

Operator Assisted Drive Test Report

For

Bengaluru

24th to 28th July 2023

Bengaluru - Devanahalli NH - 70 Kms

(27th Jul 2023)

Bengaluru City & Surrounding Area - 350 Kms

(24th to 26th & 28th Jul 2023)

TRAI RO, Bengaluru Operator-Assisted

Key Performance Indicators:

- All TSPs have met the 2% QOS benchmark of Drop Call Rate.
- All TSPs have met the 3% QOS benchmark of Call Block Rate except BSNL 2G.
- All 2G/3G/4G TSPs have not met the Rx Quality except BSNL 2G & VIL 2G.
- All 2G/3G/4G TSPs have met the Mobility HOSR except BSNL 3G.

The Operator Assisted Drive Test has been carried out by Regional Office, Bangalore with the help of Service Providers from 24th to 28th Jul 2023 The drive test covered the route of 420 KMs including NH of 70 Kms & 6 hotspots. Approximately 750 calls were made for each of the 7 networks: three 2G networks, one 3G network and three LTE networks covering four TSPs.

Overview

Voice
Summary

Data
Summary

Overview

Regional Office, TRAI Bengaluru conducted Operator Assisted Drive Test from 24th to 28th Jul 2023 covering various locations in **Bengaluru & 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 wait time of 10 sec between calls in all technologies. The drive test covered a drive route of approximately 420 KMs including NH of 70 Kms over a period of 5 days from 24th to 28th Jul 2023 . Approximately 750 calls were made for each of the 7 networks: three 2G (Lock Mode) networks, one 3G (Dual mode) networks and three 4G network covering 4 unique TSPs.

Data Tests: Dynamic data test (Test Data on Move) was conducted for 420 KMs including NH of 70 Kms over a period of 4 days for download throughput for 3G & 4G technology. Data Tests were performed at 6 static locations; three 2G (Lock mode) networks, one 3G (Dual mode) networks and three 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.**

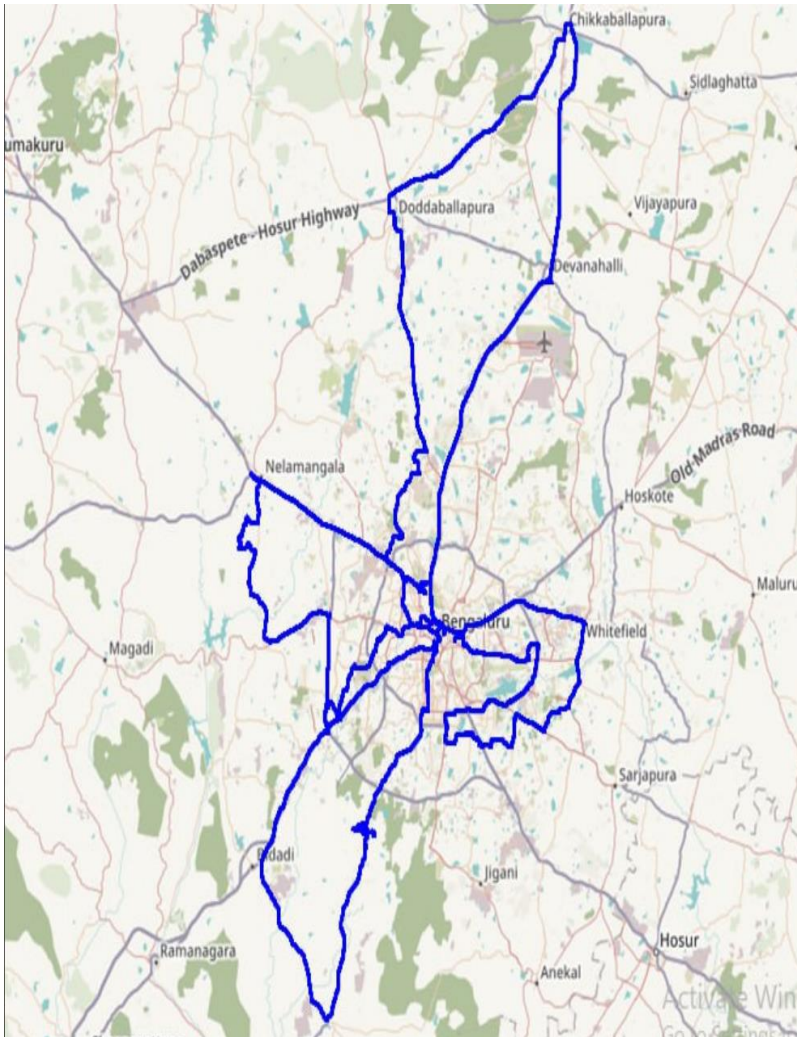
* For Voice and Data KPI's, 2G measurement is done with UE locked on 2G, 3G measurement is done with UE in Dual mode (2G & 3G) and 4G measurement is done with UE in Free Mode.

* 3G KPI's which are calculated from UE in Dual Mode (2G & 3G) includes samples and events of 2G.

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

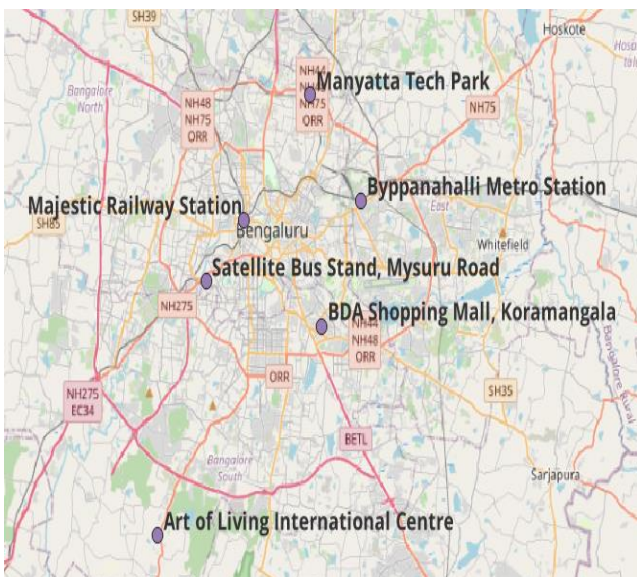
Service	Specifications
Download	2G (Locked) - 500KB, 3G (Dual) - 20 MB, 4G (Free) - 40 MB
Upload	2G (Locked) - 100KB, 3G (Dual) - 5 MB, 4G (Free) - 10 MB
Web Browsing	3 links of e/m commerce website www.amazon.in , www.flipkart.com and PayTm
Latency	32 Bytes on www.google.com
Video Streaming	130 secs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

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



Areas covered	
TRAI Office	Desara Halli
Banashankari temple	Bengaluru University
AOL International Centre	Kommaghatta
Guhantra Resort	Ramasandra
Harohalli KSRTC	LK Convention Hall
Bidadi	Kakkapalya
ITPL Metro station	Nelamangala Town
Varthur PS	Devanahalli
Dechtholan Sarjapura	Chikkaballapur
Kasavanahalli	Doddaballapur
Sri Vinayaka Nursery	Yelahanka Air Station
Gopalan Innovation Mall	Yeshwanthpur
Garuda Mall	

Data Service Test- Static Locations



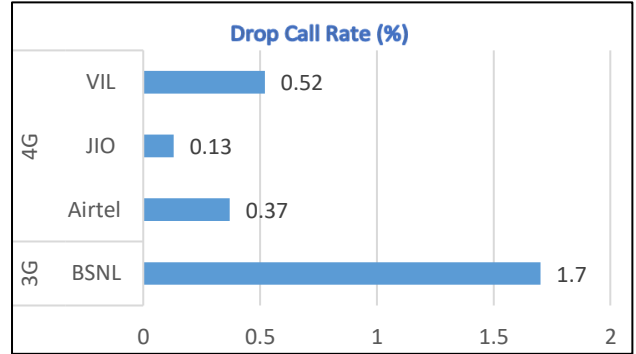
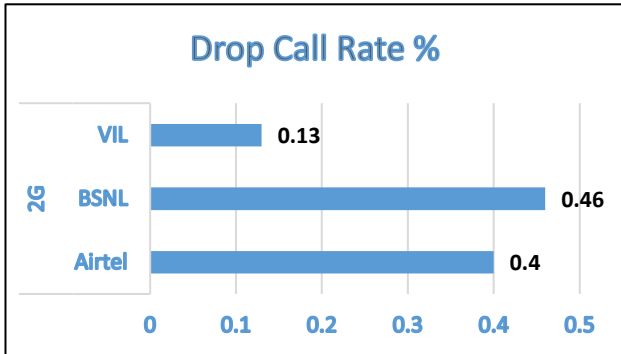
1. Art of Living International Centre
2. Majestic Railway Station
3. Satellite Bus Stand, Mysuru Road
4. BDA Shopping Mall, Koramangala
5. Bypanahalli Metro Station
6. Manyatta Tech Park

Voice Calls

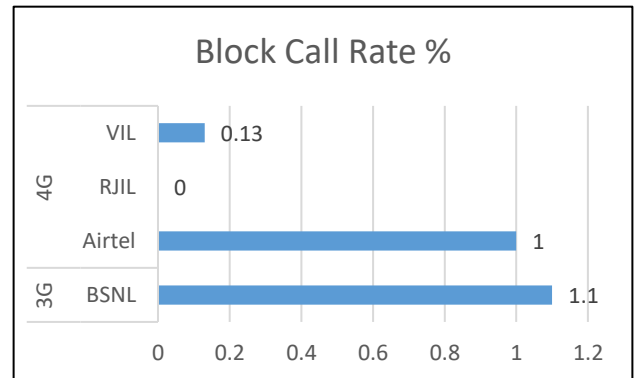
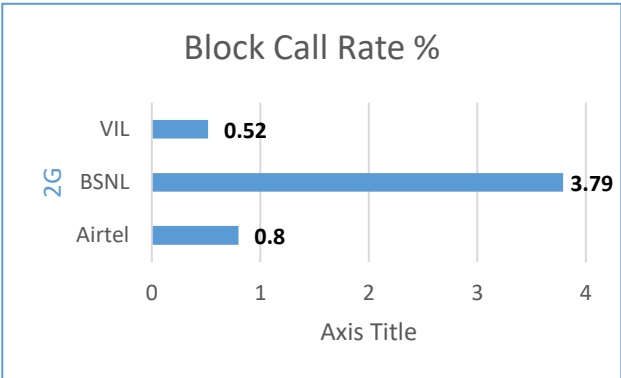
Key Observations

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

Drop Call Rate (%)



Block Call Rate (%)



KPIs	2G			3G	4G		
	Airtel	BSNL	VIL	BSNL	Airtel	RJIL	VIL
Drop Call Rate %	0.4	0.46	0.13	1.7	0.37	0.13	0.52
Block Call Rate %	0.8	3.79	0.52	1.1	1	0	0.13

- a) All TSPs have met the 2% QOS benchmark of Drop Call Rate.
- 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%	72	82.7	90.75

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

TSPs	3G	4G		
	BSNL	Airtel	JIO	VIL
Coverage %	73	98	95.6	97.14

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

TSPs	3G	4G		
	BSNL	Airtel	JIO	VIL
Time Spent on 3G/4G%	95.4	100	100	99.84

Summary

City Level Summary

Voice Call	2G		
	Airtel	BSNL	VIL
Call Attempt	751	948	774
Blocked Call Rate (%)	0.8	3.79	0.52
CSSR% (Accessibility)	99.21	96.15	99.48
Drop Call Rate (%)	0.4	0.46	0.13
Rx Quality (%)	92	96.6	97.56
Mobility HOSR (%)	98	95.22	97.22

Voice Call	3G/4G			
	BSNL 3G	Airtel 4G	JIO 4G	VIL 4G
Call Attempt	879	815	788	763
Blocked Call Rate (%)	1.1	1	0	0.13
CSSR% (Accessibility)	98.3	99	99.9	99.87
Drop Call Rate (%)	1.7	0.37	0.13	0.52
Rx Quality (%)	91.5	94	89.3	92.48
Mobility HOSR (%)		99.9	98.3	99.12

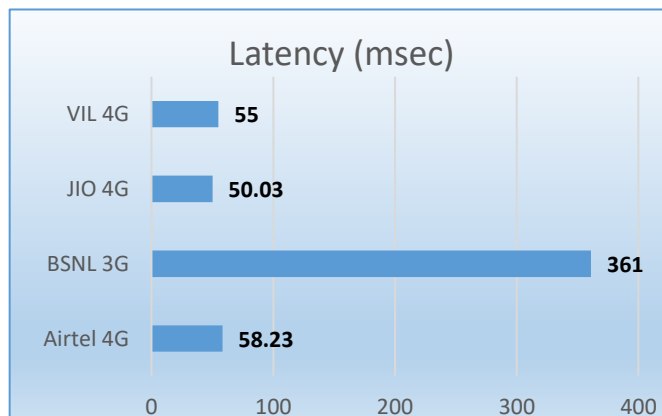
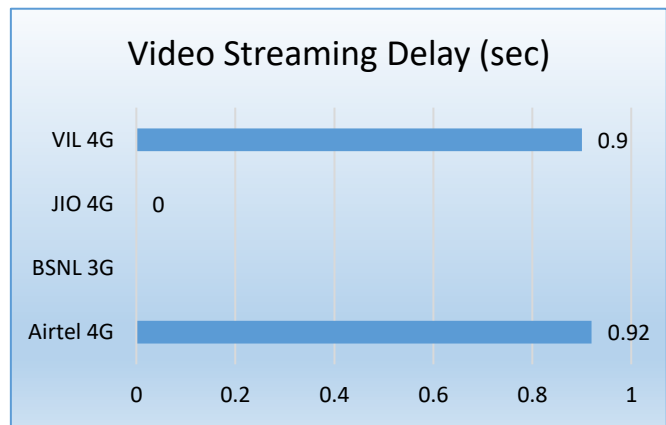
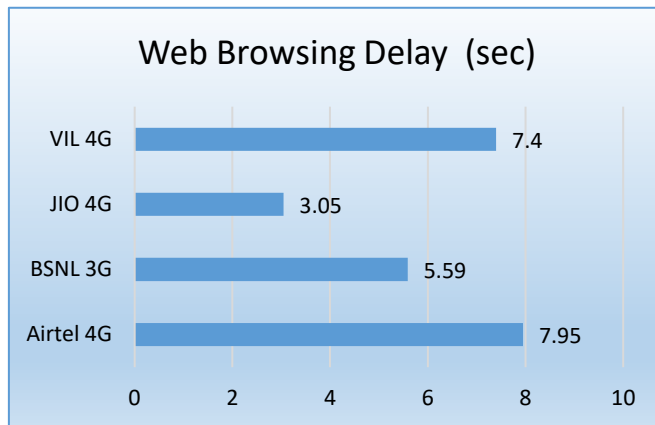
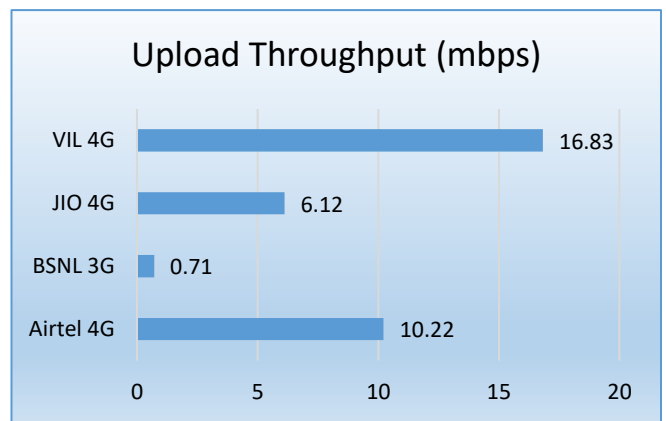
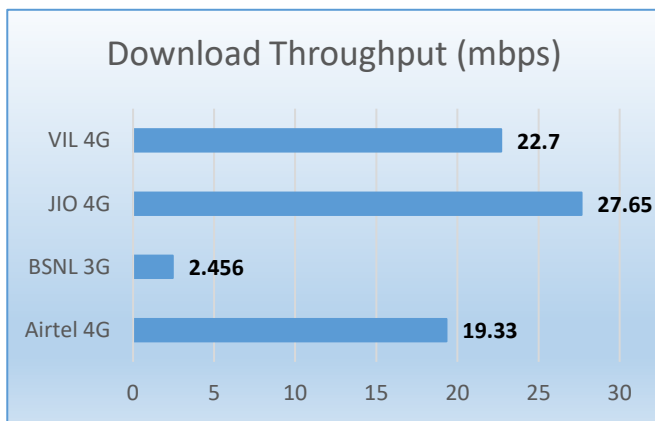
Data Services Static

Key Observations

Data was tested at 6 locations .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	2G		
	Airtel	BSNL	VIL
Download Throughput (kbps)	147.64	35.56	89.48
Upload Throughput (kbps)	16.79	22.25	68.4
Web Browsing Delay (sec)	133.71	15.17	56.4
Latency (msec)	244.17	316	116

Data Services Static	3G/4G			
	BSNL 3G	Airtel 4G	JIO 4G	VIL 4G
Download Throughput (mbps)	2.456	19.33	27.7	22.7
Upload Throughput (mbps)	0.71	10.22	6.12	16.83
Web Browsing Delay (sec)	5.59	7.95	3.05	7.4
Video Streaming Delay (sec)		0.92	0	0.9
Latency (msec)	361	58.23	50	55

Data Services Dynamic (Data Test on Move)	3G/4G			
	BSNL 3G	Airtel 4G	JIO 4G	VIL 4G
Download Throughput (mbps)	3.55	10.31	16.69	25.07
Upload Throughput (mbps)	0.96	11.86	2.54	6.36

Summary

City Level Data Services Static(contd.)

Data Services Static – Art of Living International Centre	2G		
	Airtel	BSNL	VIL
Download Throughput (kbps)	147.78	15.47	65.34
Upload Throughput (kbps)	8.96	0.55	56.29
Web Browsing Delay (sec)	141.50	20.8	81.91
Latency (ms)	253	219.8	114

Data Services Static –Art of Living International Centre	4G			
	BSNL 3G	Airtel	JIO	VIL
Download Throughput (Mbps)	3.59	7.76	42.13	5.47
Upload Throughput (Mbps)	1.08	2.55	7.25	12.17
Web Browsing Delay (sec)	3.61	5.32	3.09	9.16
Video Streaming Delay (sec)		0.72	0.00	0.70
Latency (ms)	213.4	57	39.50	47

Data Services Static – Majestic Railway Station	2G		
	Airtel	BSNL	VIL
Download Throughput (kbps)	105.50	46.04	124
Upload Throughput (kbps)	10.50	17.75	52.2
Web Browsing Delay (sec)	158.44	16.43	44.3
Latency (msec)	232.60	408.4	127

Data Services Static - Majestic Railway Station	4G			
	BSNL 3G	Airtel	JIO	VIL
Download Throughput (Mbps)	0.67	14.55	4.09	4.17
Upload Throughput (Mbps)	0.54	5.46	4.62	23.24
Web Browsing Delay (sec)	8.23	4.80	3.97	4.8
Video Streaming Delay (sec)		0.72	0.00	1.0
Latency (ms)	702.8	62	41.70	46

Summary

City Level Data Services Static(contd.)

Data Services Static – Satellite Bus Stand	2G		
	Airtel	BSNL	VIL
Download Throughput (kbps)	194.10	32.71	113.3
Upload Throughput (kbps)	8.86	30.07	79.6
Web Browsing Delay (sec)	52.72	7.743	34.9
Latency (ms)	250	266.2	116

Data Services Static - Satellite Bus Stand	4G			
	BSNL 3G	Airtel	JIO	VIL
Download Throughput (Mbps)	1.88	37.60	6.86	37.09
Upload Throughput (Mbps)	0.70	29.20	6.30	24.68
Web Browsing Delay (sec)	4.38	10.96	2.99	6.94
Video Streaming Delay (sec)		0.60	0.00	1.30
Latency (ms)	475.4	52.00	44.36	49

Data Services Static – BDA Shopping Mall, Koramangala	2G		
	Airtel	BSNL	VIL
Download Throughput (kbps)	141.46	30.19	78.40
Upload Throughput (kbps)	24.22	36.40	43.50
Web Browsing Delay (sec)	129.56	7.79	71.39
Latency (msec)	243	248.6	135

Data Services Static – BDA Shopping Mall, Koramangala	4G			
	BSNL 3G	Airtel	JIO	VIL
Download Throughput (Mbps)	4.304	16.09	67.93	40.79
Upload Throughput (Mbps)	0.858	3.57	7.59	11.02
Web Browsing Delay (sec)	2.81	9.10	2.55	5.49
Video Streaming Delay (sec)		1.12	0.00	0.67
Latency (ms)	185	64.80	37.28	62

Summary

City Level Data Services Static(contd.)

Data Services Static – Byppanahalli Metro Station	2G		
	Airtel	BSNL	VIL
Download Throughput (kbps)	165.40	53.24	110.85
Upload Throughput (kbps)	30.84	45.14	91.82
Web Browsing Delay (sec)	175.66	8.309	49.4
Latency (ms)	253	245.4	92

Data Services Static – Byppanahalli Metro Station	3G/4G			
	BSNL 3G	Airtel	JIO	VIL
Download Throughput (Mbps)	3.25	14.84	37.31	7.67
Upload Throughput (Mbps)	0.96	6.79	8.54	21.58
Web Browsing Delay (sec)	7.18	9.38	2.86	10.7
Video Streaming Delay (sec)		0.79	0.00	0.70
Latency (ms)	183.8	56	29.98	60

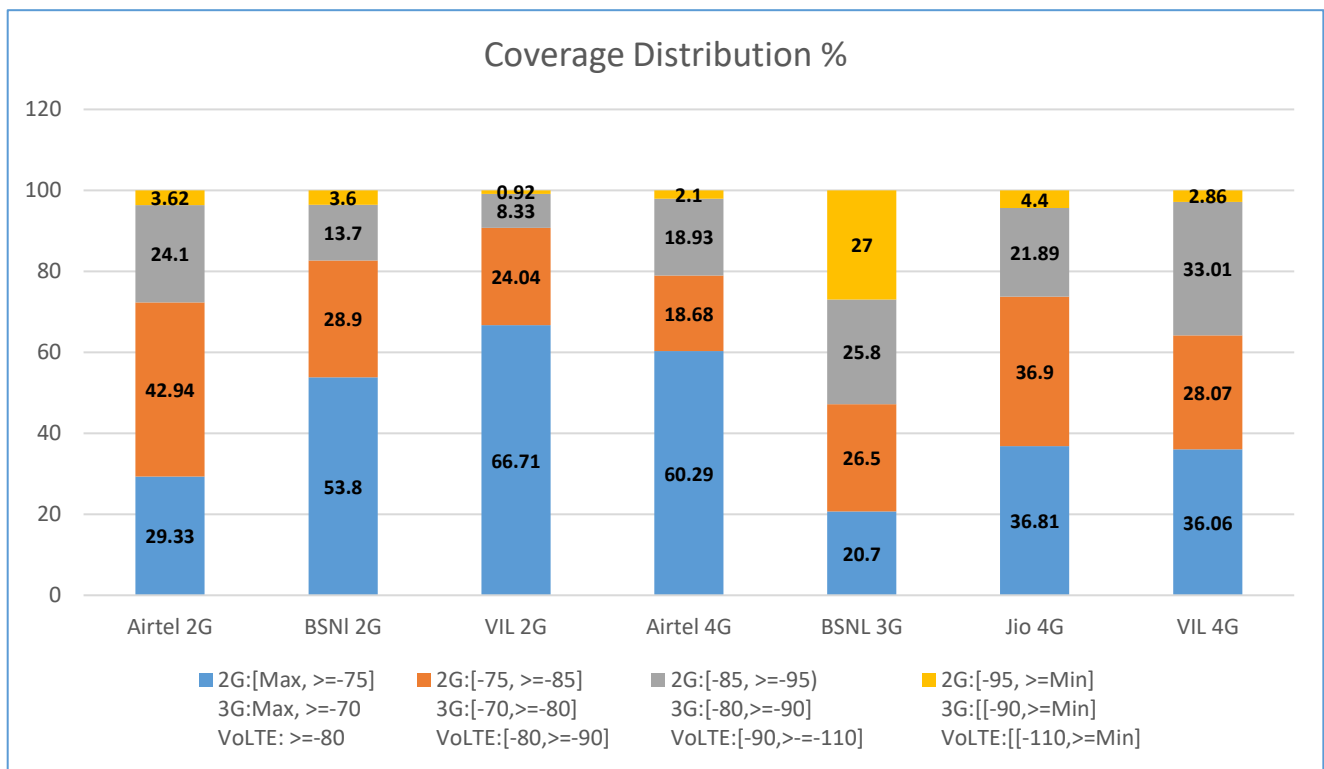
Data Services Static – Manyatta Tech Park	2G		
	Airtel	BSNL	VIL
Download Throughput (kbps)	131.58	35.73	46.9
Upload Throughput (kbps)	17.38	3.59	86.8
Web Browsing Delay (sec)	144.40	29.93	56.4
Latency (msec)	233	507.4	109

Data Services Static – Manyatta Tech Park	3G/4G			
	BSNL 3G	Airtel	JIO	VIL
Download Throughput (Mbps)	1.05	25.12	7.58	40.83
Upload Throughput (Mbps)	0.13	13.79	2.44	8.25
Web Browsing Delay (sec)	7.34	8.12	2.83	7.4
Video Streaming Delay (sec)		1.59	0.00	1.31
Latency (ms)	409.6	58	107.38	68

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.

TSP	Coverage Rate %
Airtel 2G	72.27
BSNL 2G	82.7
VIL 2G	90.75
Airtel 4G	97.90
BSNL 3 G	73
Jio 4G	95.6
VIL 4G	97.14

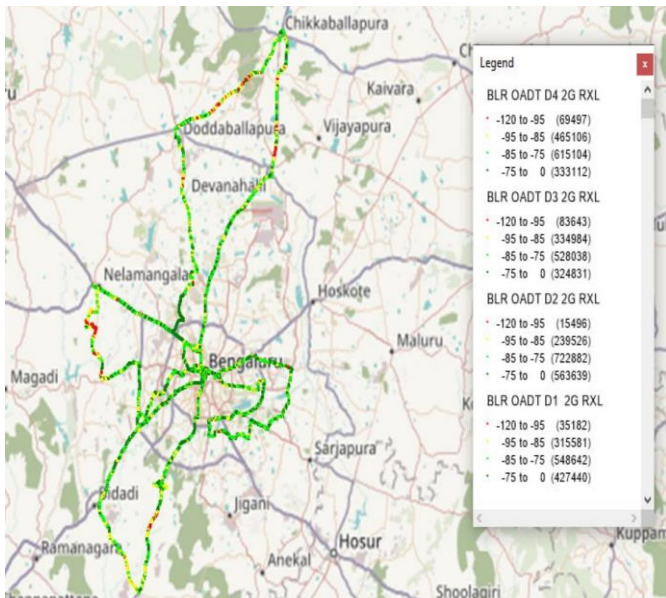


I. Coverage Details

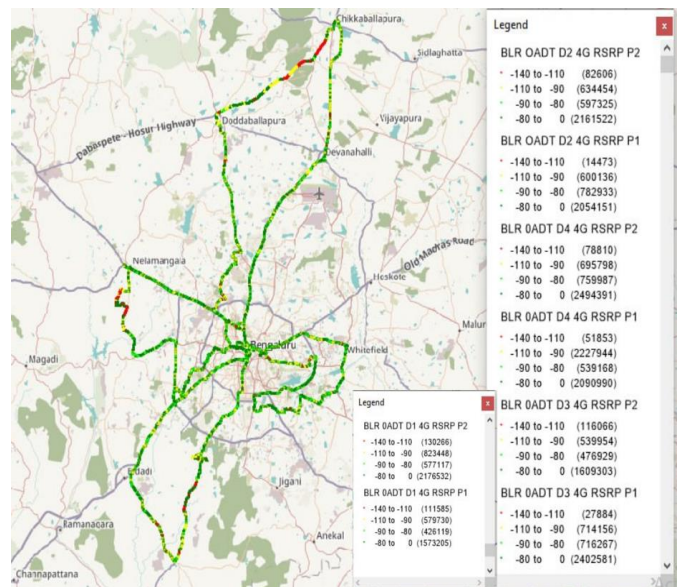
AIRTEL

Technology	Coverage Rate %
2G	72.27
4G	97.90

2G



4G



2G		
Overall RxLevel	# Samples	% PDF
[Max, >=-75]	1649022	29.33
[-75, >=-85)	241466	42.94
[-85, >=-95)	1355197	24.10
[-95, >=Min)	203818	3.62
Total	5622703	100

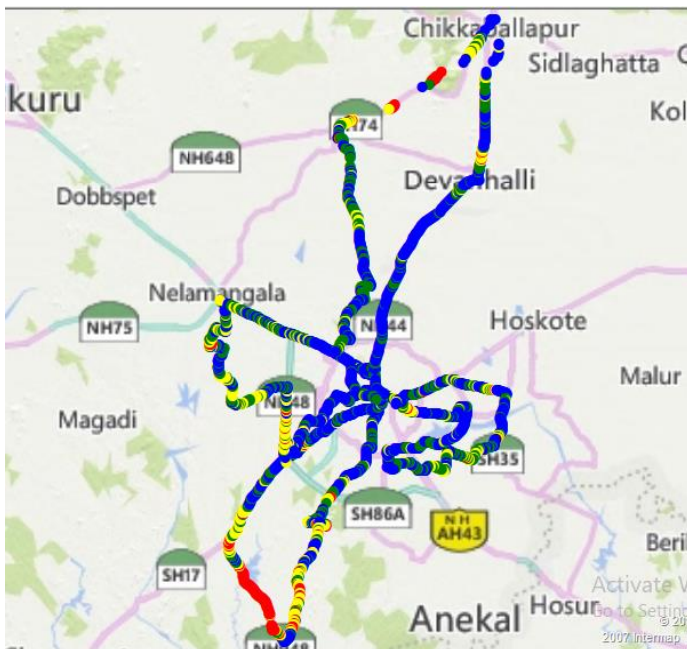
4G/VoLTE		
Overall RSRP	# Samples	% PDF
[Max, >=-80]	16525836	60.29
[-80, >=-90)	5119610	18.68
[-90, >=-110)	5187812	18.93
[-110, >=Min)	57'6163	2.10
Total	27409421	100

I. Coverage Details

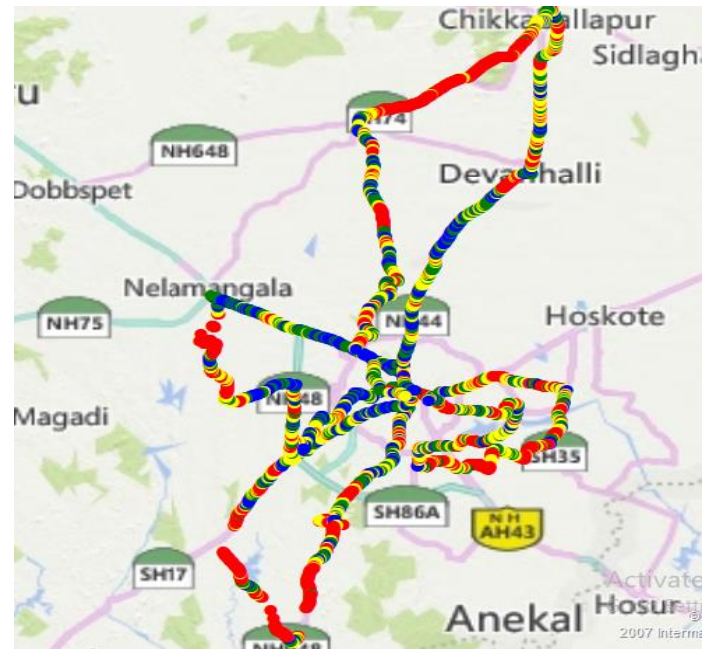
BSNL

Technology	Coverage Rate %
2G	82.7
3G	73

2G



3G



2G

Overall RxLevel	# Samples	% PDF
[Max, >=-75]	42751	53.8
[-75, >=-85)	22993	28.9
[-85, >=-95)	10922	13.7
[-95, >=Min)	2839	3.6
Total	79505	100

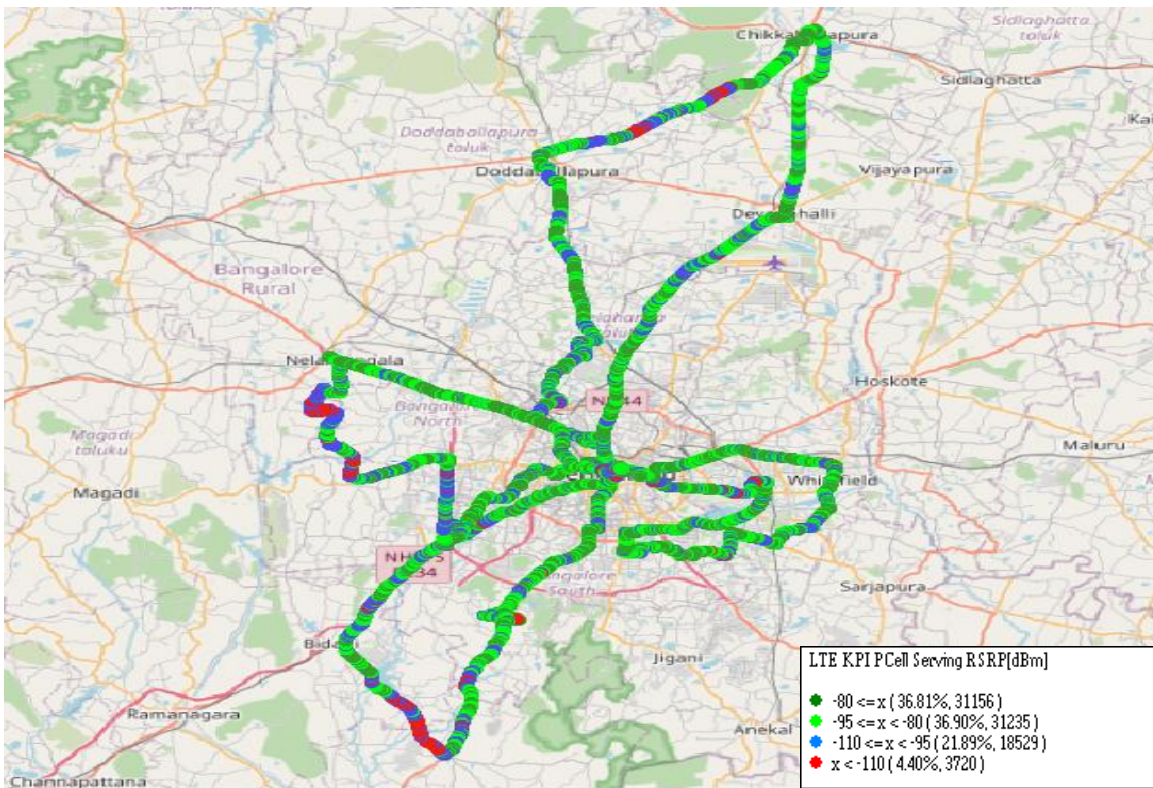
3G

Overall RSCP	# Samples	% PDF
[Max, >=-70]	17064	20.7
[-70, >=-80)	21833	26.5
[-80, >=-90)	21246	25.8
[-90, >=Min)	22221	27.0
Total	82364	100

I. Coverage Details

JIO

Technology	Coverage Rate %
4G	95.60



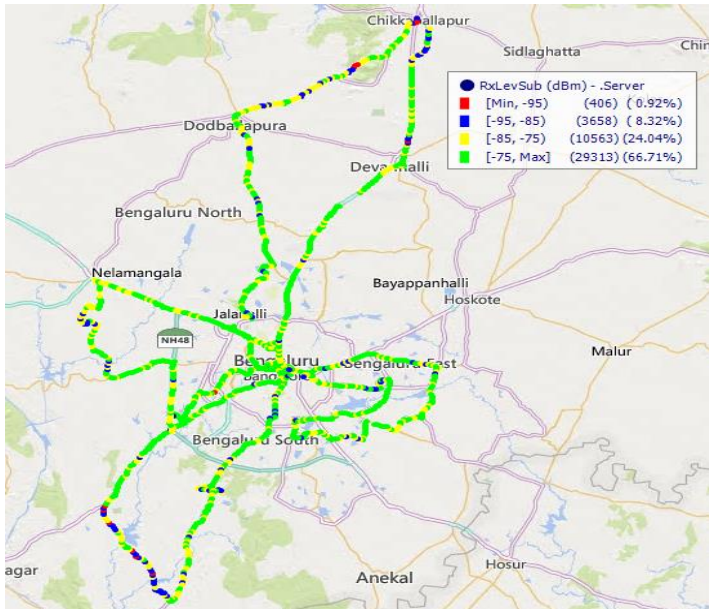
4G/VoLTE		
Overall RSRP	# Samples	% PDF
[Max, >=-80]	31156	36.81
[-80, >=-90)	31235	36.90
[-90, >=-110)	18529	21.89
[-110, >=Min)	3720	4.40
Total	84640	100

I. Coverage Details

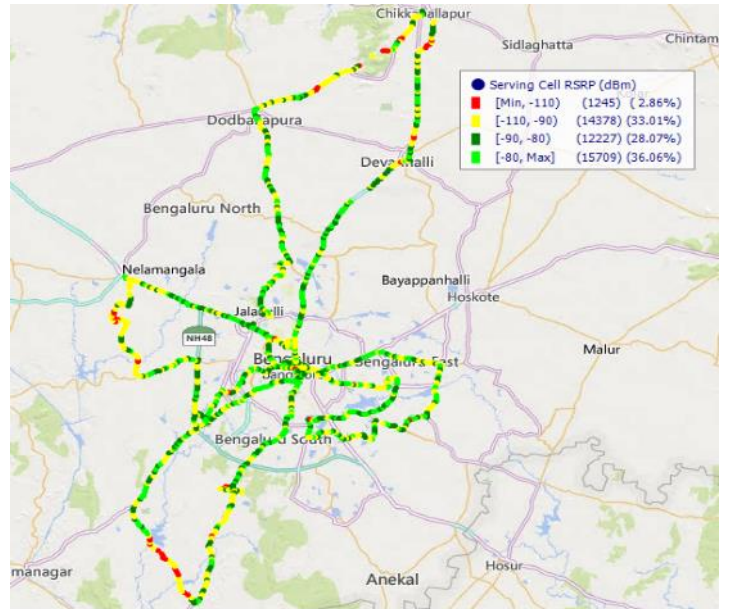
VIL

Technology	Coverage Rate %
2G	90.75
4G	97.14

2G



4G



2G		
Overall RxLevel	# Samples	% PDF
[Max, >=-75]	29313	66.71
[-75, >=-85]	10563	24.04
[-85, >=-95]	3658	8.33
[-95, >=Min]	406	0.92
Total	43940	100

4G/VoLTE		
Overall RSRP	# Samples	% PDF
[Max, >=-80]	15709	36.06
[-80, >=-90]	12227	28.07
[-90, >=-110]	14378	33.01
[-110, >=Min]	1245	2.86
Total	43559	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	92.44
BSNL 2G	96.6
VIL 2G	97.56
Airtel 4G	93.69
BSNL 3G	91.5
Jio 4G	89.25
VIL 4G	92.48

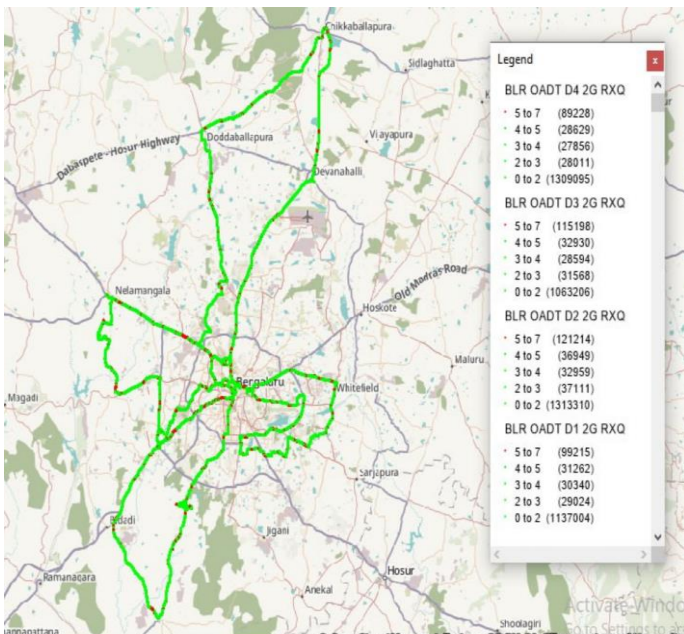


II. Quality Details

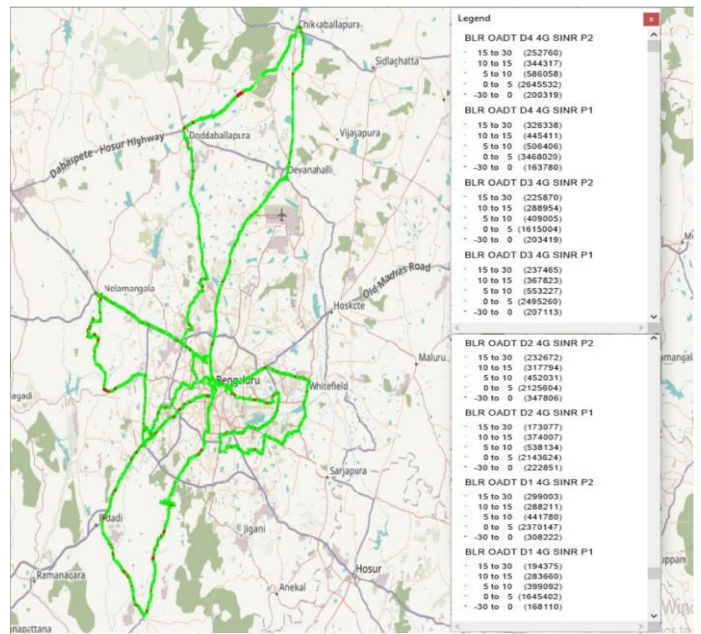
Airtel

Technology	Rx Quality %
2G	92.44
4G	93.69

2G



4G



Overall Rx Quality	# Samples	% PDF
(Min, <=2)	4822615	85.77
(2, <=3)	125714	2.24
(3, <=4)	119749	2.13
(4, <=5)	129770	2.31
(5, <=Max)	424855	7.56
Total	5622703	100

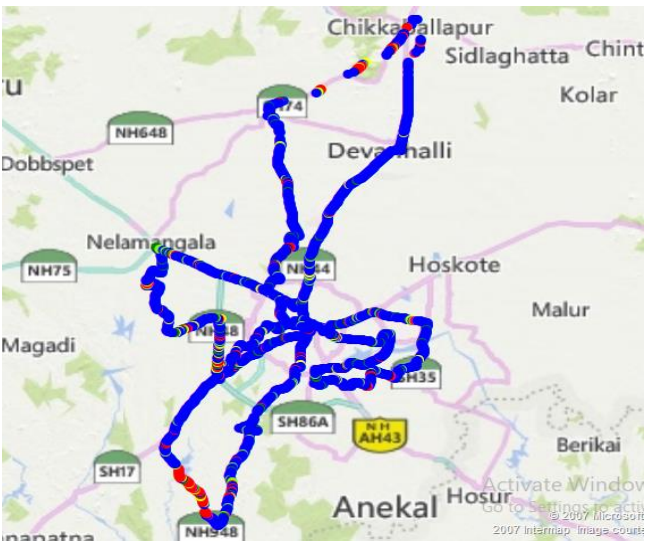
Overall SINR	# Samples	% PDF
(Min, <=0)	1821620	6.31
(0, <=5)	18508593	64.12
(5, <=10)	3885733	13.46
(10, <=15)	2710177	9.39
(15, <=Max)	1941560	6.73
Total	28867683	100

II. Quality Details

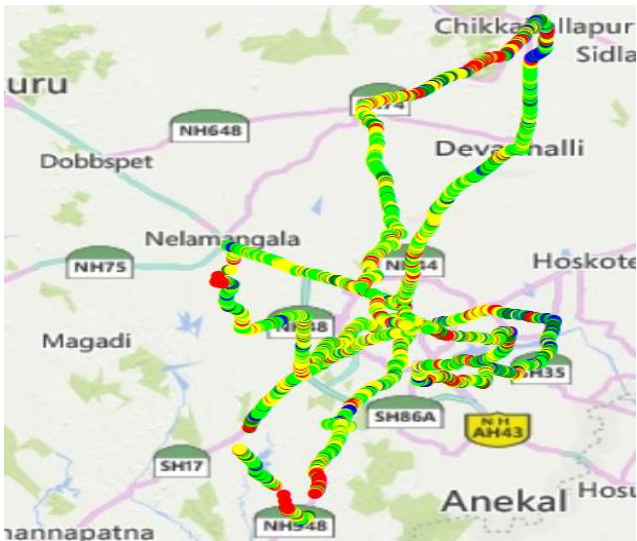
BSNL

Technology	Rx Quality %
2G	96.6
3G	91.5

2G



3G



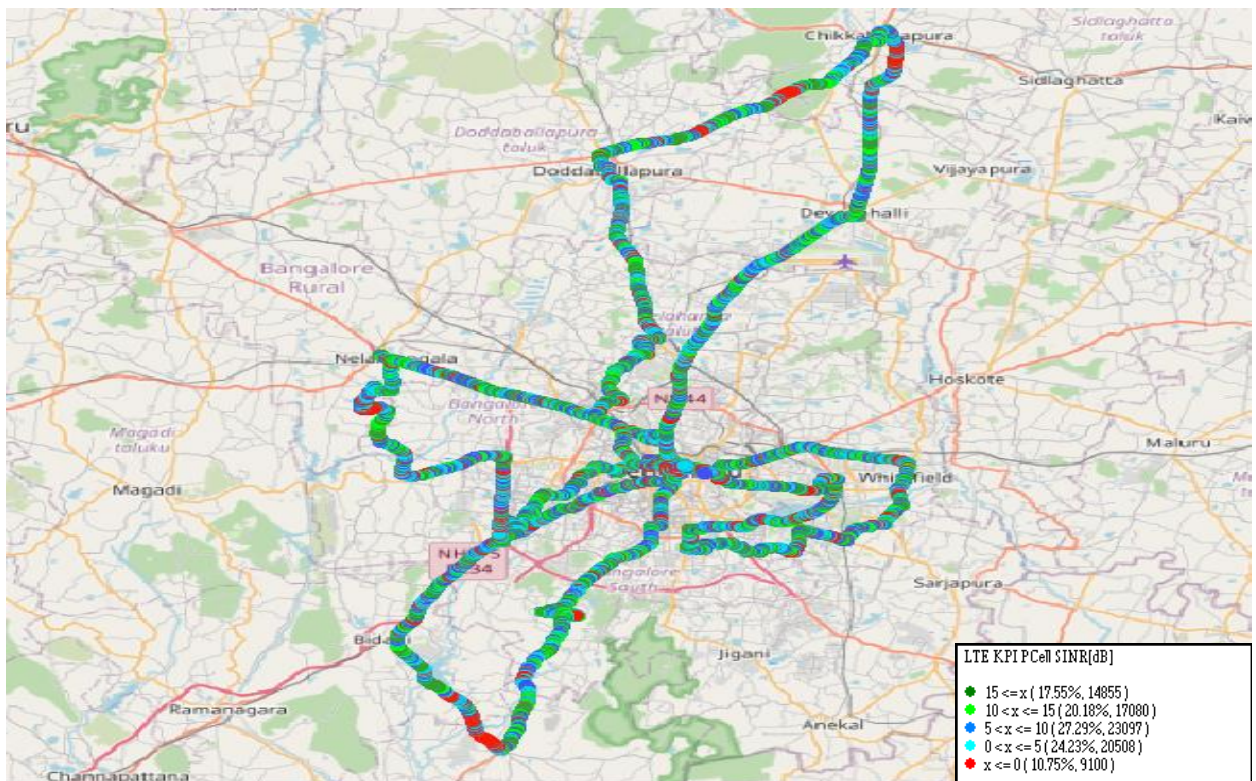
Overall Rx Quality	# Samples	% PDF
(Min, <=2)	1728	90.2
(2, <=3)	1952	2.5
(3, <=4)	1802	2.3
(4, <=5)	1336	1.7
(5, <=Max)	2677	3.4
Total	9495	100

Overall EcNo	# Samples	% PDF
(Max, <=-6)	3448	4.2
(-6, <=-9)	8191	9.9
(-9, <=-11)	33306	40.6
(-11, <=-14)	30455	37
(-14, <= Min)	6970	8.5
Total	51915	100

II. Quality Details

JIO

Technology	Rx Quality (%)
4G/4G	89.25



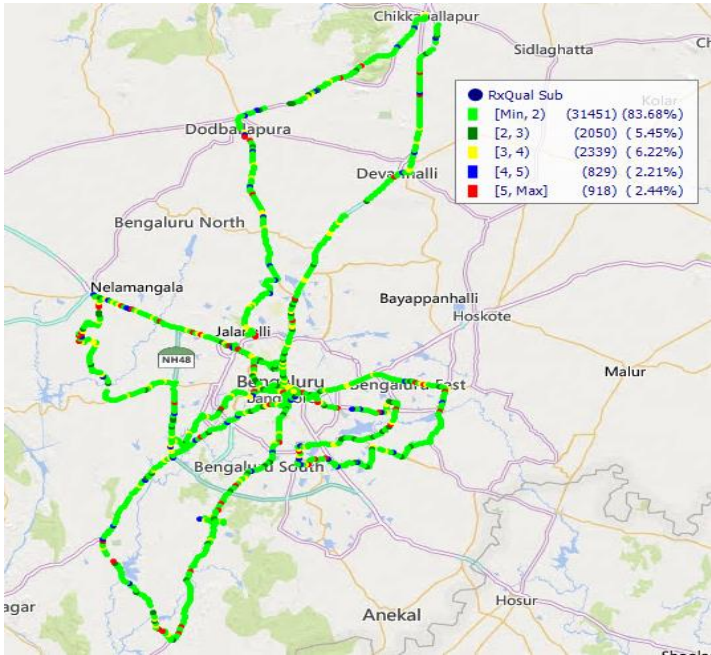
Overall SINR	# Samples	% PDF
(Min, <=0)	9100	10.75
(0, <=5)	20508	24.23
(5, <=10)	23097	27.29
(10, <=15)	17080	20.18
(15, <=Max)	14855	17.55
Total	84640	100

II. Quality Details

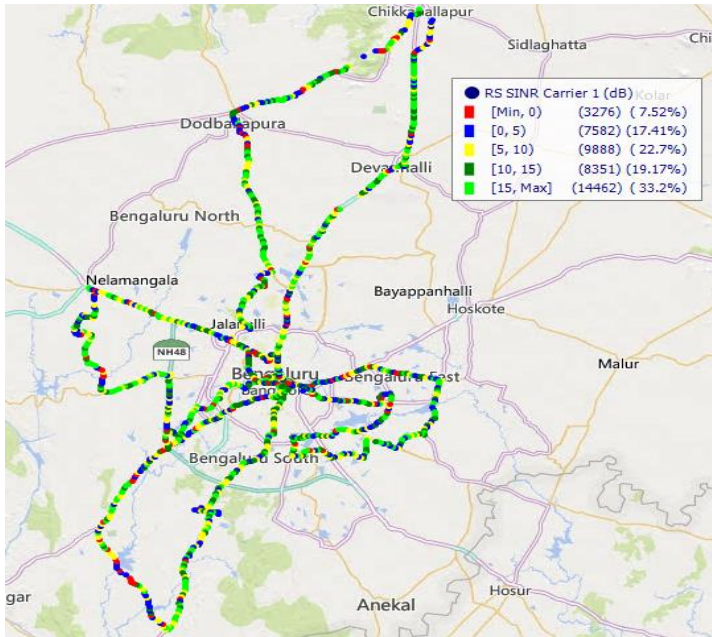
VIL

Technology	Rx Quality %
2G	97.56
4G	92.48

2G



4G

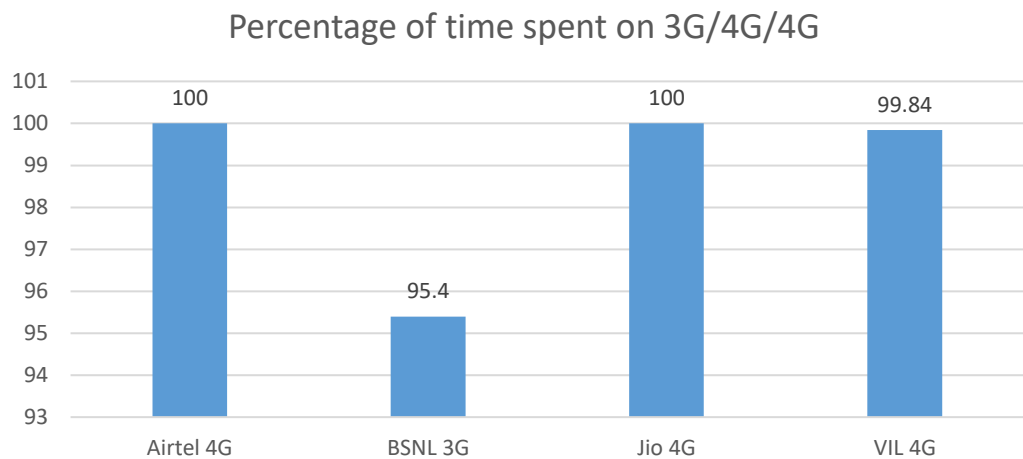


Overall Rx Quality	# Samples	% PDF
(Min, <=2)	31451	83.68
(2, <=3)	2050	5.45
(3, <=4)	2339	6.22
(4, <=5)	829	2.21
(5, <=Max)	918	2.44
Total	37587	100

Overall SINR	# Samples	% PDF
(Min, <=0)	3276	7.52
(0, <=5)	7582	17.41
(5, <=10)	9888	22.7
(10, <=15)	8351	19.17
(15, <=Max)	14462	33.2
Total	43559	100

III. Technology Details

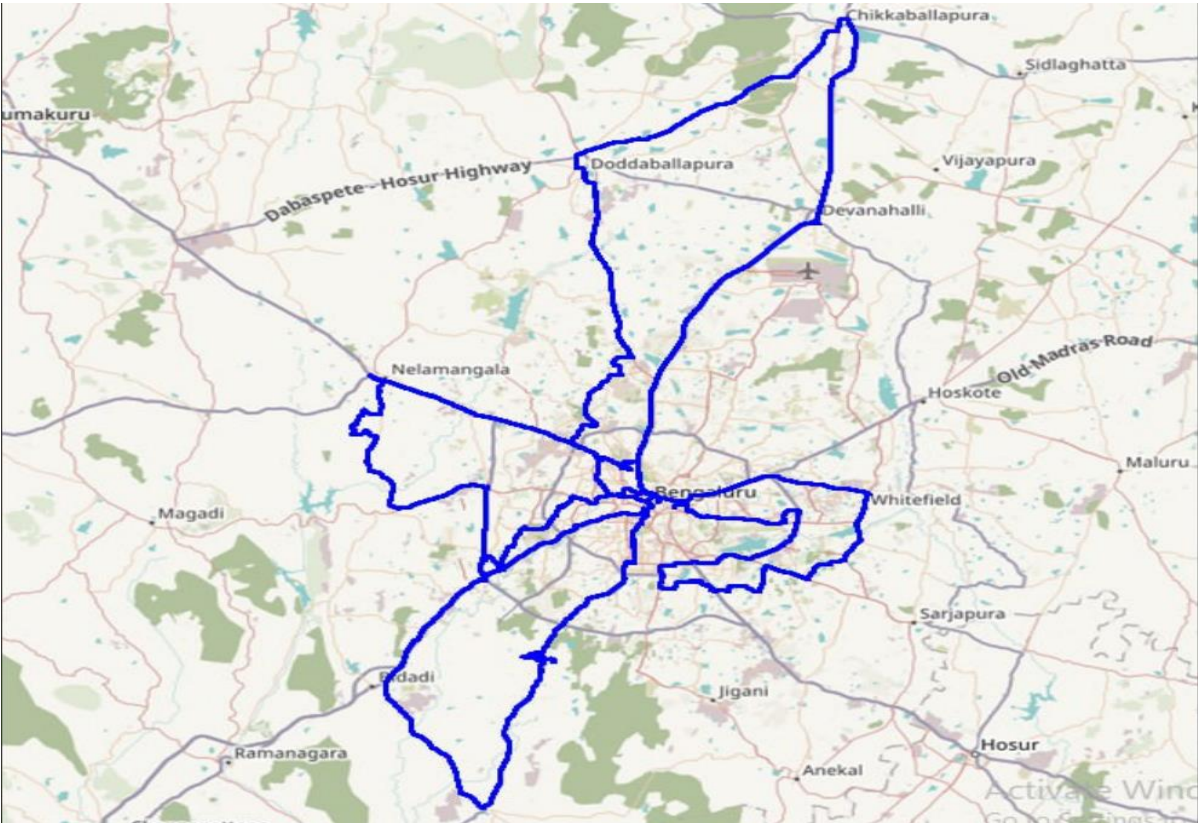
TSP	Time Spent on 3G/4G %
Airtel 4G	100
BSNL 3G	95.4
Jio 4G	100
VIL 4G	99.84



III. Technology Details

Airtel

Technology	Time Spent %
4G	100

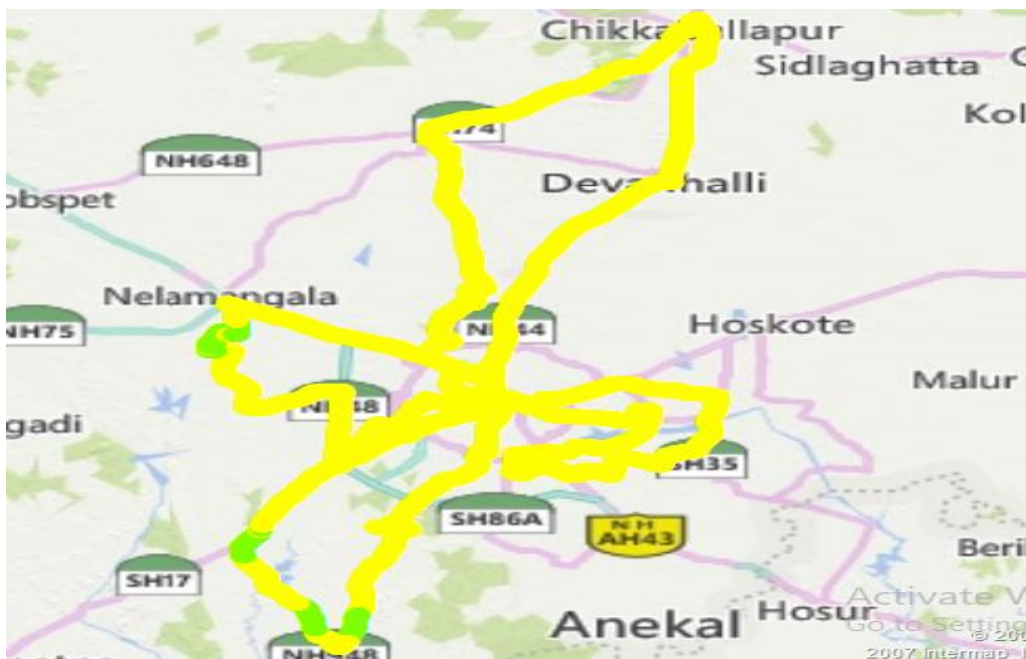


III. Technology Details

BSNL

Technology	Time Spent %
3G	95.4

Technology Plot of
complete SSA (3G)



III. Technology Details

JIO

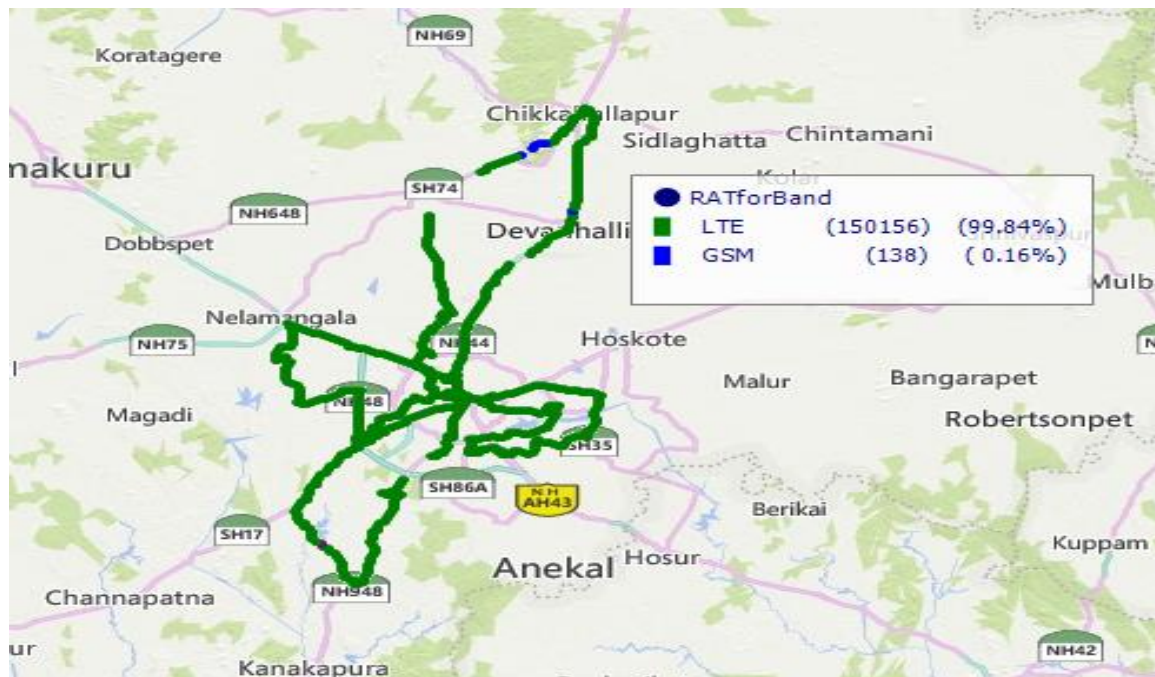
Technology	Time Spent %
4G	100



III. Technology Details

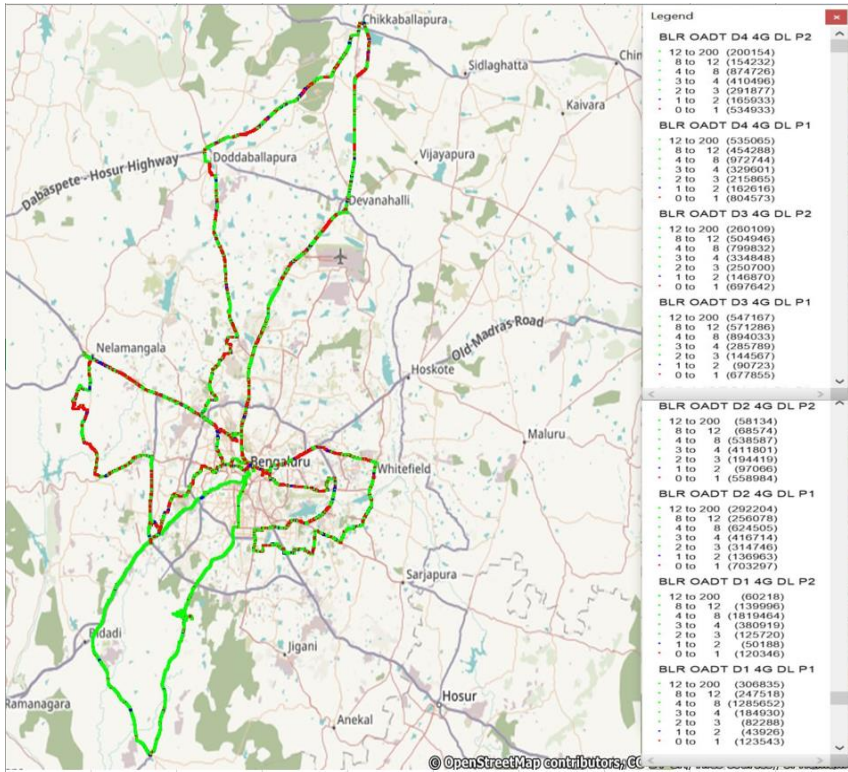
VIL

Technology	Time Spent
4G	99.84

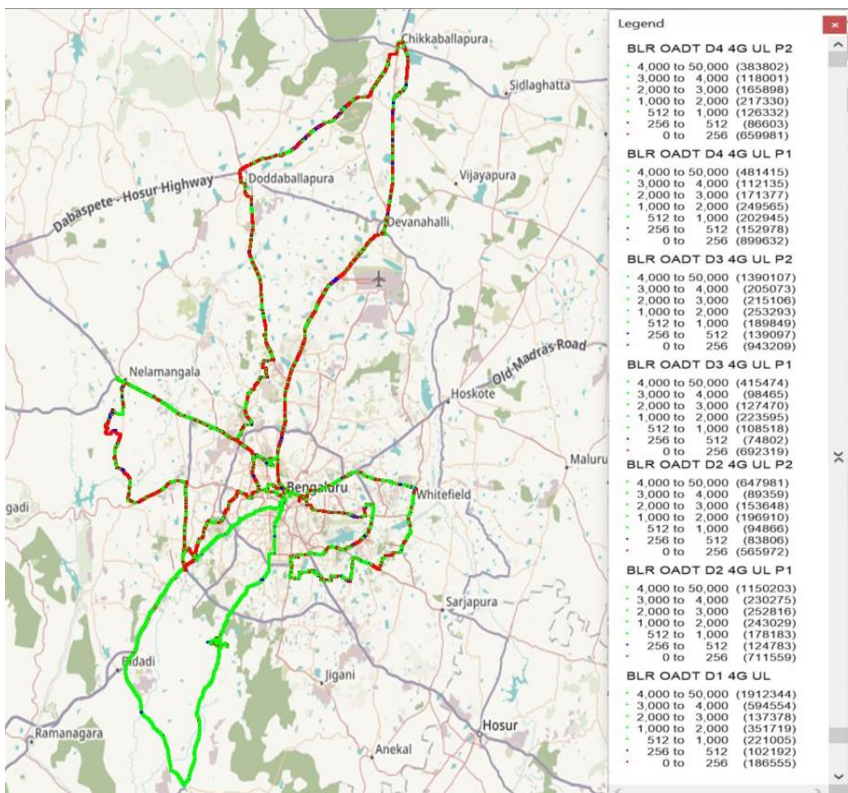


IV. Dynamic Data Test (Data Test on Move) - 4G DL/UL Details

Airtel



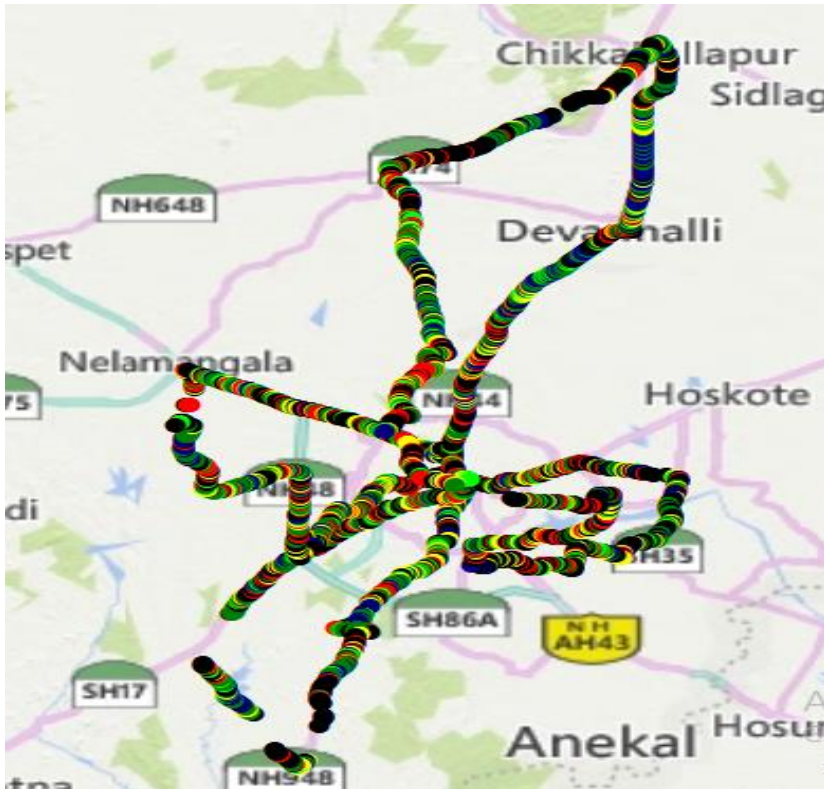
DL throughput	No. of Samples	%
0 to 1 Mbps	4221173	19.22
1 to 2 Mbps	894285	4.07
2 to 3 Mbps	1620182	7.38
3 to 4 Mbps	2755098	12.55
4 to 8 Mbps	7809543	35.57
8 to 12 Mbps	2396918	10.92
>12 Mbps	2259886	10.29
Total	21957085	100



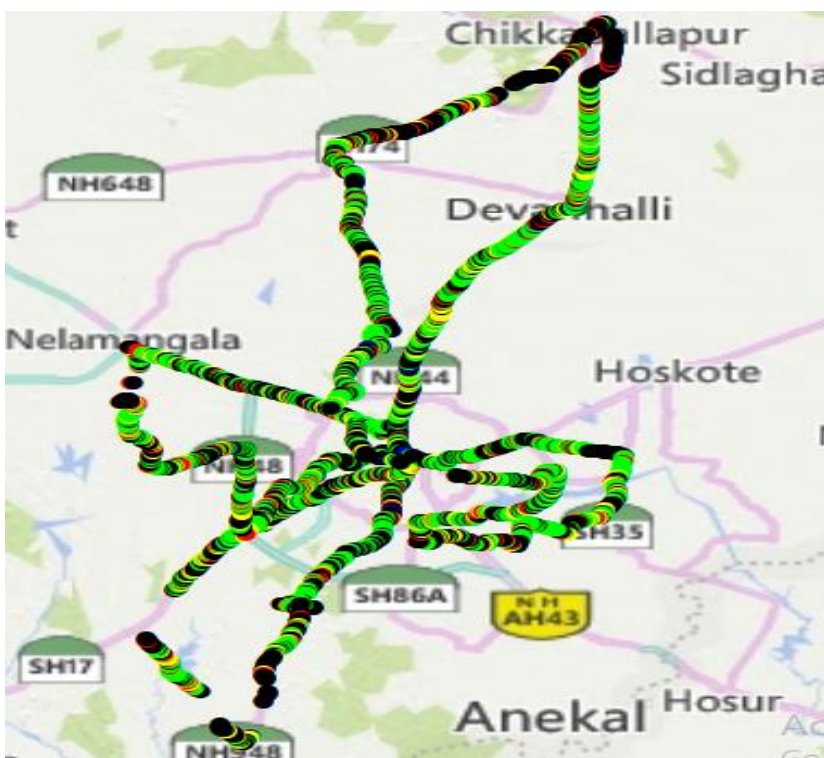
UL throughput	No. of samples	%
0 to 256 Kbps	4659227	26.88
250 to 512 Kbps	764261	4.41
512 Kbps to 1 Mbps	1121698	6.47
1 to 2 Mbps	1735441	10.01
2 to 3 Mbps	1223693	7.06
3 to 4 Mbps	1447862	8.35
>4 Mbps	6381326	36.81
Total	17333508	100%

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

BSNL



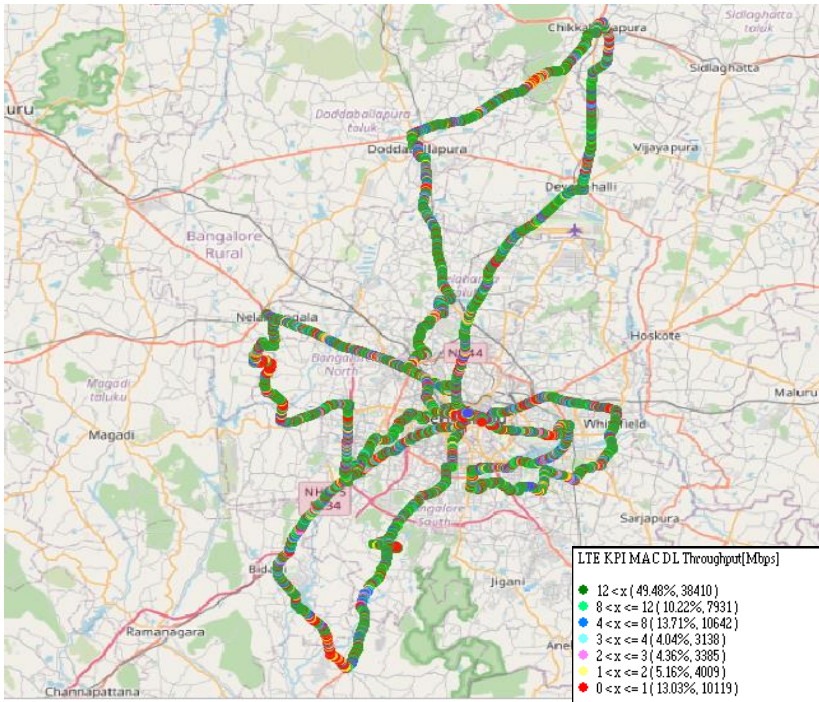
DL throughput	No. of Samples	%
0 to 1 Mbps	19960	28
1 to 2 Mbps	9966	14
2 to 3 Mbps	8496	11.9
3 to 4 Mbps	6936	9.7
4 to 8 Mbps	17508	24.5
8 to 12 Mbps	6959	9.8
>12 Mbps	1533	2.1
Total	46914	100.0



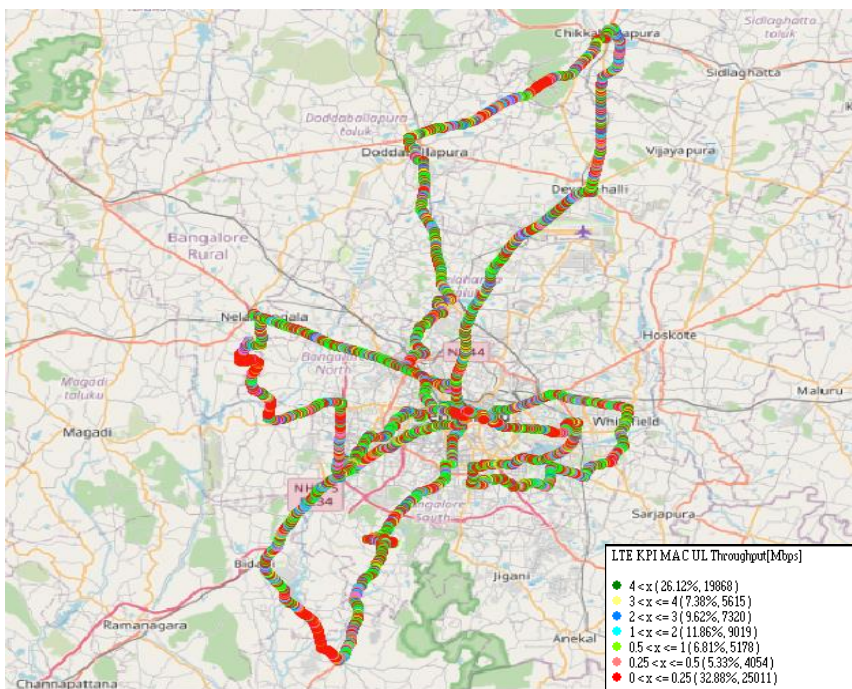
UL throughput	No. of Samples	%
0 to 1 Mbps	29985	39.4
1 to 2 Mbps	5630	7.4
2 to 3 Mbps	6384	8.4
3 to 4 Mbps	32545	42.8
4 to 8 Mbps	900	1.2
8 to 12 Mbps	154	0.2
>12 Mbps	467	0.6
Total	76065	100

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

JIO



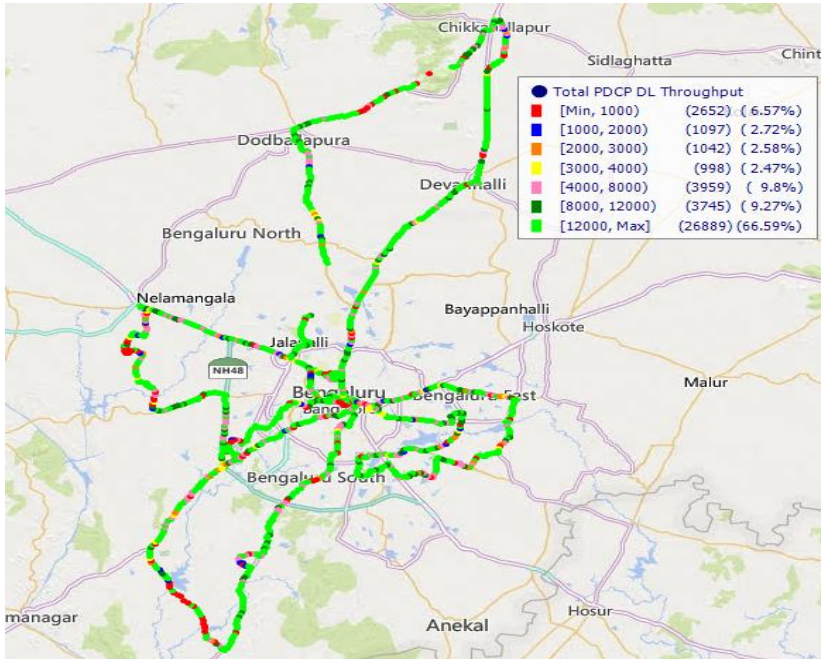
DL throughput	No. of Samples	%
0 to 1 Mbps	10119	13.03
1 to 2 Mbps	4009	5.16
2 to 3 Mbps	3385	4.36
3 to 4 Mbps	3138	4.04
4 to 8 Mbps	10642	13.71
8 to 12 Mbps	7931	10.22
>12 Mbps	38410	49.48
Total	77634	100



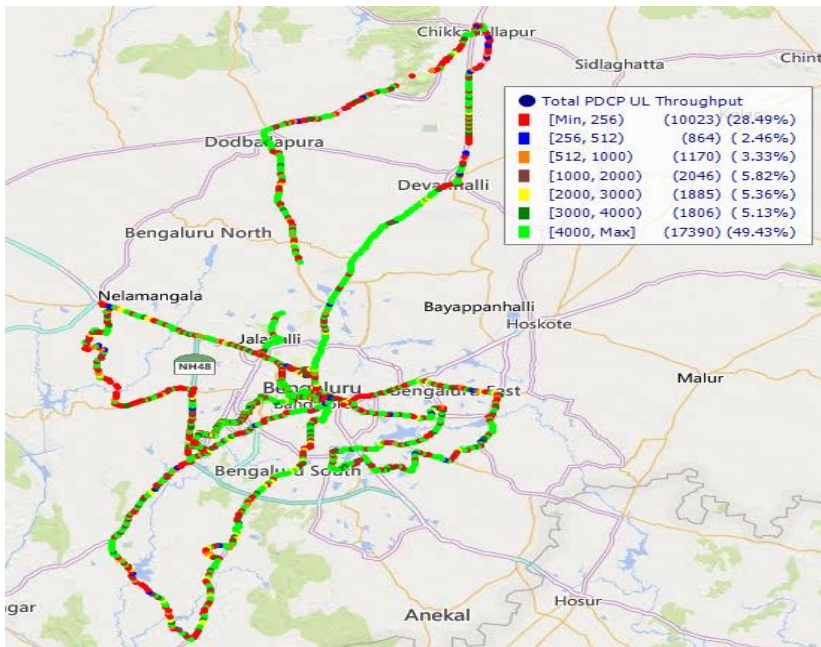
UL throughput	No. of samples	%
0 to 256 kbps Mbps	25011	32.88
256 to 512 kbps	4054	5.33
512 Kbps to 1 Mbps	5178	6.81
1 to 2 Mbps	9019	11.86
2 to 3 Mbps	7320	9.62
3 to 4 Mbps	5615	7.38
>4Mbps	19868	26.12
Total	76065	100

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

VIL



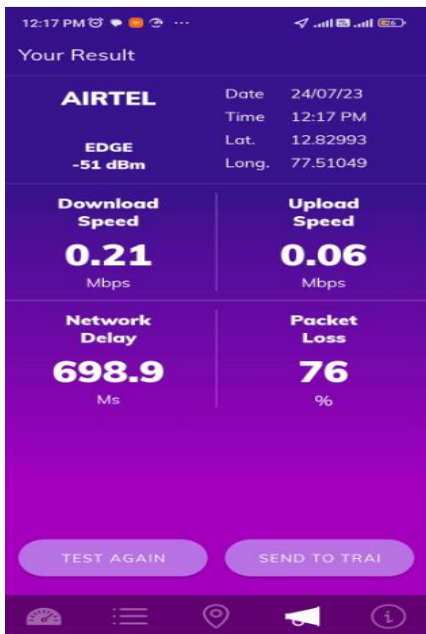
DL throughput	No. of Samples	%
0 to 1 Mbps	2652	6.57
1 to 2 Mbps	1097	2.72
2 to 3 Mbps	1042	2.58
3 to 4 Mbps	998	2.47
4 to 8 Mbps	3959	9.8
8 to 12 Mbps	3745	9.27
>12 Mbps	26889	66.59
Total	40382	100



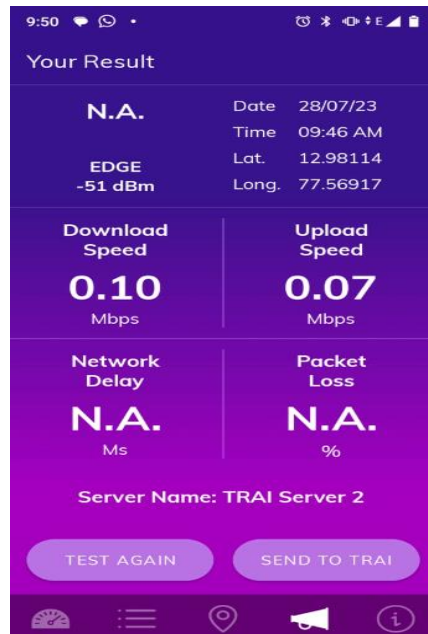
UL throughput	No. of samples	%
0 to 256 Kbps	10023	28.49
250 to 512 Kbps	864	2.46
512 Kbps to 1 Mbps	1170	3.33
1 to 2 Mbps	2046	5.82
2 to 3 Mbps	1885	5.36
3 to 4 Mbps	1806	5.13
>4Mbps	17390	49.43
Total	35184	100

Techology-2G	Art of Living International Centre	Majestic Railway Station	Satellite Bus Stand	BDA Shopping Mall	Byppanahalli Metro Station	Manyatta Tech Park
Download Speed (Mbps)	0.21	0.10	0.21	0.16	0.13	0.07
Upload Speed (Mbps)	0.06	0.07	0.03	0.01	0.02	0.06
Latency	698.9	0	0	0	0	0

AOL International Centre



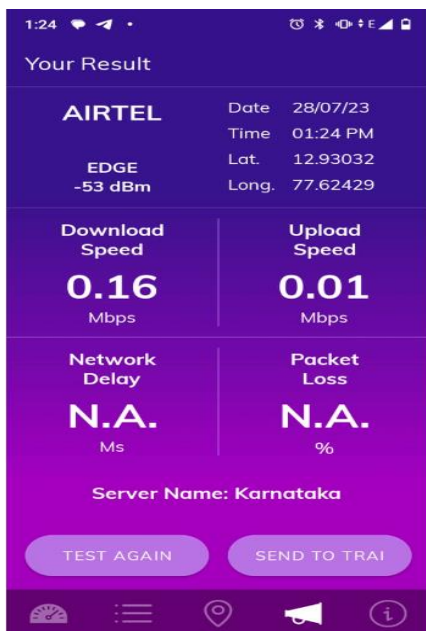
Majestic Railway Station



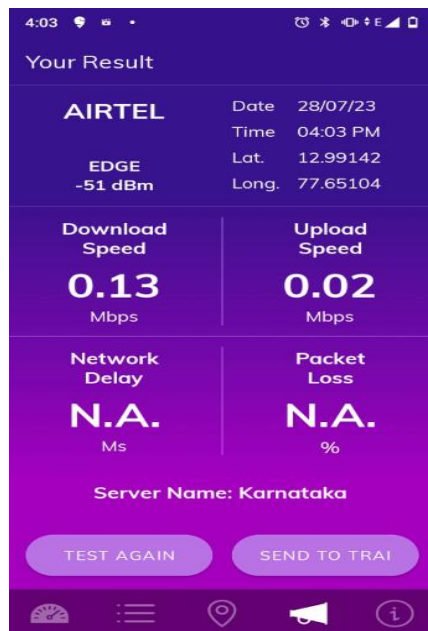
Satellite Bus Stand



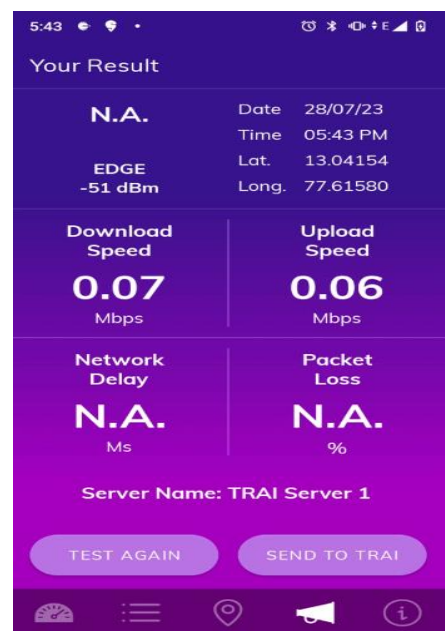
BDA Shopping Mall



Byppanahalli Metro Station



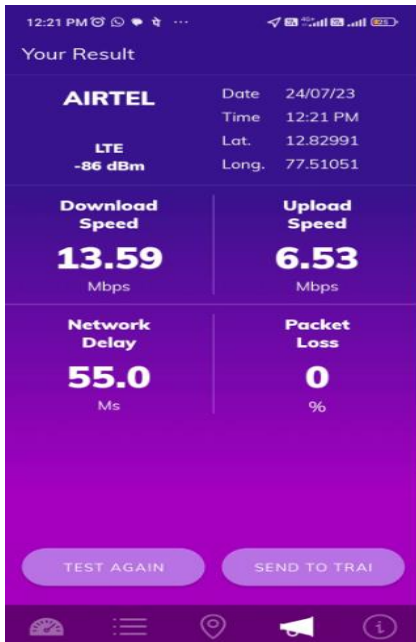
Manyatta Tech Park



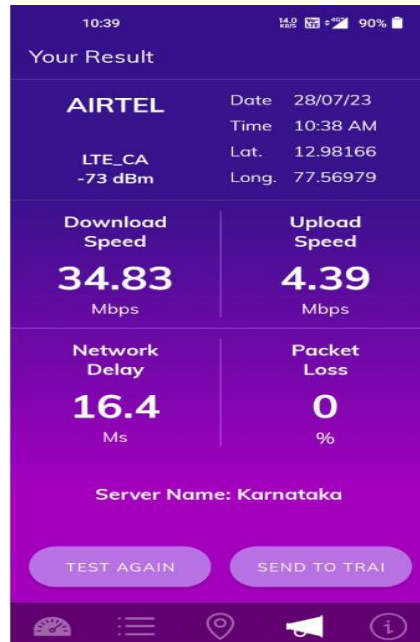
V. TRAI My Speed App Test Details-4G

Techology-4G/VoLTE	Art of Living International Centre	Majestic Railway Station	Satellite Bus Stand	BDA Shopping Mall	Byppanahalli Metro Station	Manyatta Tech Park
Download Speed (Mbps)	13.59	34.83	50.02	25.12	28.16	13.99
Upload Speed (Mbps)	6.53	4.39	11.55	9.64	29.64	16.64
Latency	55	16.4	16.3	28.0	22.4	0

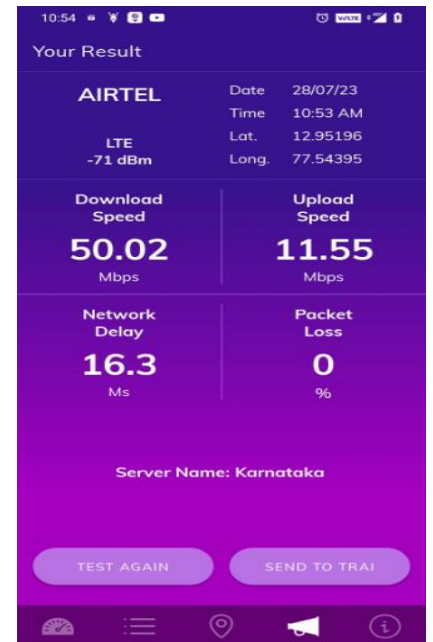
AOL International Centre



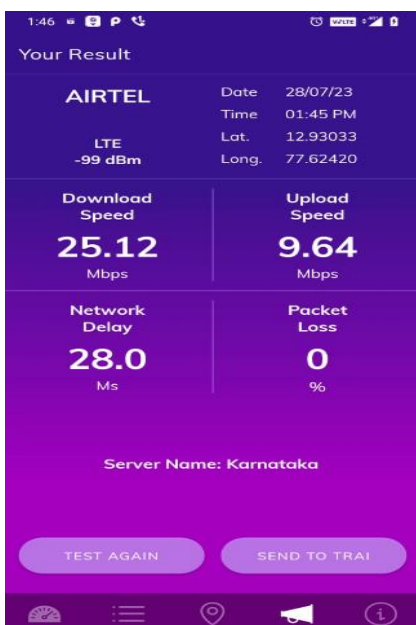
Majestic Railway Station



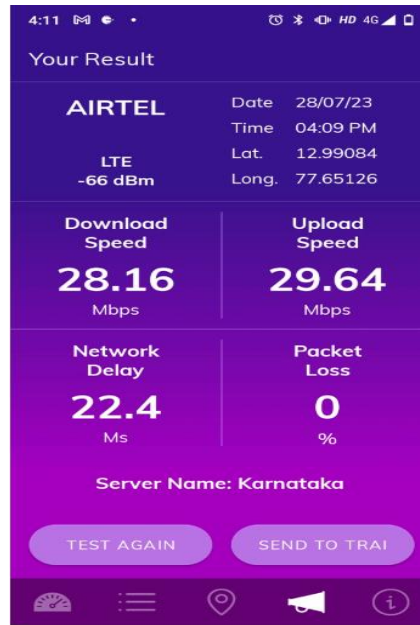
Satellite Bus Stand



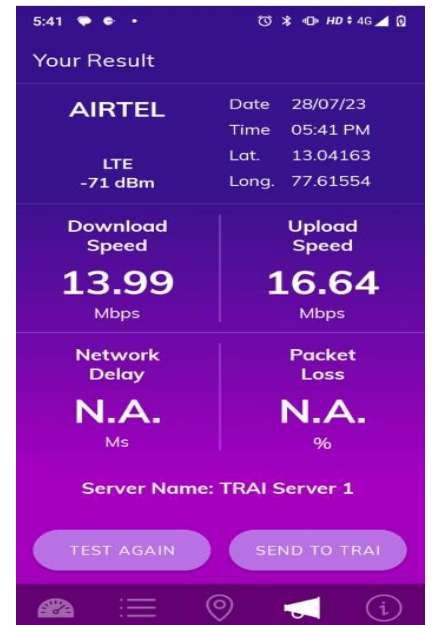
BDA Shopping Mall



Byppanahalli Metro Station



Manyatta Tech Park



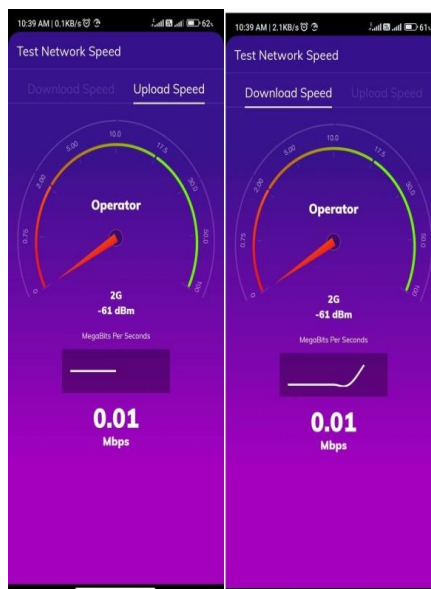
V. TRAI MySpeed App Test Details-2G

Techology-2G	Art of Living International Centre	Majestic Railway Station	Satellite Bus Stand	BDA Shopping Mall	Byppanahalli Metro Station	Manyatta Tech Park
Download Speed (Kbps)	0.18	0.01	0.01	0.10	0.06	0.06
Upload Speed (kbps)	0.18	0.01	0.08	0.06	0.06	0.06
Latency(ms)						

AOL International Centre



Majestic Railway Station



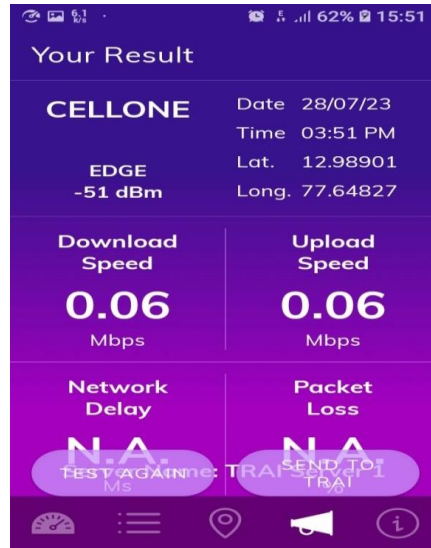
Satellite Bus Stand



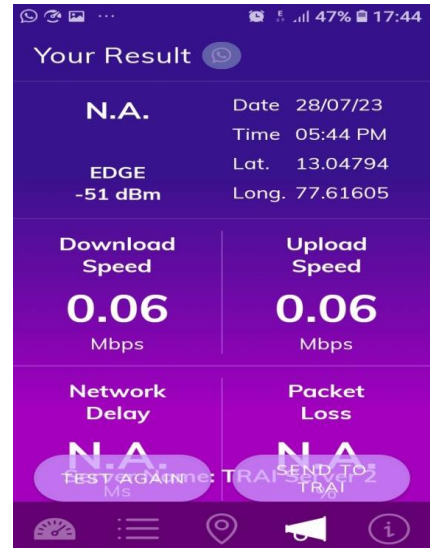
BDA Shopping Mall



Byppanahalli Metro Station



Manyatta Tech Park



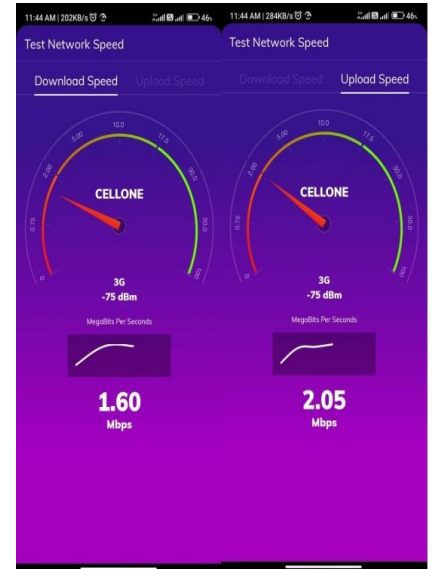
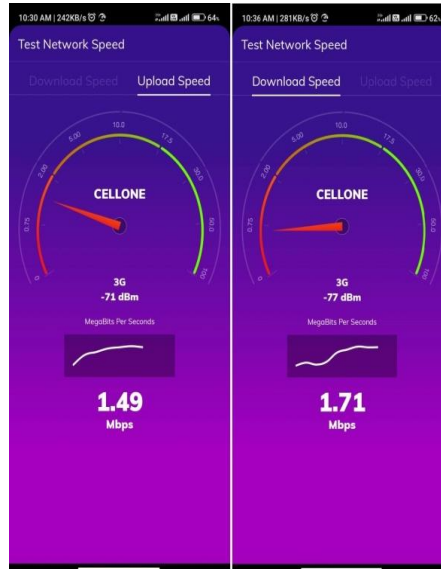
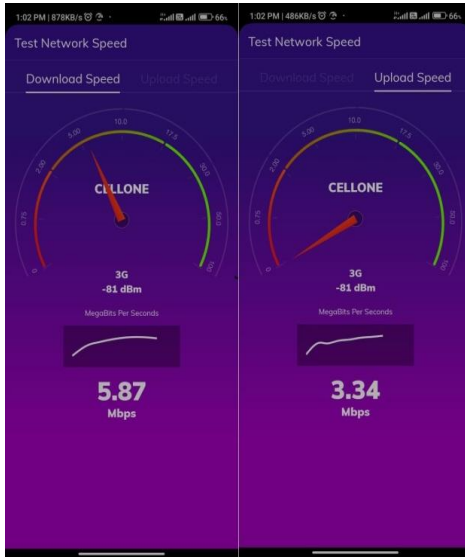
V. TRAI MySpeed App Test Details-3G/4G

Techology-4G/VoLTE	Art of Living International Centre	Majestic Railway Station	Satellite Bus Stand	BDA Shopping Mall	Byppana halli Metro Station	Manyatta Tech Park
Download Speed (Mbps)	5.87	1.71	1.6	5.35	3.18	1.82
Upload Speed (Mbps)	3.34	1.49	2.05	1.89	2.55	0.21
Latency(ms)						

AOL International Centre

Majestic Railway Station

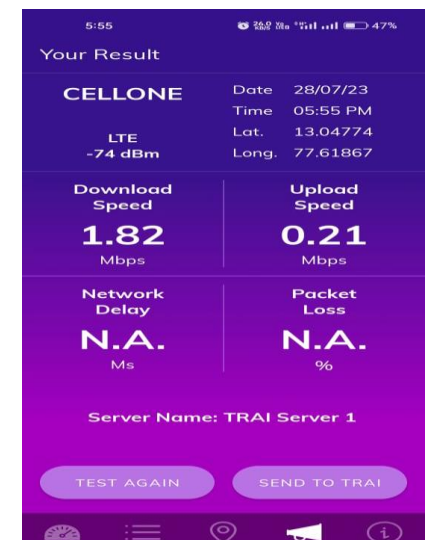
Satellite Bus Stand



BDA Shopping Mall

Byppanahalli Metro Station

Manyatta Tech Park



V. TRAI MySpeed App Test Details-4G

Techology-4G	Art of Living International Centre	Majestic Railway Station	Satellite Bus Stand	BDA Shopping Mall	Byppanahalli Metro Station	Manyatta Tech Park
Download Speed (Mbps)	43.37	17.91	7.27	29.92	29.90	13.75
Upload Speed (Mbps)	9.62	4.61	3.65	6.49	8.52	8.84
Latency	51.1	41.6	41	45.2	57.1	28.8

AOL International Centre

JIO Date 24/07/23 Time 01:06 PM LTE_CA Lat. 12.83052 -77 dBm Long. 77.51032	
Download Speed 43.37 Mbps	Upload Speed 9.62 Mbps
Network Delay 51.1 Ms	Packet Loss 0 %

Majestic Railway Station

JIO Date 28/07/23 Time 10:37 AM LTE_CA Lat. 12.98220 -75 dBm Long. 77.56843	
Download Speed 17.91 Mbps	Upload Speed 4.61 Mbps
Network Delay 41.6 Ms	Packet Loss 0 %

Satellite Bus Stand

JIO Date 28/07/23 Time 01:29 PM LTE_CA Lat. 12.95376 -74 dBm Long. 77.54343	
Download Speed 7.27 Mbps	Upload Speed 3.65 Mbps
Network Delay 41.0 Ms	Packet Loss 0 %

BDA Shopping Mall

JIO Date 28/07/23 Time 04:56 PM LTE Lat. 12.93093 -74 dBm Long. 77.62307	
Download Speed 29.92 Mbps	Upload Speed 6.49 Mbps
Network Delay 45.2 Ms	Packet Loss 0 %

Byppanahalli Metro Station

JIO Date 28/07/23 Time 04:14 PM LTE_CA Lat. 12.99063 -81 dBm Long. 77.65133	
Download Speed 29.90 Mbps	Upload Speed 8.52 Mbps
Network Delay 57.1 Ms	Packet Loss 0 %

Manyatta Tech Park

JIO Date 28/07/23 Time 06:20 PM LTE_CA Lat. 13.03970 -74 dBm Long. 77.62494	
Download Speed 13.75 Mbps	Upload Speed 8.84 Mbps
Network Delay 28.8 Ms	Packet Loss 0 %

Technology-2G	Art of Living International Centre	Majestic Railway Station	Satellite Bus Stand	BDA Shopping Mall	Byppanahalli Metro Station	Manyatta Tech Park
Download Speed (Mbps)	0.46	0.01	0.11	0.02	0.19	0.16
Upload Speed (Mbps)	0.33	0.00	0.06	0.04	0.12	0.10
Latency	96	109	106	97	99	105

AOL International Centre

Your Result	
N.A.	Date: 24/07/23
	Time: 12:18 PM
	Lat: 12.84987
	Long: 77.52228
EDGE -63 dBm	
Download Speed	Upload Speed
0.46 Mbps	0.33 Mbps
Network Delay	Packet Loss
N.A. Ms	N.A. %

Majestic Railway Station

Your Result	
N.A.	Date: 28/07/23
	Time: 10:07 AM
	Lat: 12.98155
	Long: 77.56978
EDGE -55 dBm	
Download Speed	Upload Speed
0.01 Mbps	0.00 Mbps
Network Delay	Packet Loss
N.A. Ms	N.A. %

Satellite Bus Stand

Your Result	
Vi India	Date: 28/07/23
	Time: 01:36 PM
	Lat: 12.93030
	Long: 77.62440
EDGE -51 dBm	
Download Speed	Upload Speed
0.11 Mbps	0.06 Mbps
Network Delay	Packet Loss
887.5 Ms	28 %

BDA Shopping Mall

Your Result	
N.A.	Date: 28/07/23
	Time: 04:32 PM
	Lat: 12.93418
	Long: 77.62408
EDGE -59 dBm	
Download Speed	Upload Speed
0.02 Mbps	0.04 Mbps
Network Delay	Packet Loss
N.A. Ms	N.A. %

Byppanahalli Metro Station

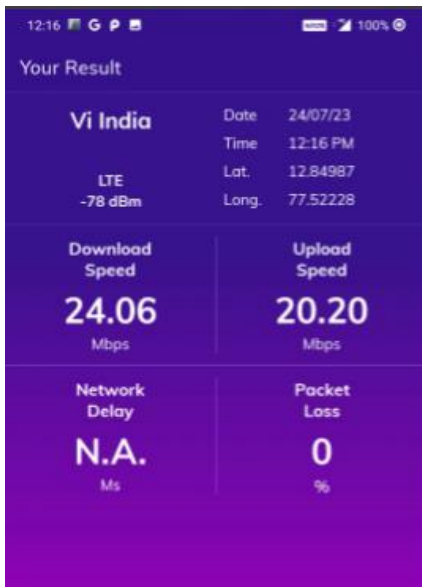
Your Result	
Vi India	Date: 28/07/23
	Time: 05:25 PM
	Lat: 12.99084
	Long: 77.65126
EDGE -51 dBm	
Download Speed	Upload Speed
0.19 Mbps	0.12 Mbps
Network Delay	Packet Loss
N.A. Ms	0 %

Manyatta Tech Park

Your Result	
Vi India	Date: 28/07/23
	Time: 06:04 PM
	Lat: 13.04124
	Long: 77.61728
EDGE 0 dBm	
Download Speed	Upload Speed
0.16 Mbps	0.10 Mbps
Network Delay	Packet Loss
N.A. Ms	N.A. %

Technology-4G/VoLTE	Art of Living International Centre	Majestic Railway Station	Satellite Bus Stand	BDA Shopping Mall	Byppanahalli Metro Station	Manyatta Tech Park
Download Speed (Mbps)	24.06	9.41	24.88	22.67	30.59	61.18
Upload Speed (Mbps)	20.20	13.04	13.71	4.69	29.89	24.86
Latency	60	66	62	61	67	62

AOL International Centre



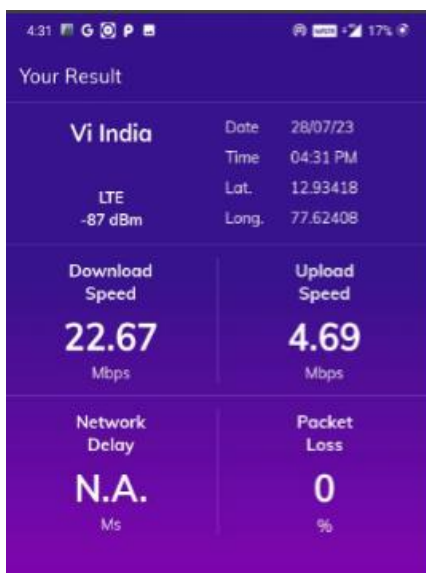
Majestic Railway Station



Satellite Bus Stand



BDA Shopping Mall



Byppanahalli Metro Station



Manyatta Tech Park

