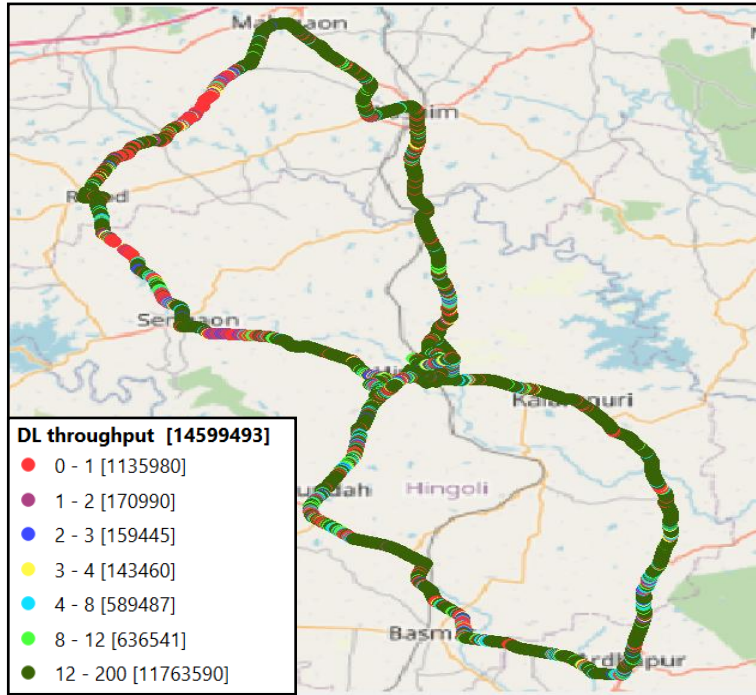
VIL

Technology	Rx Quality %
4G	98.7
2G	1.3

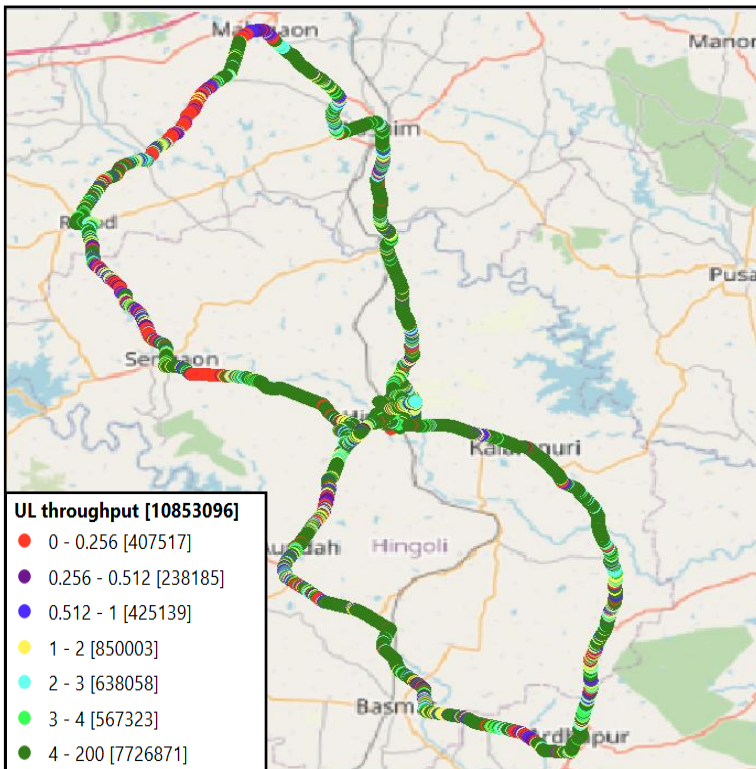


IV. Dynamic Data Test (Data Test on Move) - 4G DL/UL Details

Airtel



DL throughput	No. of Samples	%
0 to 1 Mbps	1135980	7.78
1 to 2 Mbps	170990	1.17
2 to 3 Mbps	159445	1.09
3 to 4 Mbps	143460	0.98
4 to 8 Mbps	589487	4.04
8 to 12 Mbps	636541	4.36
>12 Mbps	11763590	80.58
Total	14599493	



Upload throughput	No. of samples	%
0 to 256 kbps	407517	3.75
250 to 512 kbps	238185	2.19
512 Kbps to 1 Mbps	425139	3.92
1 to 2 Mbps	850003	7.83
2 to 3 Mbps	638058	5.88
3 to 4 Mbps	567323	5.23
>4Mbps	7726871	71.20
Total	10853096	

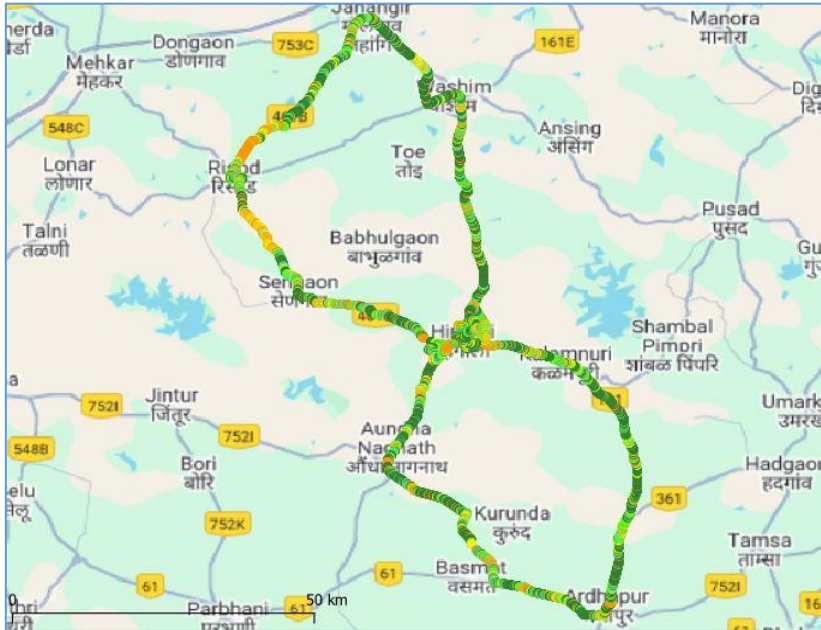
IV. Dynamic Data Test(Data Test on Move)- 3G/4G DL/UL Details

BSNL

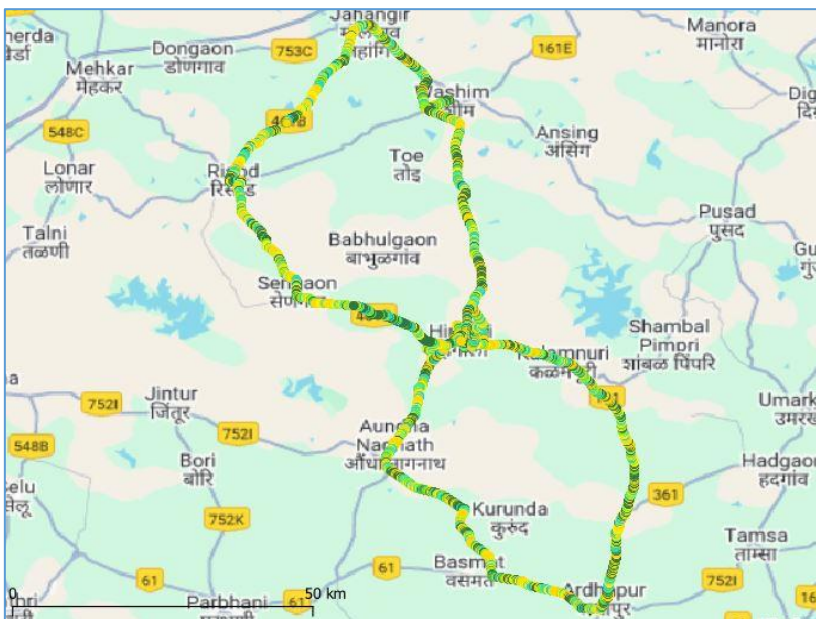
Data KPIs – Overall-Dynamic (Test data on Move)		4G (Mbps)
Download Throughput		Nil
Upload Throughput		Nil
Remark :-	As per BSNL Due to unavailability of Handset unable to record the Dynamic Data. SSA Having only 2 Handsets.	

IV. Dynamic Data Test(Data Test on Move)- 4G DL/UL Details

JIO



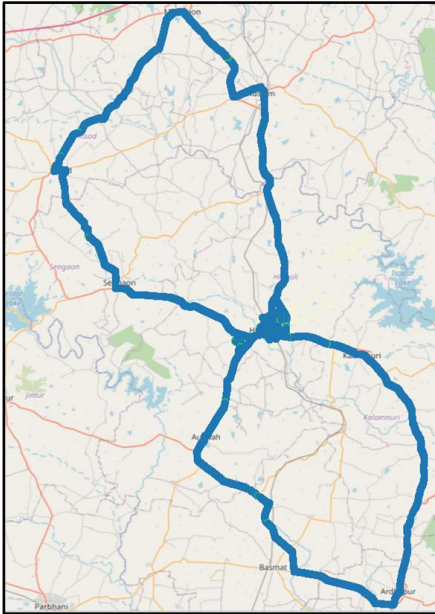
DL throughput	No. of Samples	% PDF
>12 Mbps	18,488	43.80%
8 to 12 Mbps	5,102	12.08%
4 to 8 Mbps	6,908	16.36%
3 to 4 Mbps	2,149	5.09%
2 to 3 Mbps	2,405	5.69%
1 to 2 Mbps	2,633	6.24%
0 to 1 Mbps	4,534	10.67%
Total	42,219	



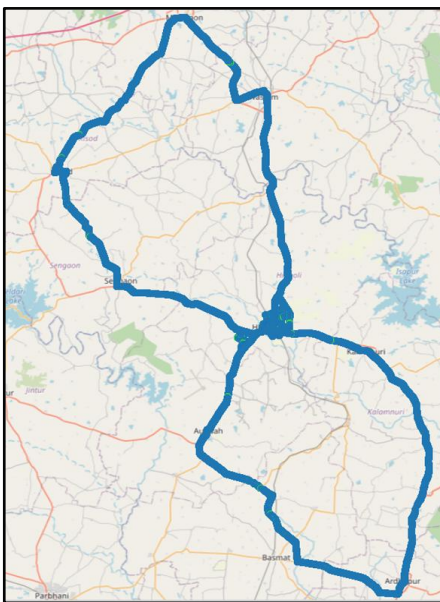
UL throughput	No. of samples	% PDF
>4Mbps	8,886	26.90%
3 to 4 Mbps	2,732	8.27%
2 to 3 Mbps	3,781	11.45%
1 to 2 Mbps	5,150	15.59%
512 Kbps to 1 Mbps	2,940	8.90%
250 to 512 kbps	1,786	5.40%
0 to 256 kbps	7,750	23.47%
Total	33,025	

IV. Dynamic Data Test (Data Test on Move)- 4G DL/UL Details

VIL



Download Throughput	No. of samples	%
0 to 1 Mbps	1954	4.28
1 to 2 Mbps	1369	3
2 to 3 Mbps	1467	3.21
3 to 4 Mbps	1624	3.54
4 to 8 Mbps	6297	13.78
8 to 12 Mbps	5599	12.25
>12 Mbps	27391	59.94

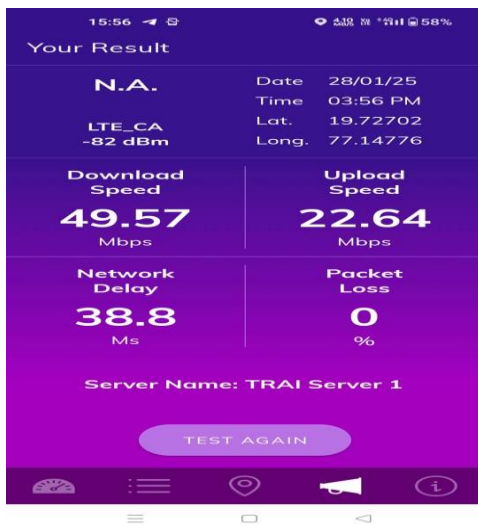


Upload Throughput	No. of samples	%
0 to 256 Kbps	6017	12.43
256 to 512 Kbps	3059	6.32
512 Kbps to 1 Mbps	3113	6.43
1 to 2 Mbps	1833	3.79
2 to 3 Mbps	6693	13.83
3 to 4 Mbps	6260	12.94
>4 Mbps	21420	44.26

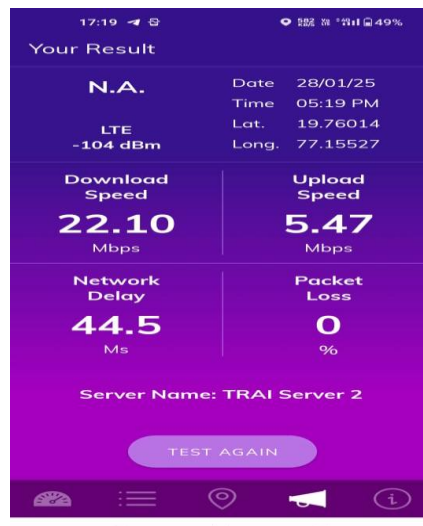
V. TRAI My Speed App Test Details-4G

Techology-4G	Location 1	Location 2	Location 3	Location 4	Location 5	Location 6
Download Speed (Mbps)	49.57	22.10	41.57	35.65	28.61	20.45
Upload Speed (Mbps)	22.64	5.47	8.54	11.24	13.70	18.53
Latency (ms)	38.8	44.5	35.3	51.3	44.2	40.6

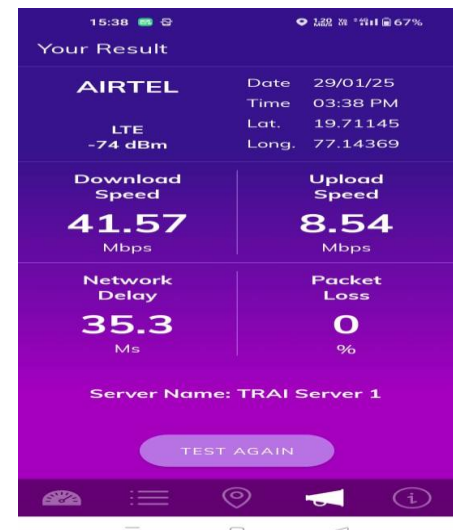
LOC 1



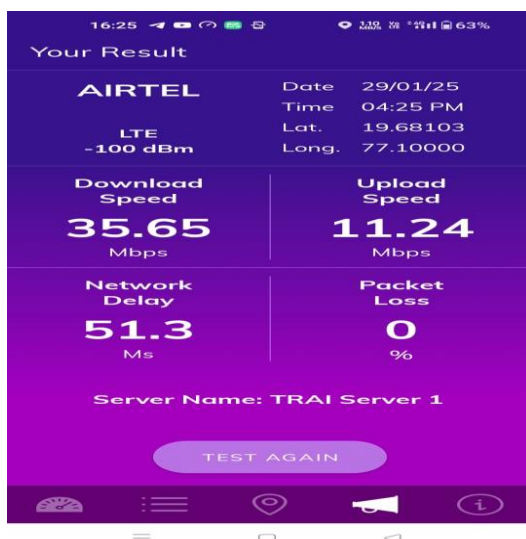
LOC 2



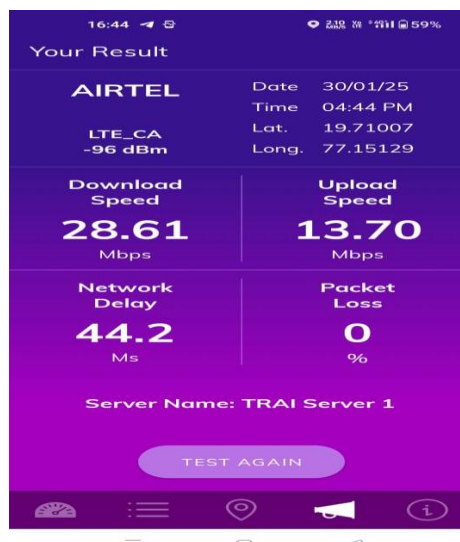
LOC 3



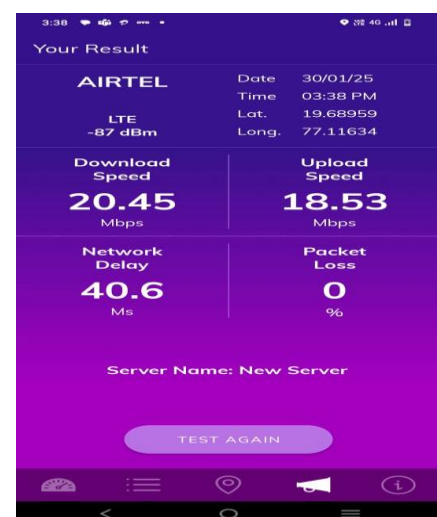
LOC 4



LOC 5



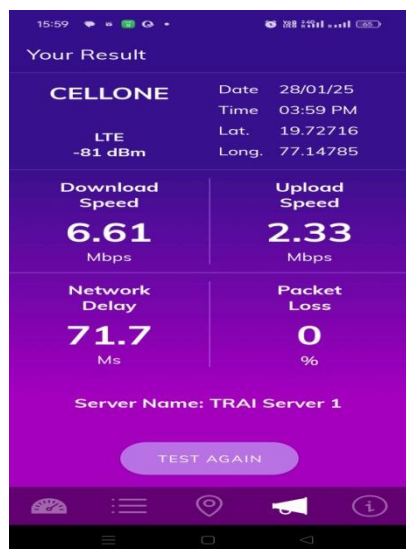
LOC 6



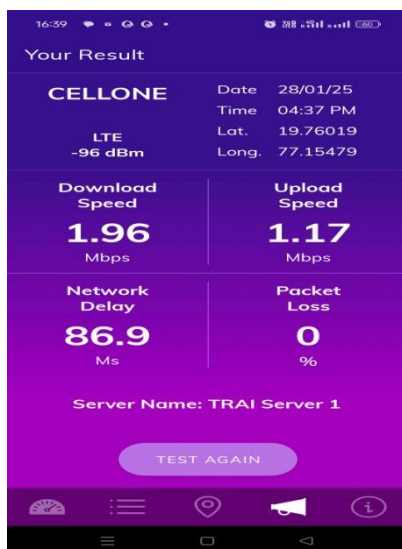
V. TRAI My Speed App Test Details- 4G

Techology-4G	Location 1	Location 2	Location 3	Location 4	Location 5	Location 6
Download Speed (Mbps)	6.61	1.96	9.48	1.53	0.73	2.34
Upload Speed (Mbps)	2.33	1.17	2.10	0.13	0.08	0.27
Latency (ms)	71.7	86.9	53.7	80.5	62.7	63.9

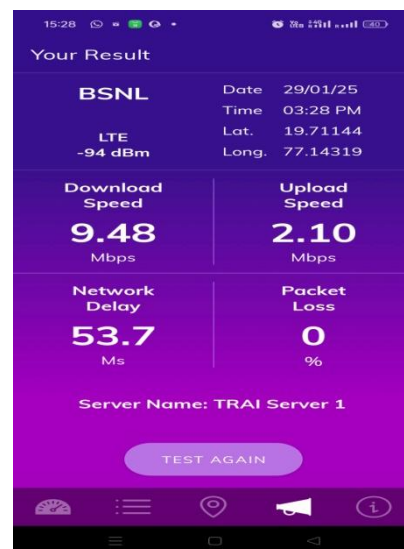
LOC 1



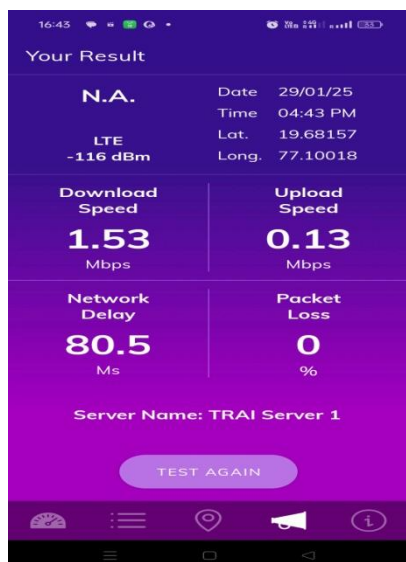
LOC 2



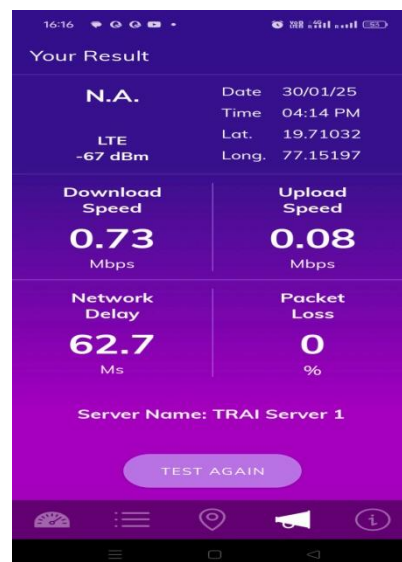
LOC 3



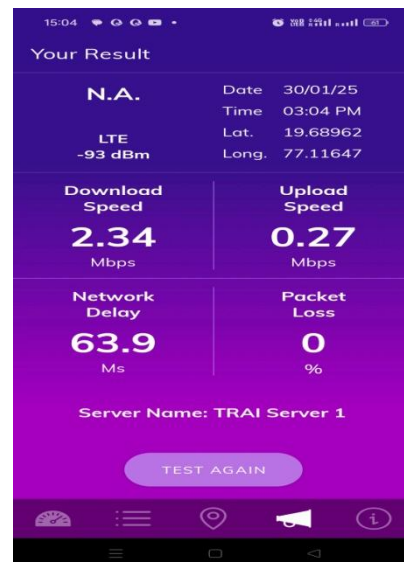
LOC 4



LOC 5



LOC 6



V. TRAI My Speed App Test Details-4G

Technology-4G	Location 1 (Railway Station)	Location 2 (Govt. Medical College)	Location 3 (Bus Stand)	Location 4 (Govt Polytechnic)	Location 5 (RTO Office)	Location 6 (District Collector)
Download Speed	15.53	52.88	22.75	3.98	14.33	20.53
Upload Speed	10.89	9.7	7.28	0.53	5.06	2.16
Latency	73.8	57.5	58.0	58.5	69.4	60.6

LOC 1

LOC 2

LOC 3



LOC 4

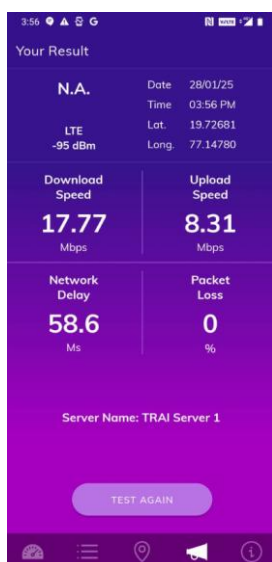
LOC 5

LOC 6

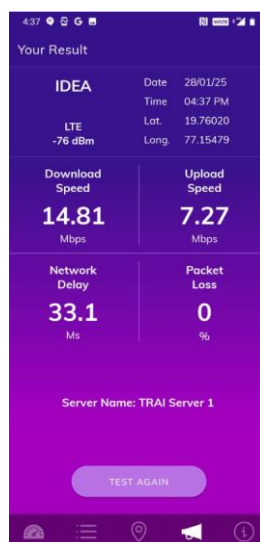
V. TRAI My Speed App Test Details-4G

Techology-4G	Location 1 Railway Station Hingoli	Location 2- Govt.Medical Collage Hingoli	Location 3- Bus Stand Hingoli	Location 4- Government Polytechnic Hingoli	Location 5- District Collector Office Hingoli	Location 6- RTO Office Hingoli
Download Speed in Mbps	17.77	14.81	48.01	20.05	46.72	25.93
Upload Speed in Mbps	8.31	7.27	31.31	15.34	14.88	26.69
Latency	58.6	33.1	71.8	42.3	57.5	97.5

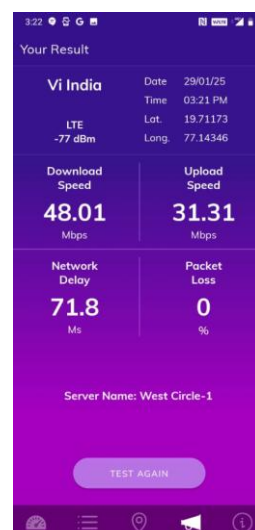
LOC 1



LOC 2



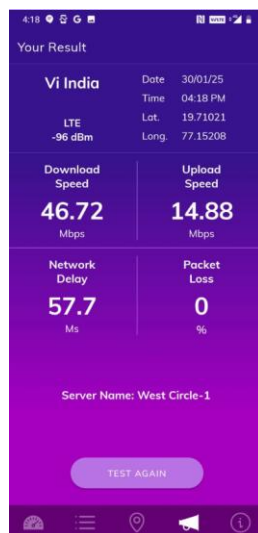
LOC 3



LOC 4



LOC 5



LOC 6

