Operator Assisted Drive Test Report

For

Thiruvananthapuram

19th to 22nd Sep 2023
Trivandrum-Kollam NH(66) - 70 Kms
(19th Sep 2023)
Trivandrum City & Surrounding Area - 360 Kms
(20th to 22th Sep 2023)

TRAI RO, Bengaluru

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.
- All 2G/3G/4G TSPs have met the Rx Quality except BSNL 3G, Airtel 4G & VIL 4G.

The Operator Assisted Drive Test has been carried out by Regional Office, Bangalore with the help of Service Providers from 19th to 22th Sep 2023 The drive test covered the route of 430 KMs including NH of 70 Kms & 6 hotspots. Approximately 600 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 19th to 22th Sep 2023 covering various locations in **Thiruvanathapuram & 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 430 KMs including NH of 70 Kms over a period of 4 days from 19th to 22th Sep 2023. Approximately 600 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 430 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
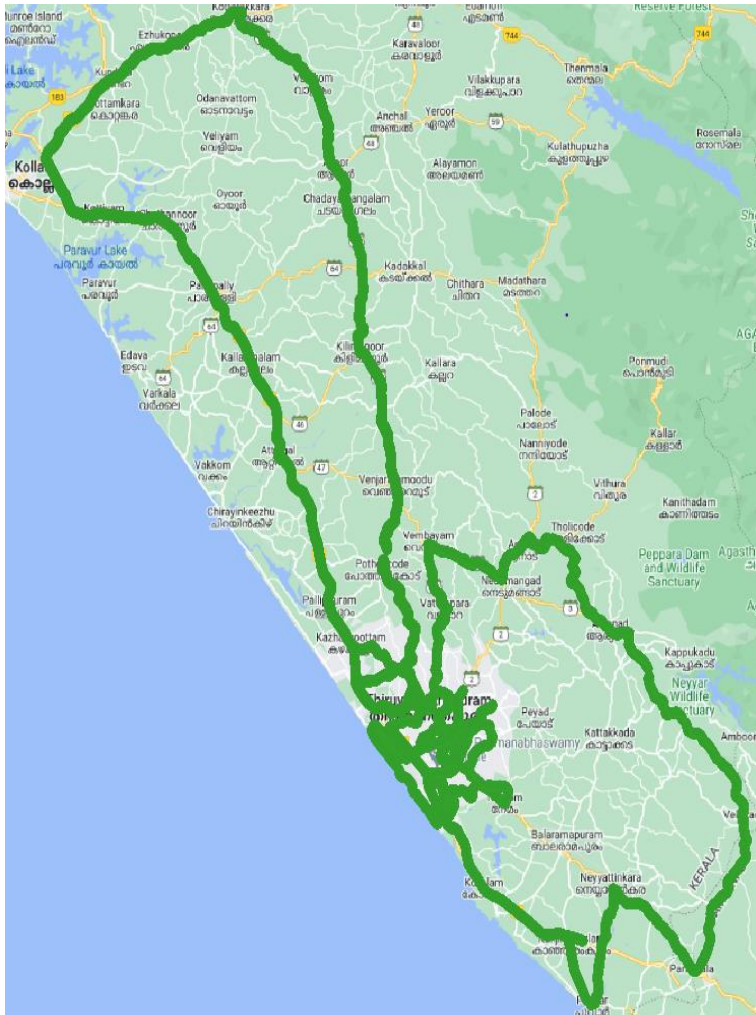
Areas covered	
Kazhakoottam	Prasala
Attingal	Vellarada
Parippalli	Aryanad
Kollam	Nedumangad
Kundara	Proorkkada
Kottarakkara	Thambanoor
Kilimanoor	Palayam
Venjarammood	Nemom
Kovalam	Shangumugham
Poovar	Karyavattom

Data Service Test- Static Locations
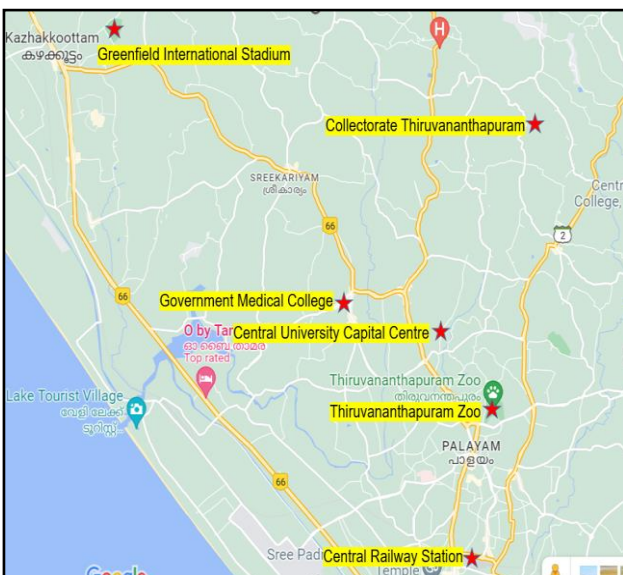
1. **Central Railway Station**
2. **Thiruvananthapuram Zoo**
3. **Central University Capital Centre**
4. **Collectorate Thiruvananthapuram**
5. **Government Medical College**
6. **Greenfield International Stadium**

Voice Calls

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

Drop Call Rate (%)

Drop Call Rate %

2G		
VIL	0
BSNL	0.32
Airtel	0

Drop Call Rate (%)

4G		
VIL	0
JIO	0
Airtel	0
3G BSNL	1.24

Block Call Rate (%)

Block Call Rate %

2G		
VIL	0
BSNL	0.96
Airtel	0

Axis Title

Block Call Rate %

4G		
VIL	0
RJIL	0
Airtel	0
3G BSNL	0.92
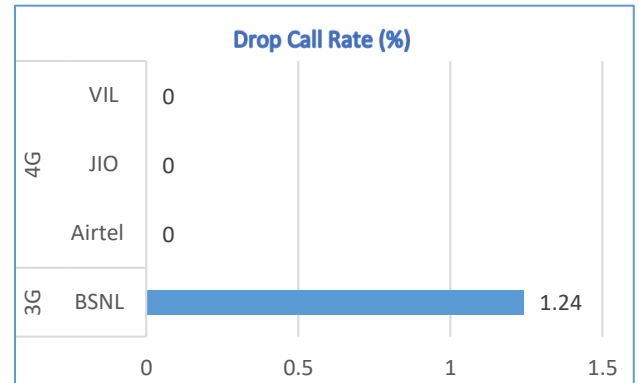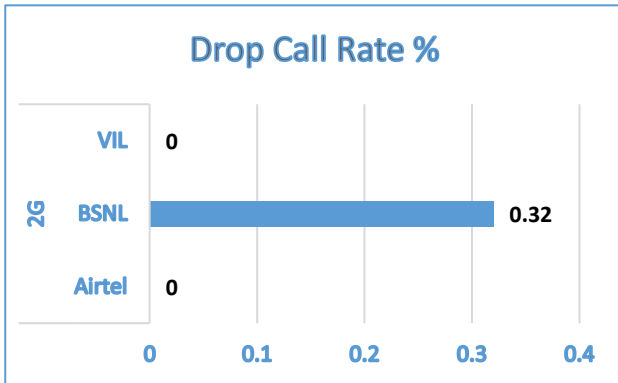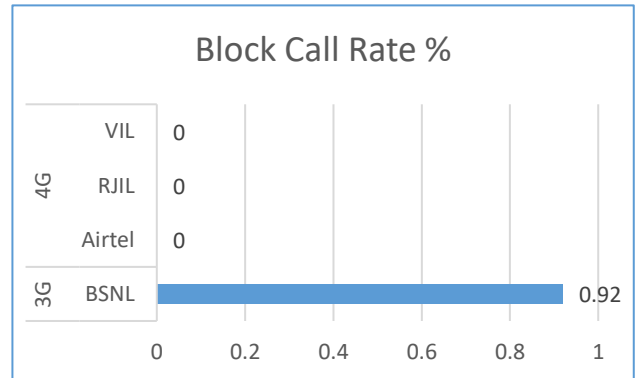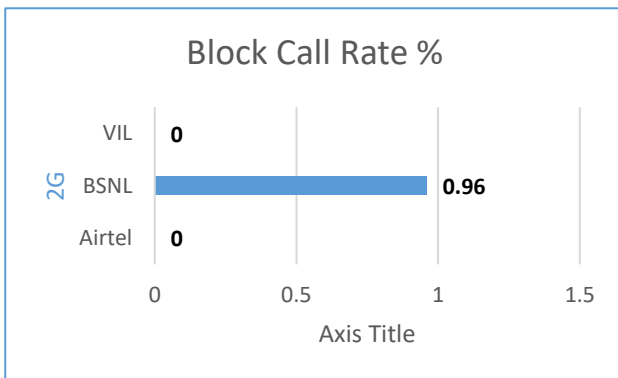
KPIs	2G			3G	4G		
	Airtel	BSNL	VIL	BSNL	Airtel	RJIL	VIL
Drop Call Rate %	0	0.32	0	1.24	0	0	0
Block Call Rate %	0	0.96	0	.92	0	0	0

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.

Voice Calls

Coverage

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

TSPs	2G		
	Airtel	**BSNL**	**VIL**
Coverage%	93.2	91.61	96.35

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

TSPs	3G	4G		
	BSNL	**Airtel**	**JIO**	**VIL**
Coverage %	87.9	99.21	99.3	96.71

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

TSPs	3G	4G		
	BSNL	**Airtel**	**JIO**	**VIL**
Time Spent on 3G/4G%	92.11	100	100	96.3

Summary

Voice Call	2G		
	Airtel	BSNL	VIL
Call Attempt	663	624	644
Blocked Call Rate (%)	0	0.96	0
CSSR% (Accessibility)	100	99.04	100
Drop Call Rate (%)	0	0.32	0
Rx Quality (%)	98.06	98.29	98.67
Mobility HOSR (%)	99.89	96.11	98.35

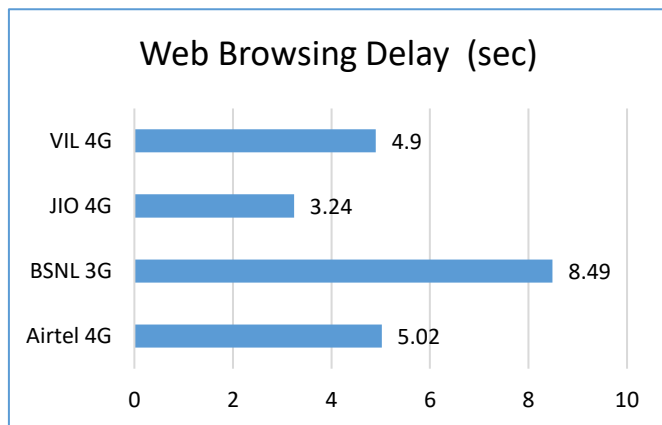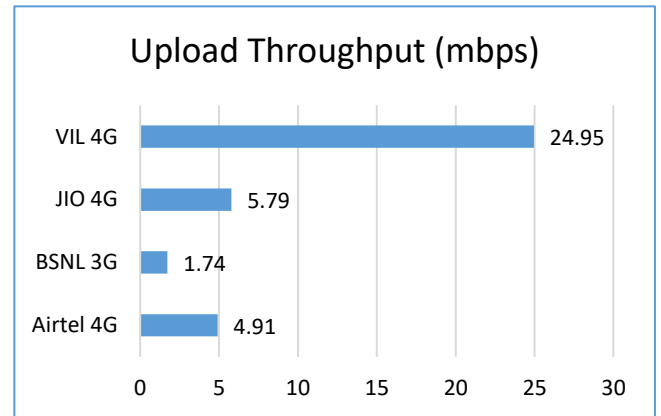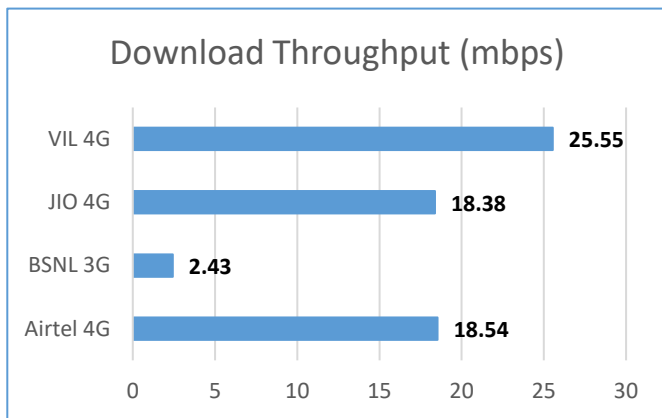| Voice Call	3G/4G			
	BSNL 3G	Airtel 4G	JIO 4G	VIL 4G
Call Attempt	651	688	665	660
Blocked Call Rate (%)	0.92	0	0	0
CSSR% (Accessibility)	99.08	100	100	100
Drop Call Rate (%)	1.24	0	0	0
Rx Quality (%)	59.83	90.17	95.9	92.4
Mobility HOSR (%)	98.9	99.89	99.8	99.1

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:

Download Throughput (mbps)

Network	Value
VIL 4G	25.55
JIO 4G	18.38
BSNL 3G	2.43
Airtel 4G	18.54

Upload Throughput (mbps)

Network	Value
VIL 4G	24.95
JIO 4G	5.79
BSNL 3G	1.74
Airtel 4G	4.91

Web Browsing Delay (sec)

Network	Value
VIL 4G	4.9
JIO 4G	3.24
BSNL 3G	8.49
Airtel 4G	5.02

Video Streaming Delay (sec)

Network	Value
VIL 4G	1.24
JIO 4G	0.4
BSNL 3G	1.8
Airtel 4G	1.05

Latency (msec)

Network	Value
VIL 4G	62
JIO 4G	36.19
BSNL 3G	309.83
Airtel 4G	79.57
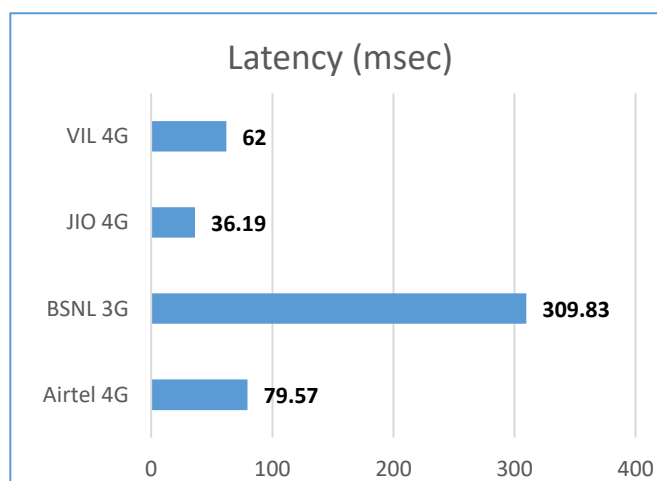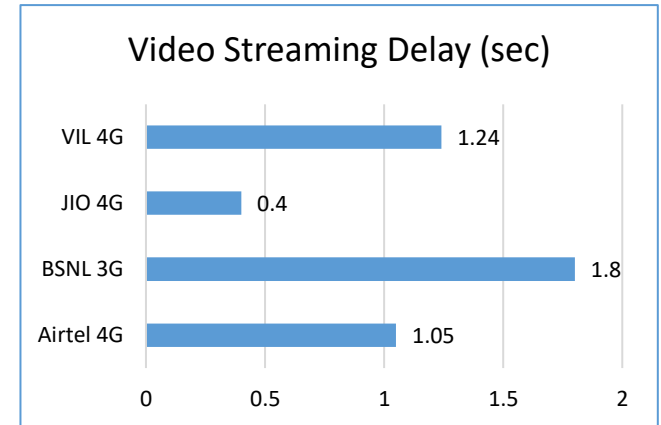
Summary

Data Services Static	2G		
	Airtel	BSNL	VIL
Download Throughput (kbps)	158.51	90.2	139.72
Upload Throughput (kbps)	74.08	24.83	65.27
Web Browsing Delay (sec)	53.89	17.53	75.34
Latency (msec)	366.83	365.47	607

Data Services Static	3G/4G			
	BSNL 3G	Airtel 4G	JIO 4G	VIL 4G
Download Throughput (mbps)	2.43	18.54	18.4	25.6
Upload Throughput (mbps)	1.74	4.91	5.79	25
Web Browsing Delay (sec)	8.49	5.02	3.24	4.9
Video Streaming Delay (sec)	1.8	1.05	0.4	1.24
Latency (msec)	309.83	79.57	36.2	62

Data Services Dynamic (Data Test on Move)	3G/4G			
	BSNL 3G	Airtel 4G	JIO 4G	VIL 4G
Download Throughput (mbps)	2.13	8.23	8.03	20.6
Upload Throughput (mbps)	2.09	5.31	2.77	7.54

Summary

Data Services Static – Central Railway Station	2G		
	Airtel	BSNL	VIL
Download Throughput (kbps)	105.78	111.2	94.93
Upload Throughput (kbps)	44.3	33	68.18
Web Browsing Delay (sec)	72.68	12.52	103.94
Latency (ms)	364	503	541

Data Services Static –Central Railway Station	4G			
	BSNL 3G	Airtel	JIO	VIL
Download Throughput (Mbps)	3.07	22.53	14.57	17.42
Upload Throughput (Mbps)	1.62	5.91	8.98	12.09
Web Browsing Delay (sec)	2.98	4.24	3.68	4.78
Video Streaming Delay (sec)	1.44	1.01	0.39	0.91
Latency (ms)	211	81	33.4	50.8

Data Services Static – Thiruvananthapuram Zoo	2G		
	Airtel	BSNL	VIL
Download Throughput (kbps)	175.04	120.2	197.25
Upload Throughput (kbps)	87.78	22.8	74.178
Web Browsing Delay (sec)	60.75	11.23	68.356
Latency (msec)	361.2	258	562

Data Services Static - Thiruvananthapuram Zoo	4G			
	BSNL 3G	Airtel	JIO	VIL
Download Throughput (Mbps)	1.41	5.4	33.65	28.38
Upload Throughput (Mbps)	1.51	3.06	5.03	23.852
Web Browsing Delay (sec)	9.29	4.65	3.49	4.79
Video Streaming Delay (sec)	1.68	1.32	0.32	0.842
Latency (ms)	563	93.4	53	53

Summary

Data Services Static – Central University Capital Centre	2G		
	Airtel	BSNL	VIL
Download Throughput (kbps)	172.68	81.40	76.64
Upload Throughput (kbps)	92.56	38.20	36.956
Web Browsing Delay (sec)	42.29	28.86	77.448
Latency (ms)	376	401.40	893

Data Services Static Central University Capital Centre	4G			
	BSNL 3G	Airtel	JIO	VIL
Download Throughput (Mbps)	3.26	26.96	19.63	34.38
Upload Throughput (Mbps)	2.39	5.94	6.92	29.63
Web Browsing Delay (sec)	8.36	3.45	2.89	4.85
Video Streaming Delay (sec)	1.73	0.78	0.36	1.79
Latency (ms)	291.00	53	34	71

Data Services Static Collectorate Thiruvananthapuram	2G		
	Airtel	BSNL	VIL
Download Throughput (kbps)	178.9	67.4	207.59
Upload Throughput (kbps)	65.06	24.2	86.238
Web Browsing Delay (sec)	44.03	22.04	64.106
Latency (msec)	371	325	680

Data Services Static – Collectorate Thiruvananthapuram	4G			
	BSNL 3G	Airtel	JIO	VIL
Download Throughput (Mbps)	3.16	27.84	15.76	25.34
Upload Throughput (Mbps)	1.63	4.81	3.74	35.63
Web Browsing Delay (sec)	7.61	5.35	2.89	5.02
Video Streaming Delay (sec)	1.13	0.9	0.37	1.12
Latency (ms)	258	69	31	69

Summary

Data Services Static – Government Medical College	2G		
	Airtel	BSNL	VIL
Download Throughput (kbps)	95.08	62.20	102.15
Upload Throughput (kbps)	40.38	15.40	40.12
Web Browsing Delay (sec)	55.46	17.53	64.32
Latency (ms)	364	272.80	834

Data Services Static – Government Medical College	3G/4G			
	BSNL 3G	Airtel	JIO	VIL
Download Throughput (Mbps)	0.9	7.12	12.28	18.69
Upload Throughput (Mbps)	1.65	2.39	4.62	22.41
Web Browsing Delay (sec)	15.51	7.17	3.05	5.59
Video Streaming Delay (sec)	3.4	1.1	0.48	1.8
Latency (ms)	292	90	33	72

Data Services Static – Greenfield International Stadium	2G		
	Airtel	BSNL	VIL
Download Throughput (kbps)	223.6	98.80	159.75
Upload Throughput (kbps)	114.38	15.40	85.97
Web Browsing Delay (sec)	48.11	13.03	73.85
Latency (msec)	364.2	433.60	134

Data Services Static – Greenfield International Stadium	3G/4G			
	BSNL 3G	Airtel	JIO	VIL
Download Throughput (Mbps)	2.78	21.36	14.4	29.08
Upload Throughput (Mbps)	1.63	7.36	5.46	26.07
Web Browsing Delay (sec)	7.2	5.25	3.41	4.4
Video Streaming Delay (sec)	1.42	1.18	0.48	0.97
Latency (ms)	243	91	33	58

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 ≥ -110dBm. The details are as follows.

TSP	Coverage Rate %
Airtel 2G	93.2
BSNL 2G	91.61
VIL 2G	96.35
Airtel 4G	99.21
BSNL 3 G	87.9
Jio 4G	99.3
VIL 4G	96.71

Coverage Distribution %

	Airtel 2G	BSNl 2G	VIL 2G	Airtel 4G	BSNL 3G	Jio 4G	VIL 4G
2G:[95, >=Min] / 3G:[[90,>=Min] / VoLTE:[[-110,>=Min]	0.42	0.91	1.33	0.79	12.1	0.7	3.29
2G:[-85, >=-95) / 3G:[-80,>=-90] / VoLTE:[-90,>-=-110]	6.38	7.48	2.33	24.73	27.51	21.9	51.51
2G:[-75, >=-85] / 3G:[-70,>=-80] / VoLTE:[-80,>=-90]	38.34	34	48.66	34.58	33.88	24.9	27.95
2G:[Max, >=-75] / 3G:Max, >=-70 / VoLTE: >=-80	54.86	57.61	47.69	39.9	26.51	52.5	17.25
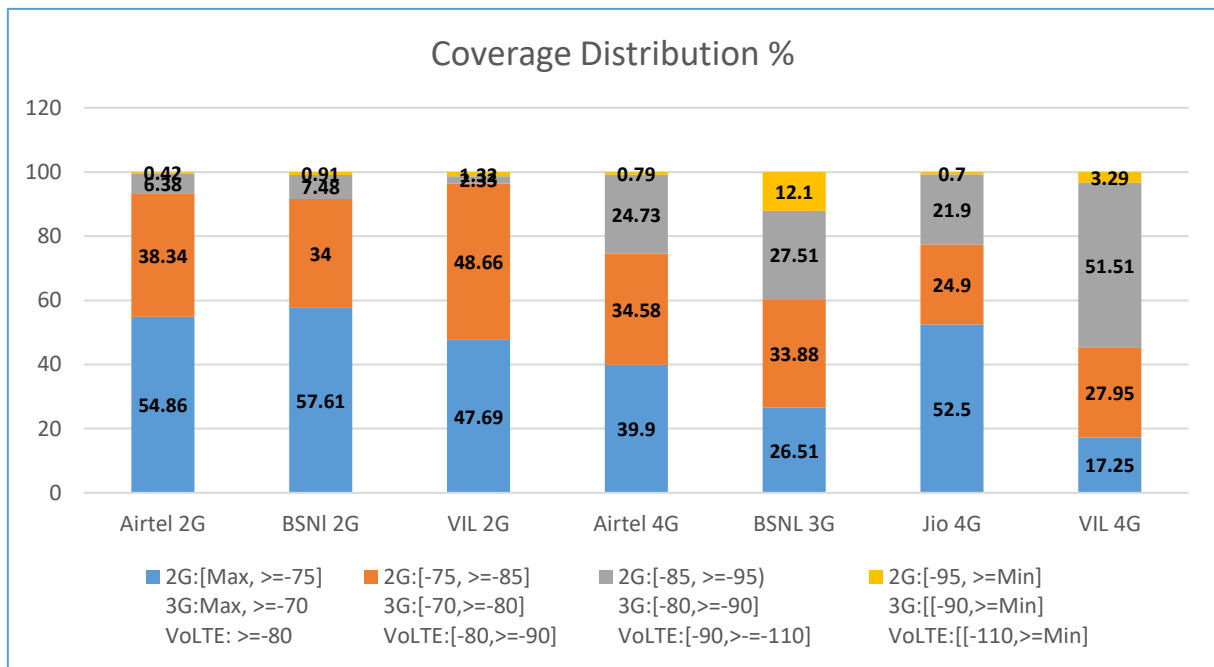
AIRTEL

Technology	Coverage Rate %
2G	93.20
4G	99.21

2G

4G
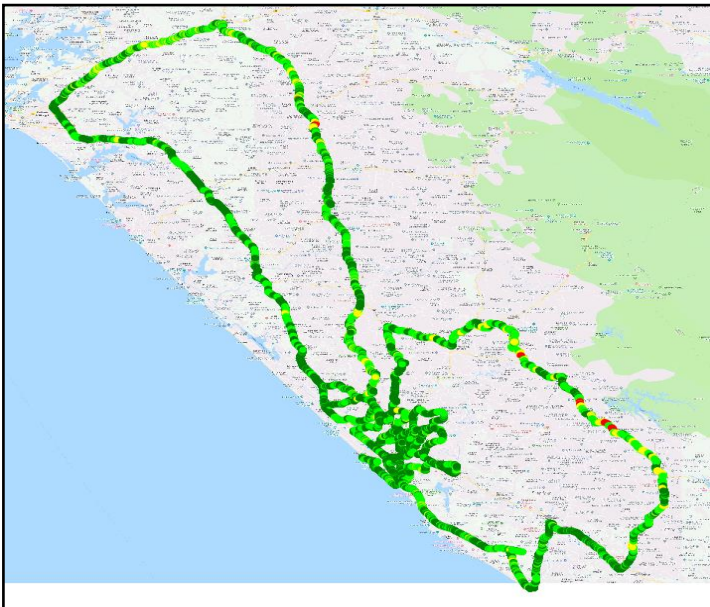
2G		
Overall RxLevel	**# Samples**	**% PDF**
[Max, >=-75]	18899	54.86%
[-75, >=-85)	13206	38.34%
[-85, >=-95)	2198	6.38%
[-95, >=Min)	145	0.42%
Total	**34448**	**100**

4G/VoLTE		
Overall RSRP	**# Samples**	**% PDF**
[Max, >=-80]	13731	39.90%
[-80, >=-90)	11902	34.58%
[-90, >=-110)	8511	24.73%
[-110, >=Min)	271	0.79%
Total	34415	100

BSNL

Technology	Coverage Rate %
2G	91.61
3G	87.90
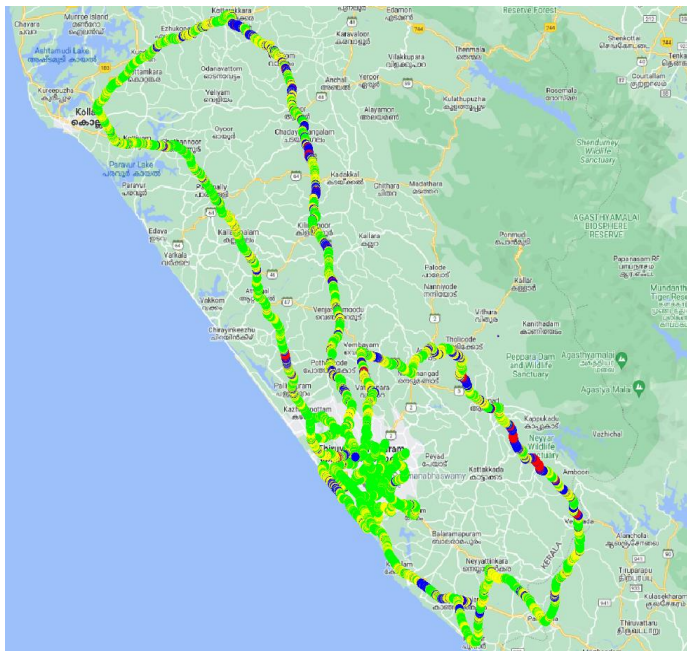
2G	3G
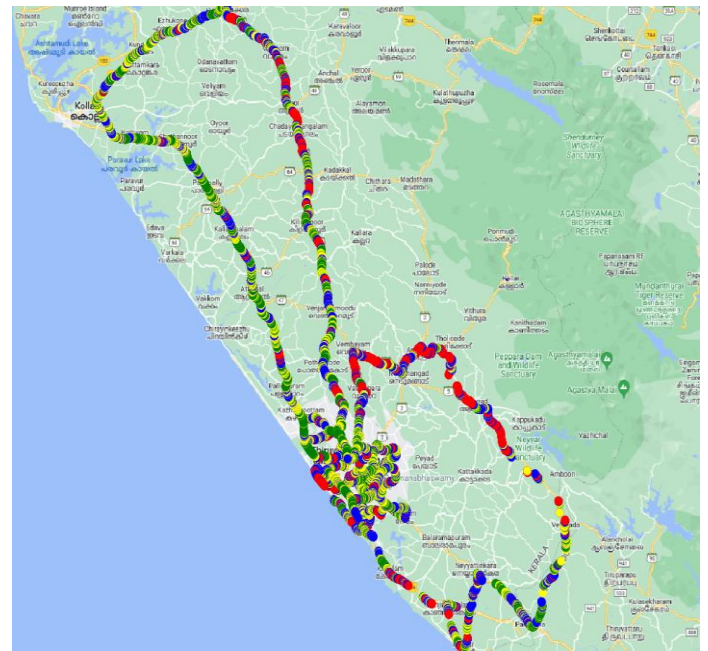
2G		
Overall RxLevel	**# Samples**	**% PDF**
[Max, >=-75]	135686	57.61%
[-75, >=-85)	80087	34.00%
[-85, >=-95)	17616	7.48%
[-95, >=Min)	2139	0.91%
Total	**235528**	**100%**

3G		
Overall RSCP	**# Samples**	**% PDF**
[Max, >=-70]	17134	26.51%
[-70, >=-80)	21902	33.88%
[-80, >=-90)	17781	27.51%
[-90, >=Min)	7821	12.10%
Total	**64638**	**100%**

JIO

Technology	Coverage Rate %
4G	99.3
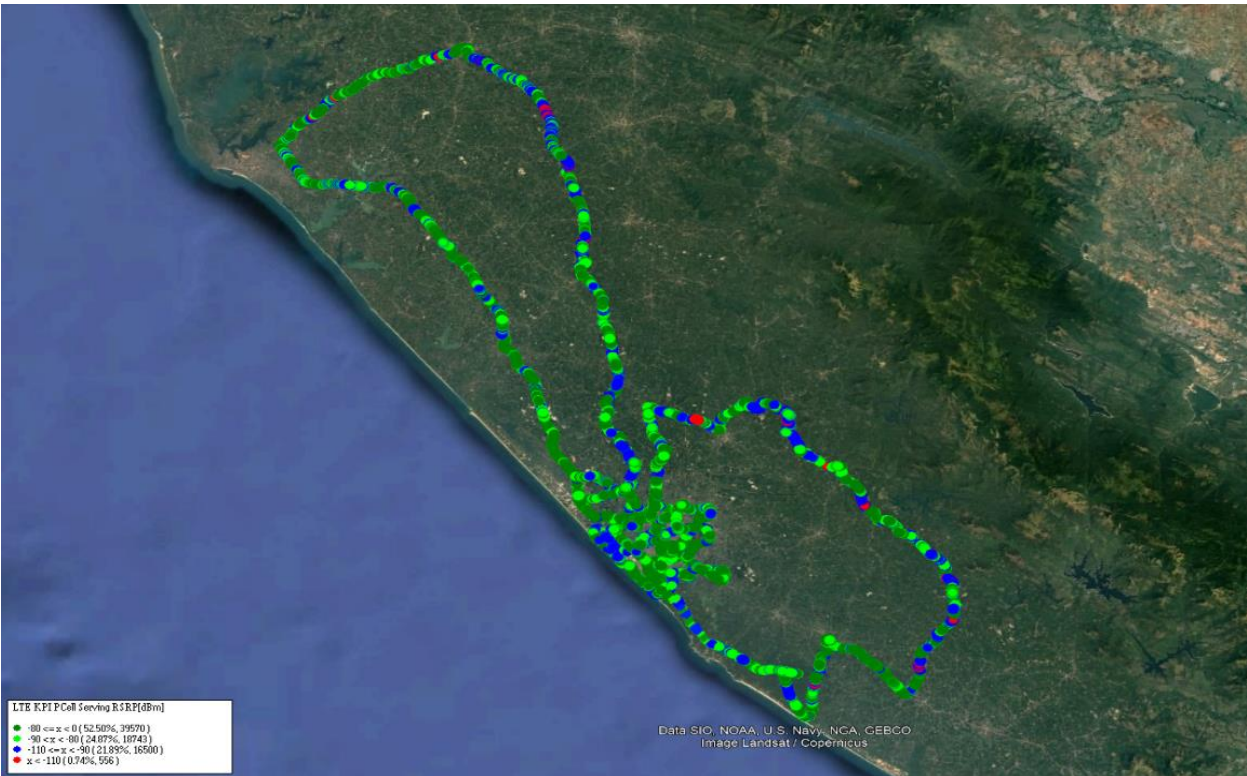
4G/VoLTE		
Overall RSRP	# Samples	% PDF
[Max, >=-80]	39570	52.5
[-80, >=-90)	18743	24.9
[-90, >=-110)	16500	21.9
[-110, >=Min)	556	0.7
Total	**75369**	**100**

VIL

Technology	Coverage Rate %
2G	96.35
4G	96.71

2G	4G
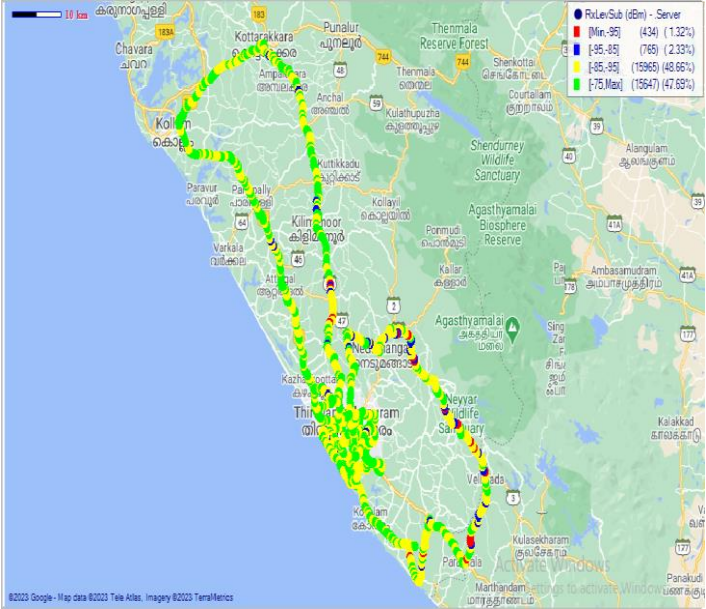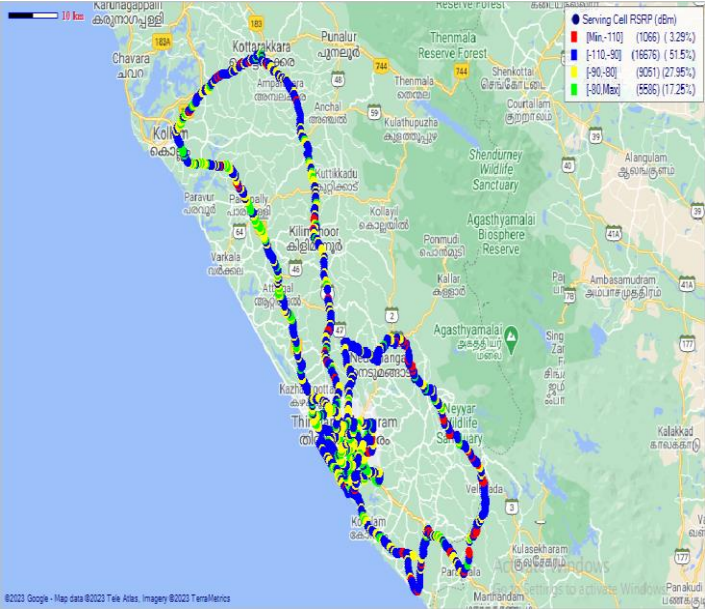
2G		
Overall RxLevel	**# Samples**	**% PDF**
[Max, >=-75]	15647	47.69%
[-75, >=-85)	15965	48.66%
[-85, >=-95)	765	2.33%
[-95, >=Min)	434	1.32%
Total	32811	100%

4G/VoLTE		
Overall RSRP	**# Samples**	**% PDF**
[Max, >=-80]	5586	17.25%
[-80, >=-90)	9051	27.95%
[-90, >=-110)	16778	51.51%
[-110, >=Min)	1066	3.29%
Total	24272	100%

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 ≥ 95%.

TSP	Rx Quality %
Airtel 2G	98.06
BSNL 2G	98.29
VIL 2G	98.67
Airtel 4G	90.17
BSNL 3G	59.83
Jio 4G	95.90
VIL 4G	92.35

Rx Quality

Rx Quality

Rx Quality 2G:[>5] 3G:[EcNo<-14 dBm] VoLTE:[SINR<=0]

Rx Quality 2G:[<=5] 3G:[EcNo>=-14 dBm] VoLTE:[SINR>0]
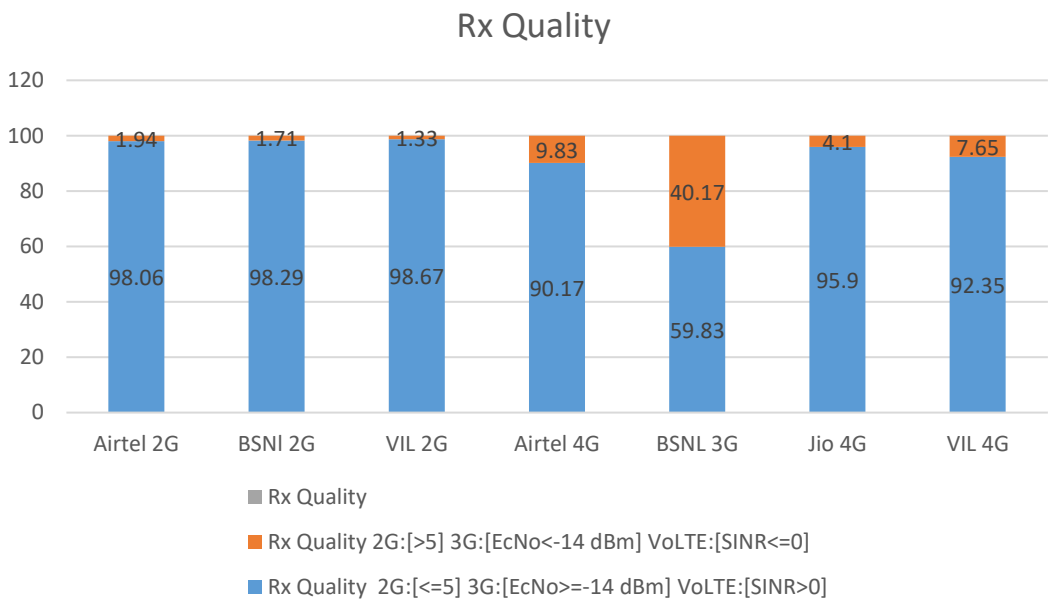
Airtel

Technology	Rx Quality %
2G	98.06
4G	90.17

2G	4G
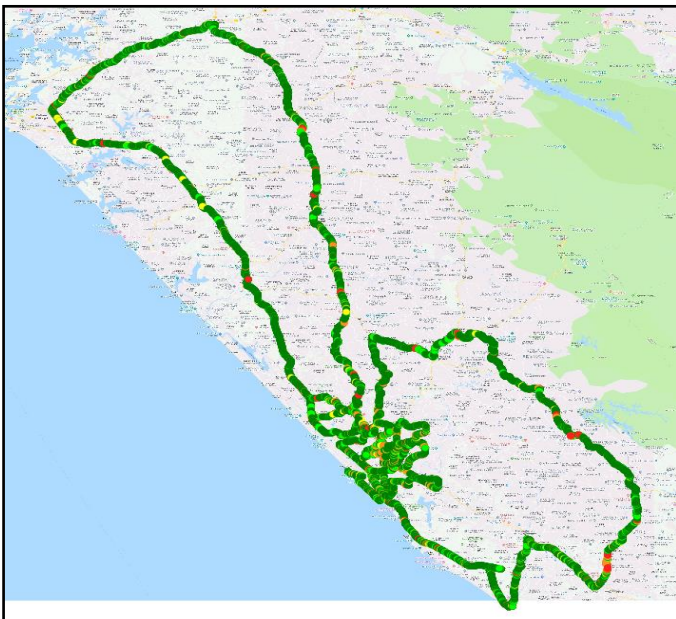
Overall Rx Quality	# Samples	% PDF
(Min, <=2)	24919	75.35%
(2, <=3)	4843	14.64%
(3 , <=4)	1441	4.36%
(4 , <=5)	1228	3.71%
(5 , <=Max)	640	1.94%
Total	33071	100

Overall SINR	# Samples	% PDF
(Min, <=0)	3384	9.83%
(0, <=5)	9585	27.85%
(5, <=10)	9358	27.19%
(10, <=15)	6387	18.56%
(15, <=Max)	5700	16.56%
Total	34414	100

BSNL

Technology	Rx Quality %
2G	98.29
3G	59.83

2G
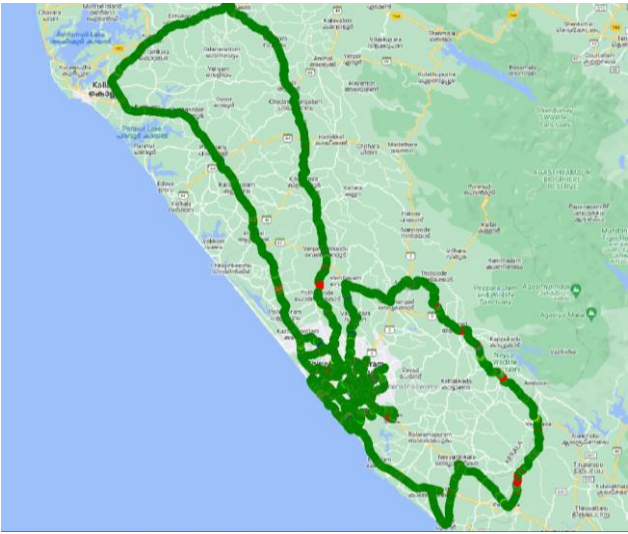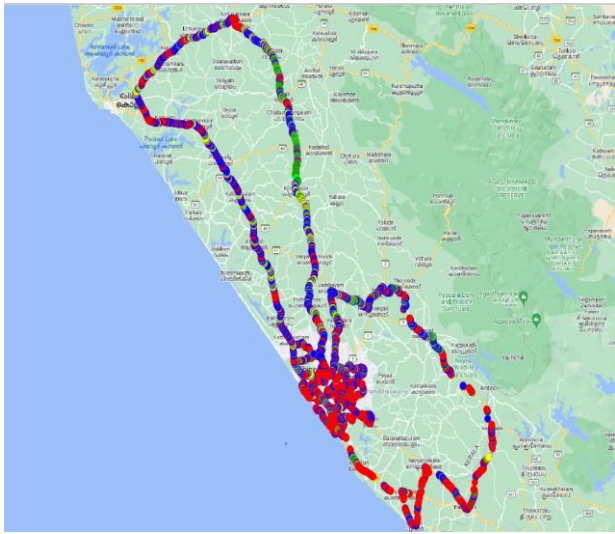
Overall Rx Quality	# Samples	% PDF
(Min, <=2)	221703	94.13%
(2, <=3)	3852	1.64%
(3 , <=4)	3576	1.52%
(4 , <=5)	2366	1.00%
(5 , <=Max)	4031	1.71%
Total	**235528**	**100%**

3G

Overall EcNo	# Samples	% PDF
(Max, <=-6)	962	1.49%
(-6, <=-9)	3211	4.97%
(-9, <=-11)	6974	10.79%
(-11, <=-14)	27524	42.58%
(-14, <= Min)	25967	40.14%
Total	**64638**	**100%**

JIO

Technology	Rx Quality (%)
4G/4G	95.9
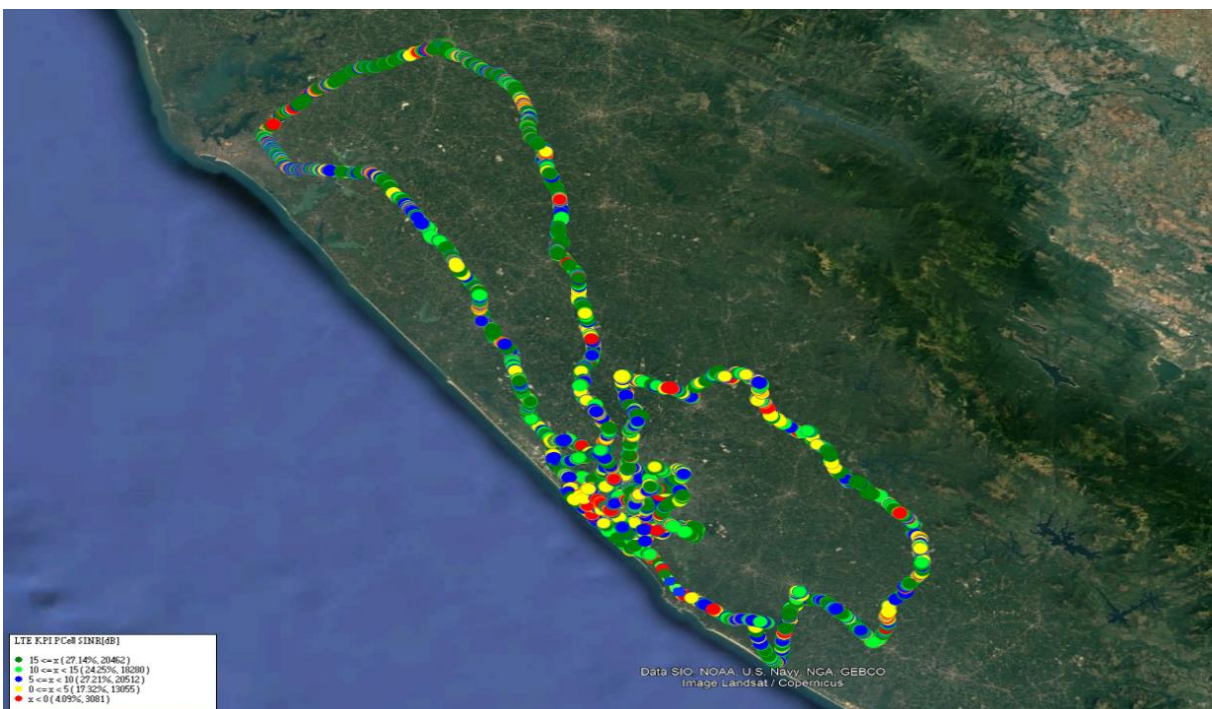
Overall SINR	# Samples	% PDF
(Min, <=0)	3081	4.1%
(0, <=5)	13055	17.3%
(5, <=10)	20512	27.2%
(10, <=15)	18280	24.2%
(15, <=Max)	20462	27.1%
Total	**75390**	**100%**

VIL

Technology	Rx Quality %
2G	98.67
4G	92.35

2G

4G
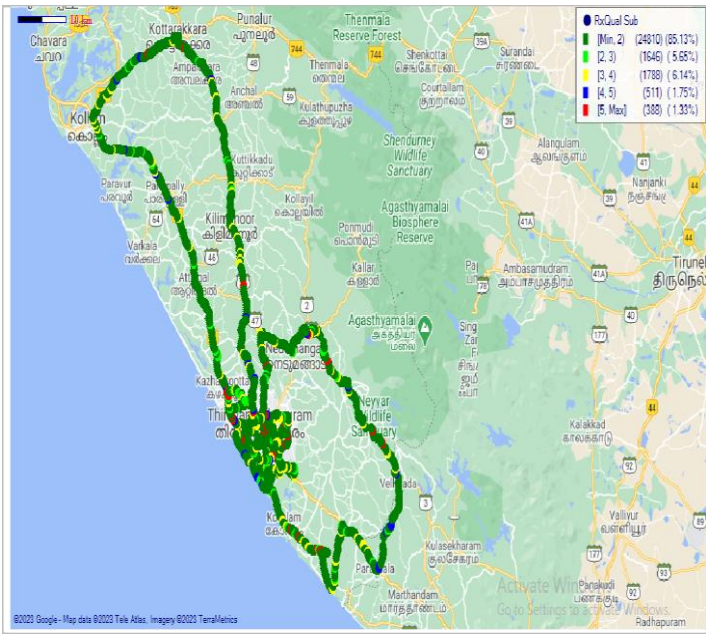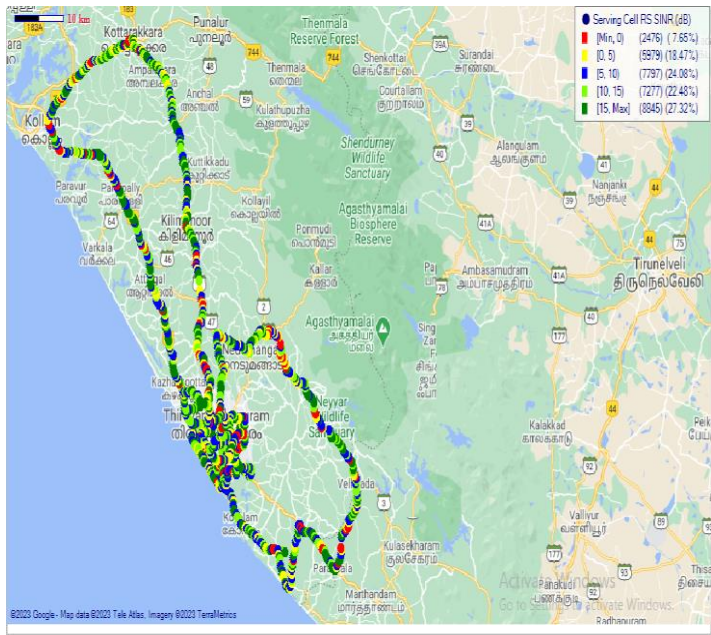
Overall Rx Quality	# Samples	% PDF	Overall SINR	# Samples	% PDF
(Min, <=2)	24810	85.13%	(Min, <=0)	2476	7.65%
(2, <=3)	1646	5.65%	(0, <=5)	5979	18.47%
(3 , <=4)	1788	6.14%	(5, <=10)	7797	24.08%
(4 , <=5)	511	1.75%	(10, <=15)	7277	22.48%
(5 , <=Max)	388	1.33%	(15, <=Max)	8845	27.32%
Total	29143	100.00%	Total	32374	100%

TSP	Time Spent on 3G/4G %
Airtel 4G	100
BSNL 3G	92.11
Jio 4G	100
VIL 4G	96.30

Percentage of time spent on 3G/4G/4G
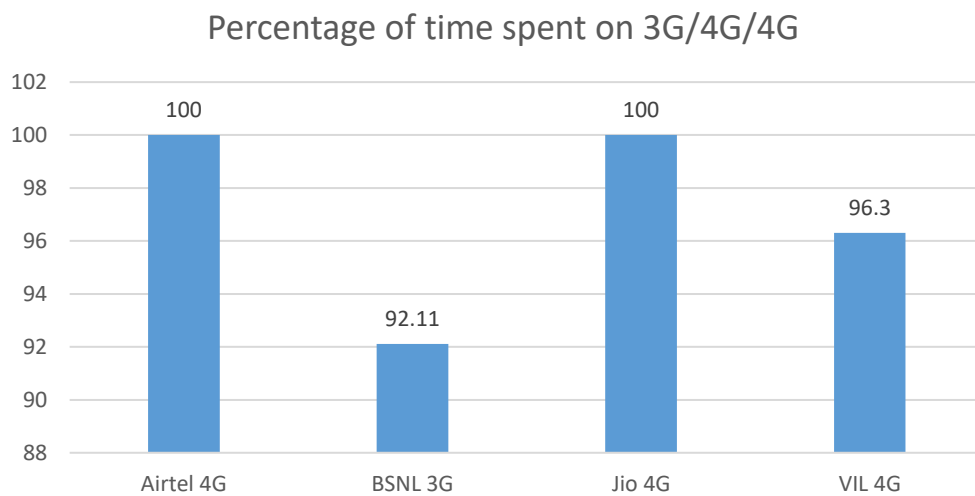
Airtel

Technology	Time Spent %
4G	100
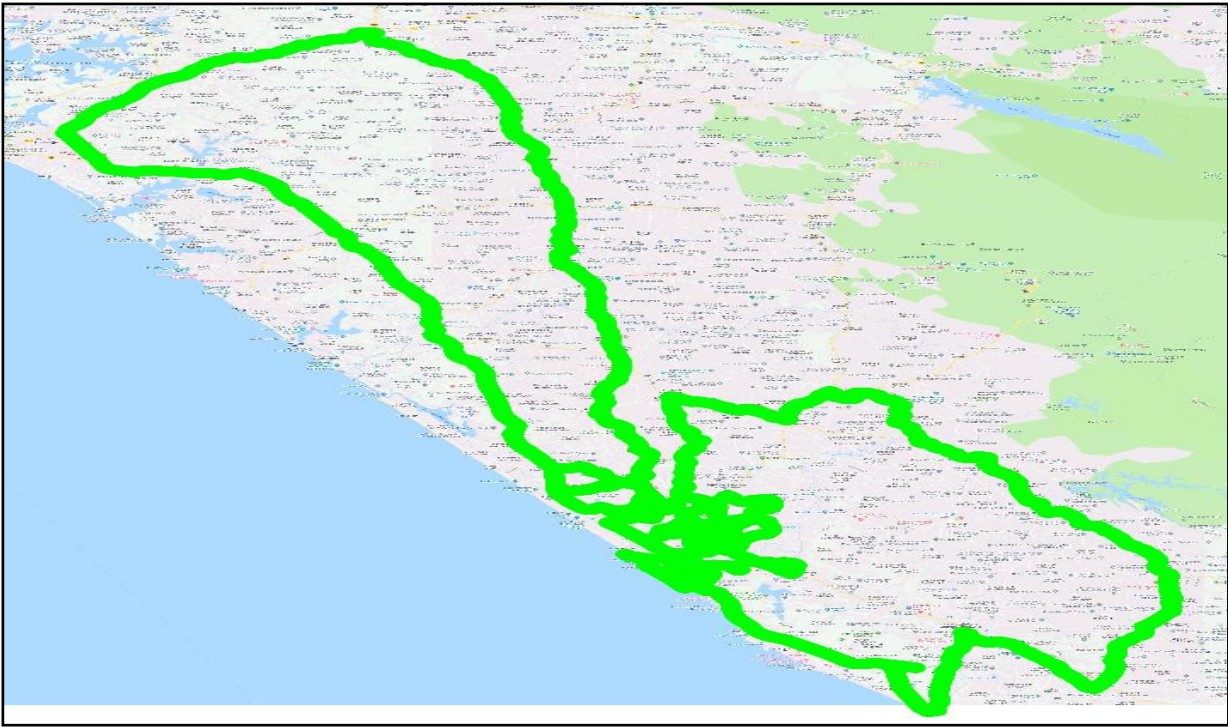
BSNL

Technology	Time Spent %
3G	92.11

Technology Plot of complete SSA (3G)
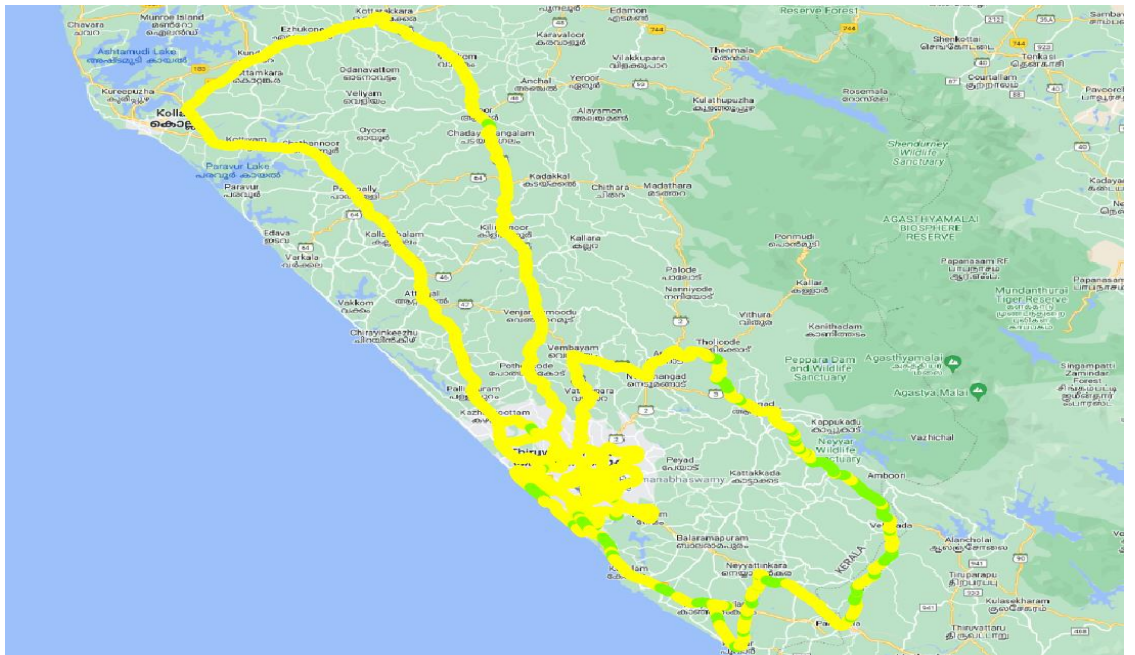
JIO

Technology	Time Spent %
4G	100
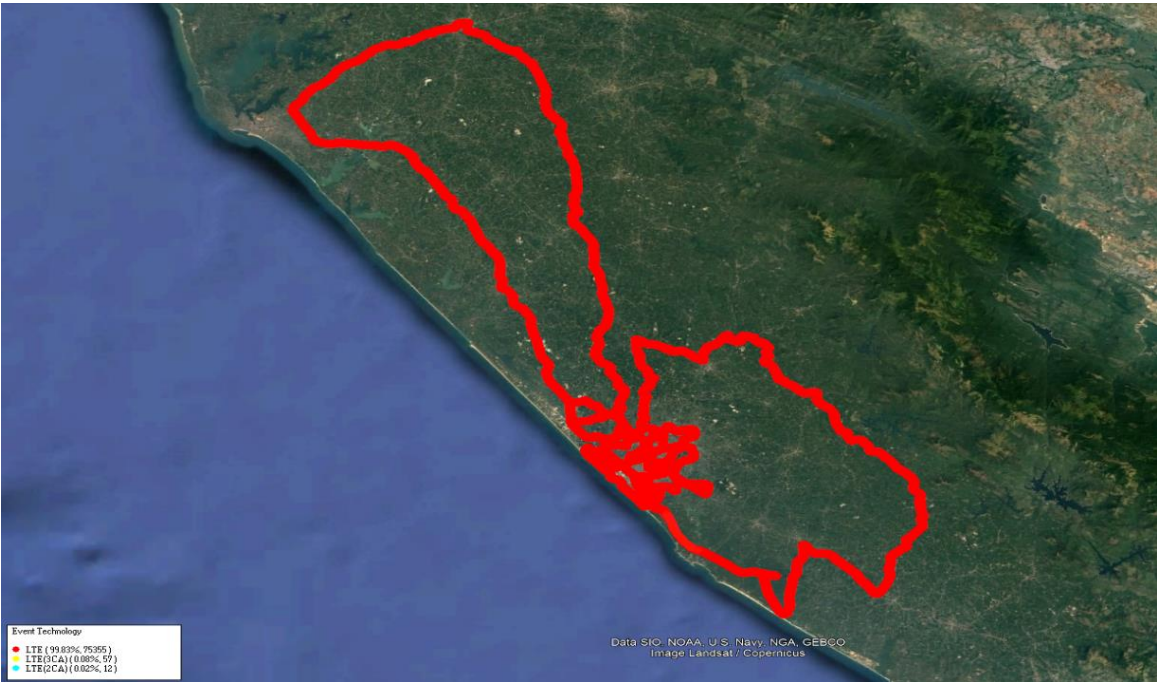
VIL

Technology	Time Spent
4G	96.3
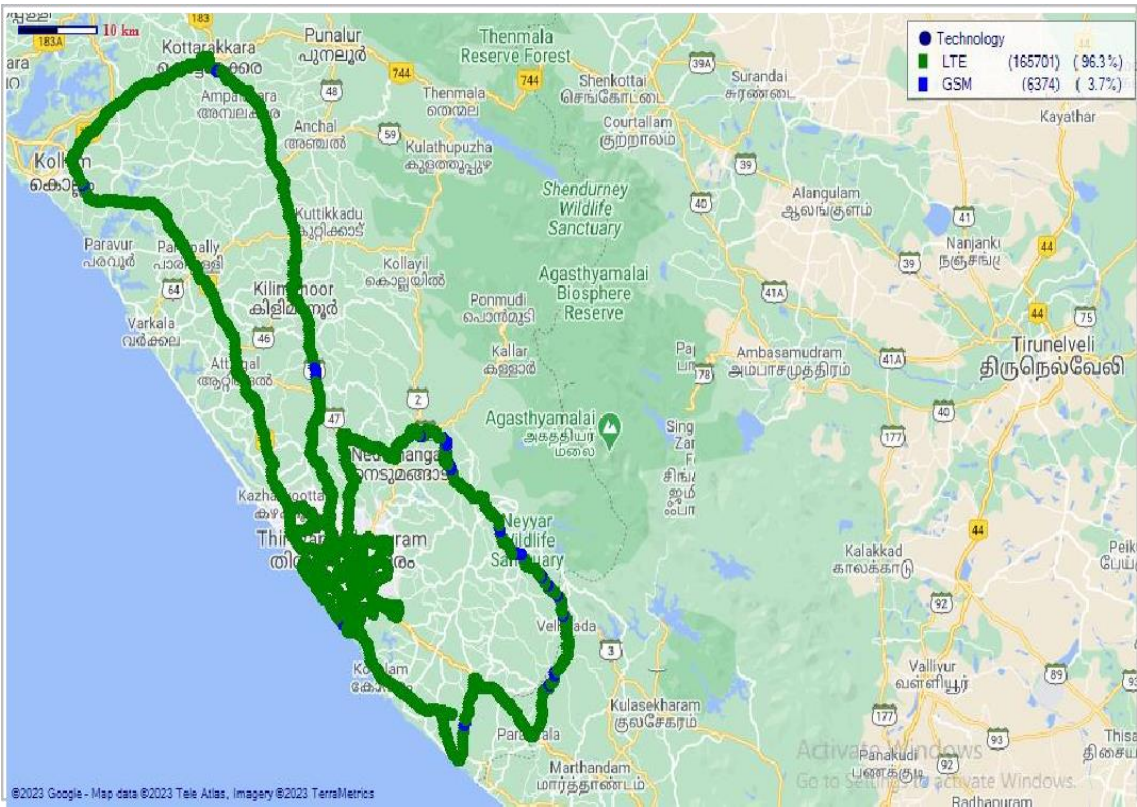
Airtel
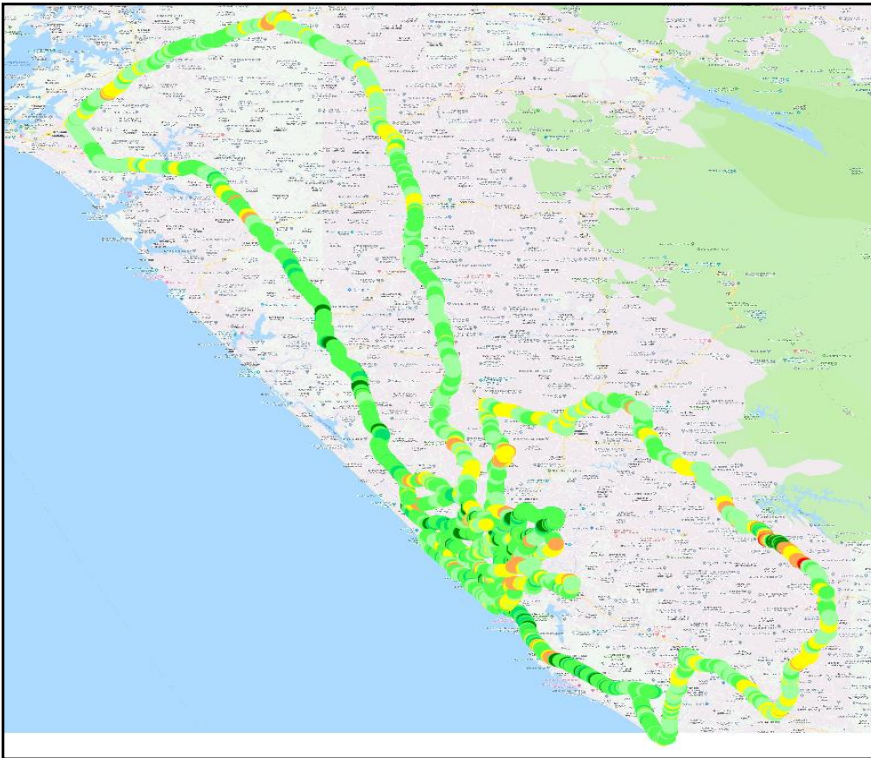
DL throughput	No. of Samples	%
0 to 1 Mbps	167	0.50
1 to 2 Mbps	1101	3.31
2 to 3 Mbps	4491	13.52
3 to 4 Mbps	10771	32.42
4 to 8 Mbps	14708	44.27
8 to 12 Mbps	1285	3.87
>12 Mbps	698	2.10
Total	33221	100
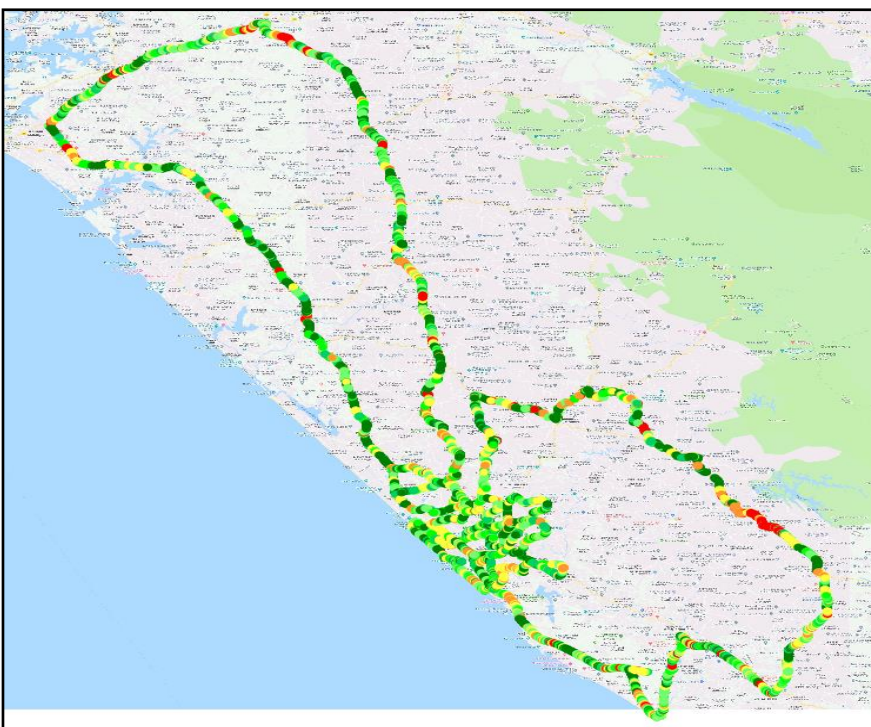
UL throughput	No. of samples	%
0 to 256 Kbps	987	3.87
250 to 512 Kbps	2183	8.57
512 Kbps to 1 Mbps	5638	22.13
1 to 2 Mbps	6164	24.19
2 to 3 Mbps	3770	14.80
3 to 4 Mbps	2438	9.57
>4 Mbps	4301	16.88
Total	25481	100

BSNL
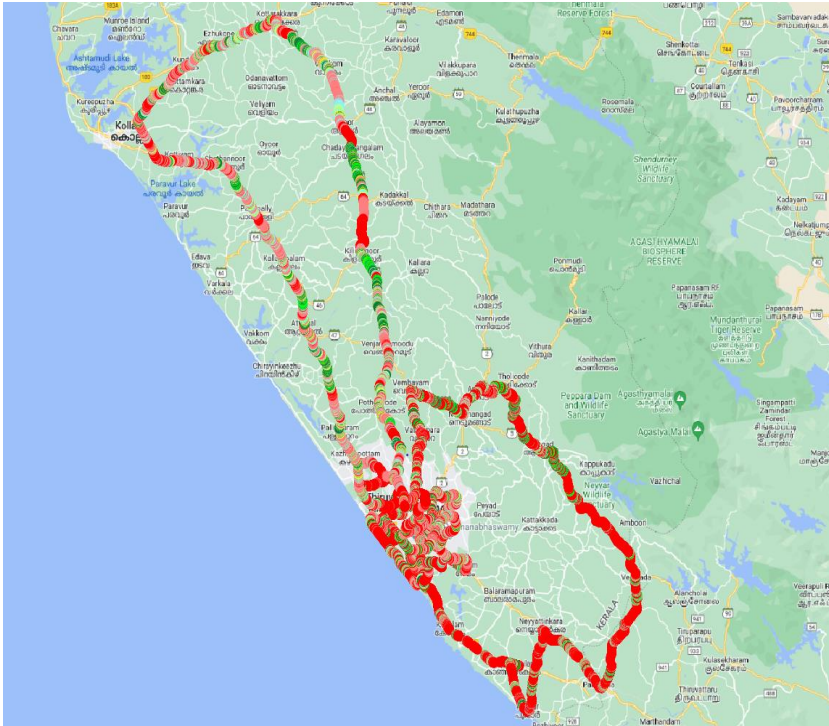
DL throughput	No. of Samples	%
0 to 1 Mbps	194508	48.74
1 to 2 Mbps	72121	18.07
2 to 3 Mbps	44047	11.04
3 to 4 Mbps	29013	7.27
4 to 8 Mbps	49608	12.43
8 to 12 Mbps	8813	2.21
>12 Mbps	938	0.24
Total	399048	100
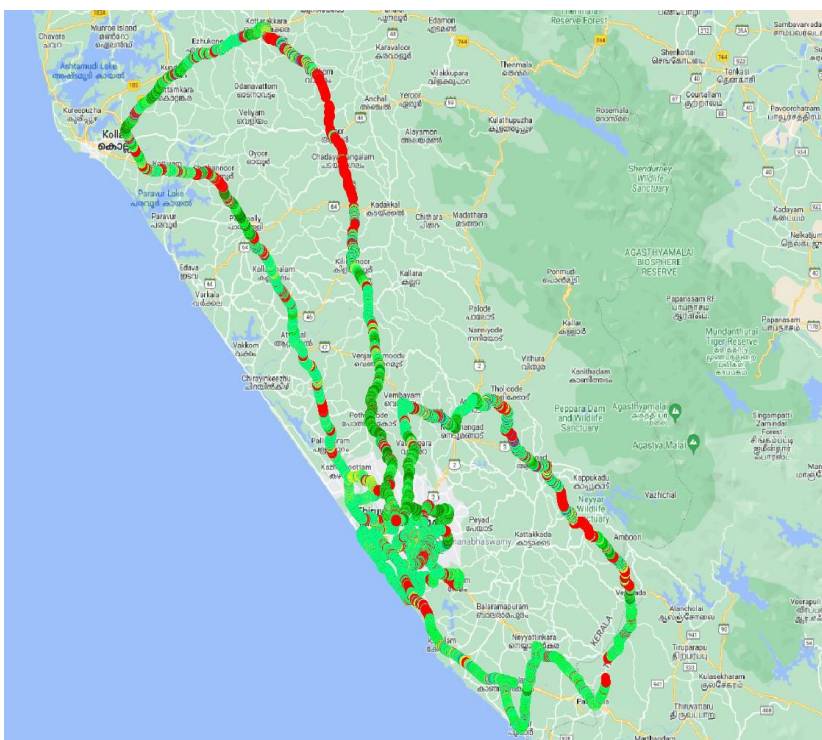
UL throughput	No. of Samples	%
0 to 1 Mbps	46301	13.28
1 to 2 Mbps	11353	3.26
2 to 3 Mbps	24053	6.90
3 to 4 Mbps	135151	38.77
4 to 8 Mbps	59805	17.16
8 to 12 Mbps	26344	7.56
>12 Mbps	45601	13.08
Total	348608	

JIO
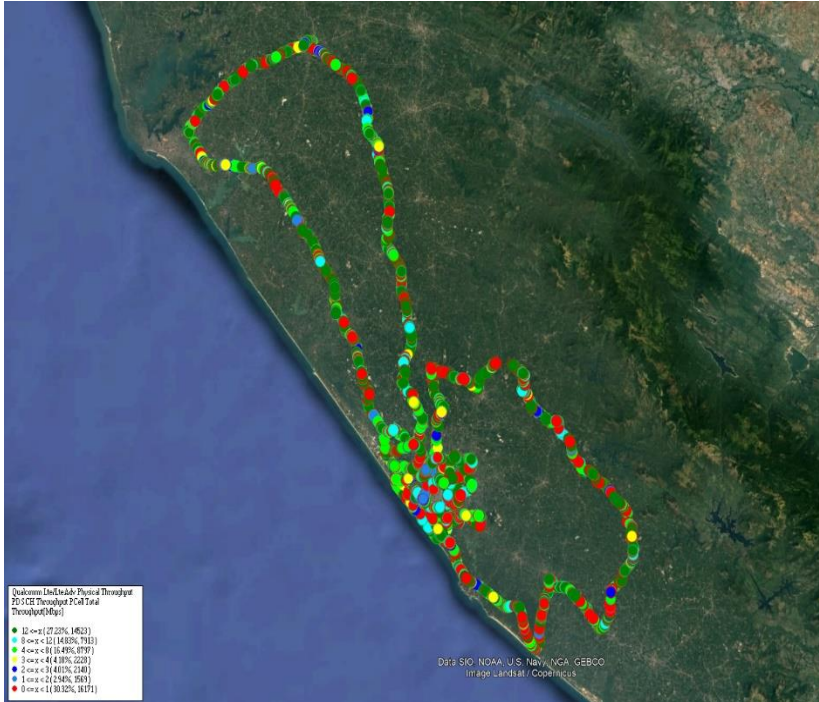
DL throughput	No. of Samples	%
0 to 1 Mbps	16171	30
1 to 2 Mbps	1569	3
2 to 3 Mbps	2140	4
3 to 4 Mbps	2228	4
4 to 8 Mbps	8797	16
8 to 12 Mbps	7913	15
>12 Mbps	14523	27
Total	53341	100

UL throughput	No. of samples	%
0 to 256 kbps Mbps	18862	29.1%
256 to 512 kbps	3048	4.7%
512 Kbps to 1 Mbps	5060	7.8%
1 to 2 Mbps	8321	12.9%
2 to 3 Mbps	6059	9.4%
3 to 4 Mbps	4722	7.3%
>4Mbps	18679	28.8%
Total	64751	100%

VIL
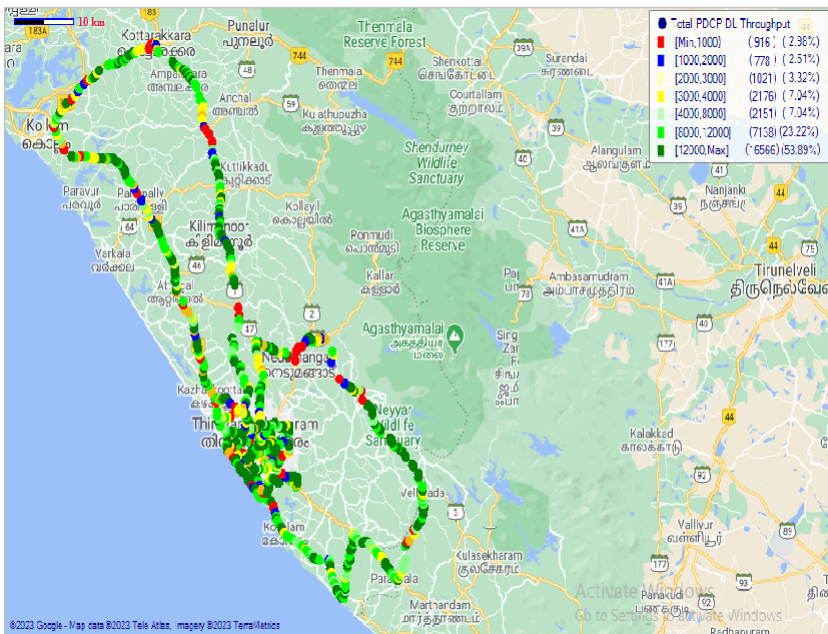
DL throughput	No. of Samples	%
0 to 1 Mbps	916	2.98
1 to 2 Mbps	772	2.51
2 to 3 Mbps	1021	3.32
3 to 4 Mbps	2176	7.04
4 to 8 Mbps	2151	7.04
8 to 12 Mbps	7138	23.22
>12 Mbps	16566	53.89
Total	30740	100
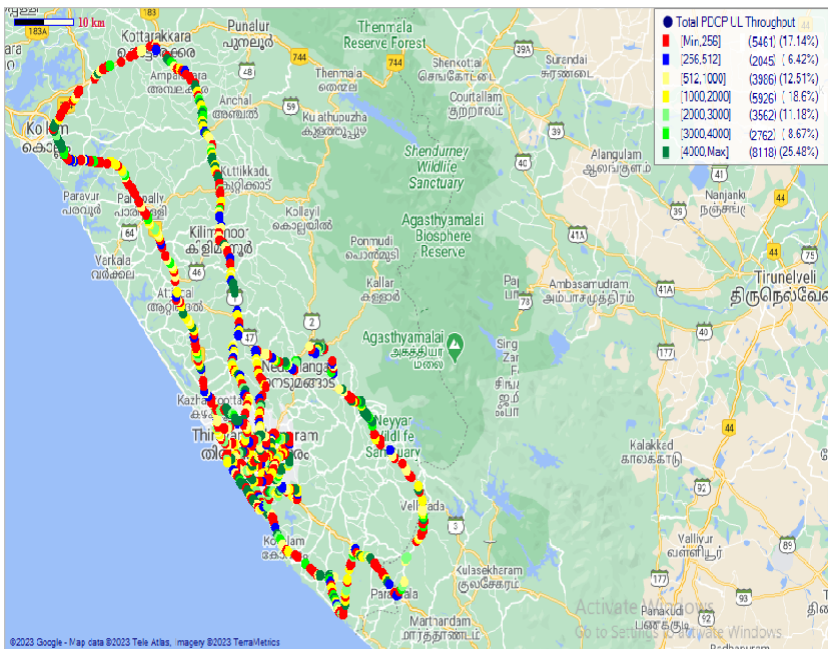
UL throughput	No. of samples	%
0 to 256 Kbps	5461	17.14
250 to 512 Kbps	2045	6.42
512 Kbps to 1 Mbps	3986	12.51
1 to 2 Mbps	5926	18.60
2 to 3 Mbps	3562	11.18
3 to 4 Mbps	2762	8.67
>4Mbps	8118	25.48
Total	31859	100

V. TRAI My Speed App Test Details-2G

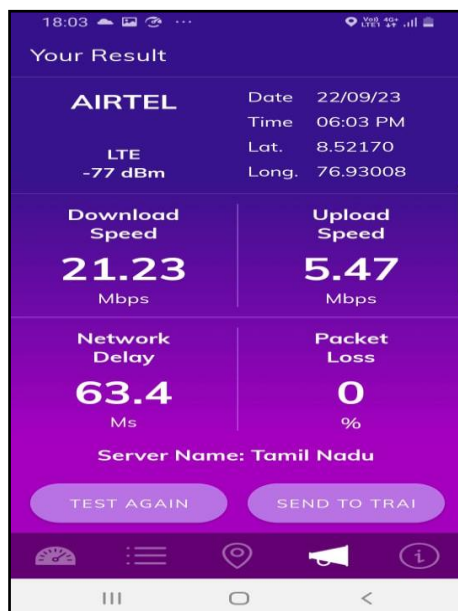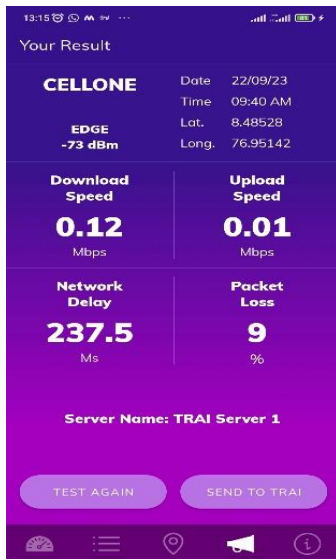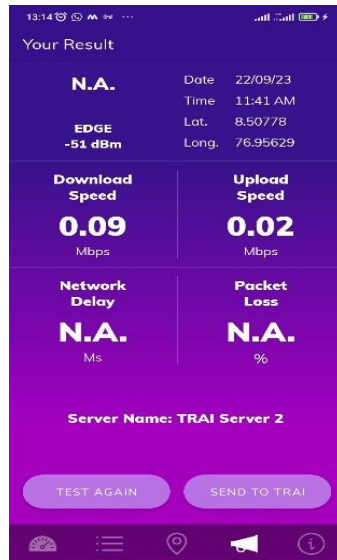| Techology-2G	Central Railway Station	Thiruvananthapuram Zoo	Central University Capital Centre	Collectorate Thiruvananthapuram	Government Medical College	Greenfield International Stadium
Download Speed (Mbps)	0.21	0.21	0.27	0.21	0.21	0.16
Upload Speed (Mbps)	0.03	0.11	0.08	0.11	0.01	0.13
Latency	327.9	238.7	1928.8	3861.3	687.5	427.6

Central Railway Station
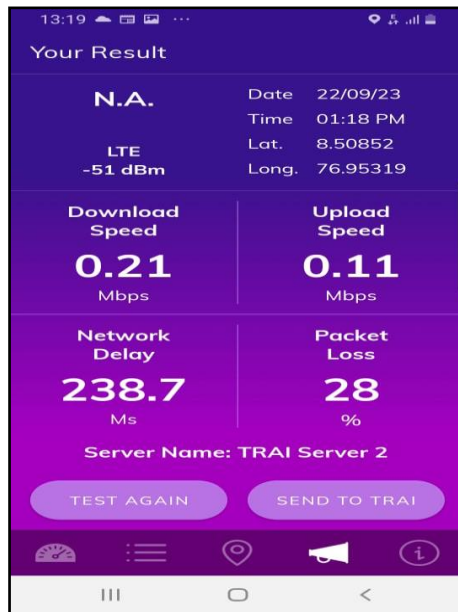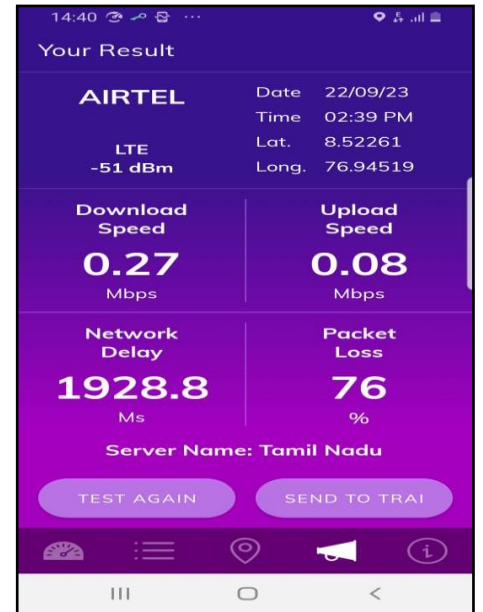
Thiruvananthapuram Zoo

Central University Capital Centre

Collectorate Thiruvananthapuram

Government Medical College

Greenfield International Stadium

V. TRAI My Speed App Test Details-4G
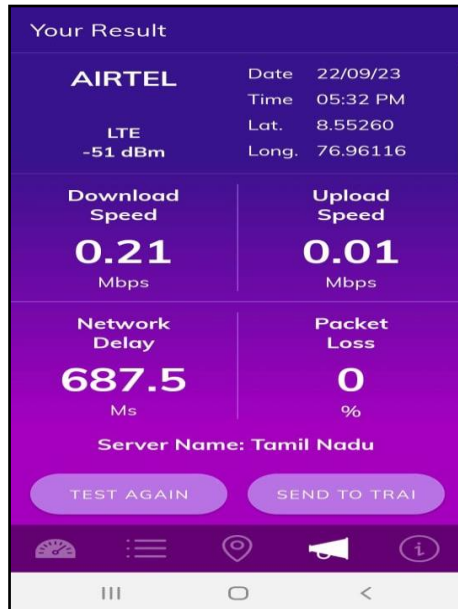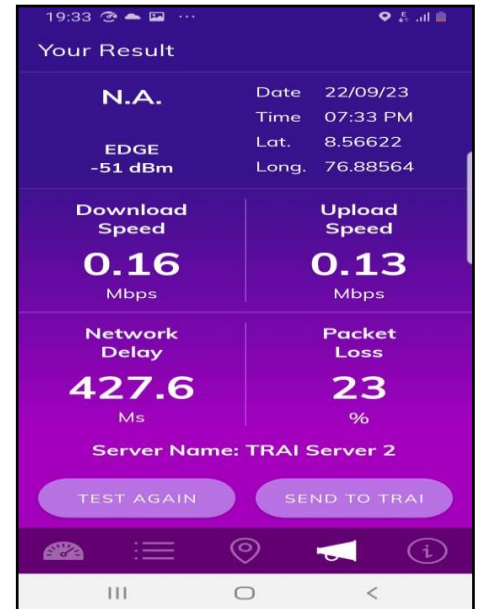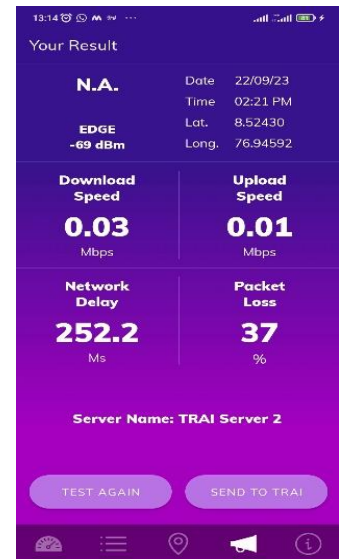
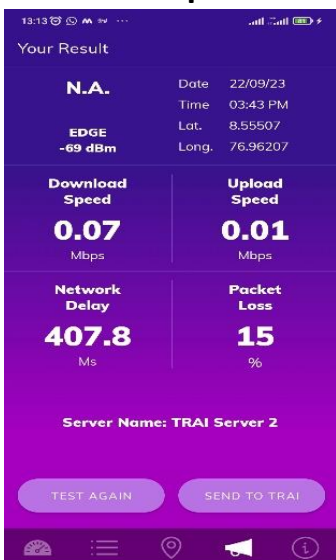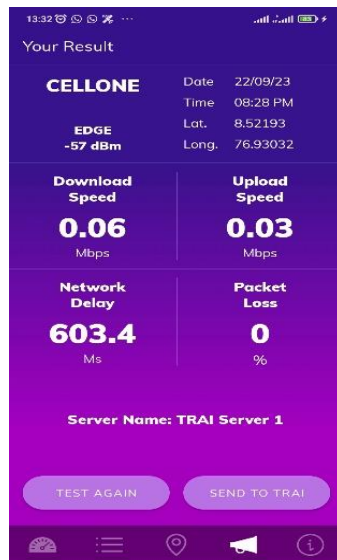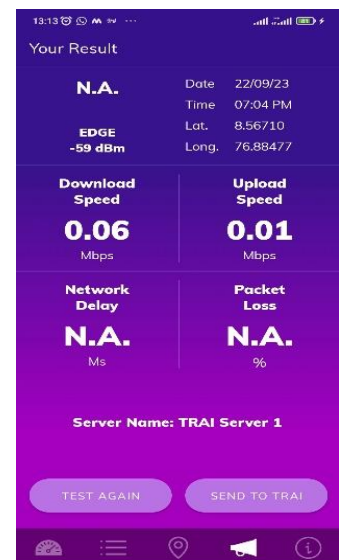| Techology-4G/VoLTE	Central Railway Station	Thiruvananthapuram Zoo	Central University Capital Centre	Collectorate Thiruvananthapuram	Government Medical College	Greenfield International Stadium
Download Speed (Mbps)	34.76	15.8	39.34	32.69	21.23	33.74
Upload Speed (Mbps)	6.26	8	6.11	8.88	5.47	4.47
Latency	45.5	58	47.1	46.9	63.4	43.9

Central Railway Station
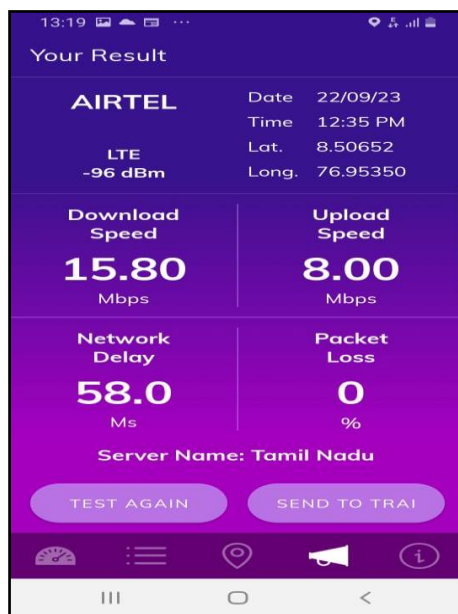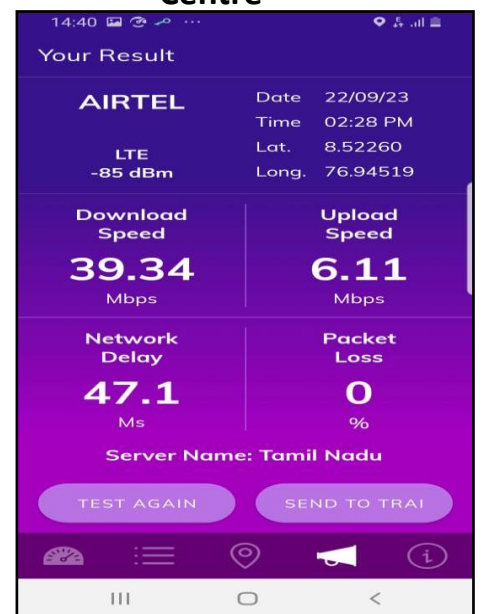
Thiruvananthapuram Zoo

Central University Capital Centre

Collectorate Thiruvananthapuram
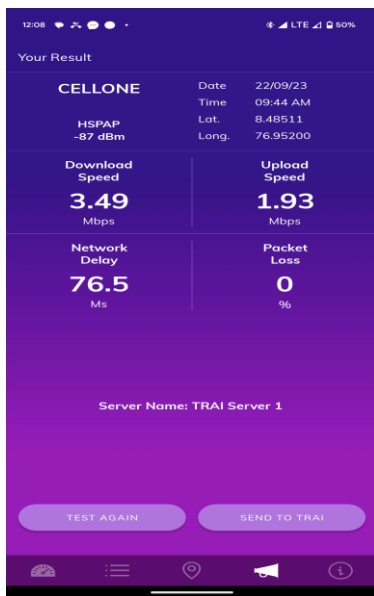
Government Medical College
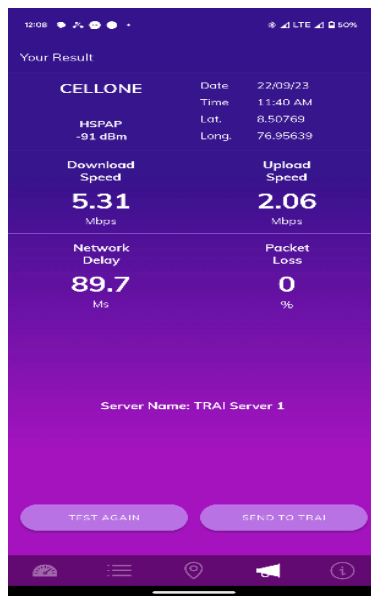
Greenfield International Stadium
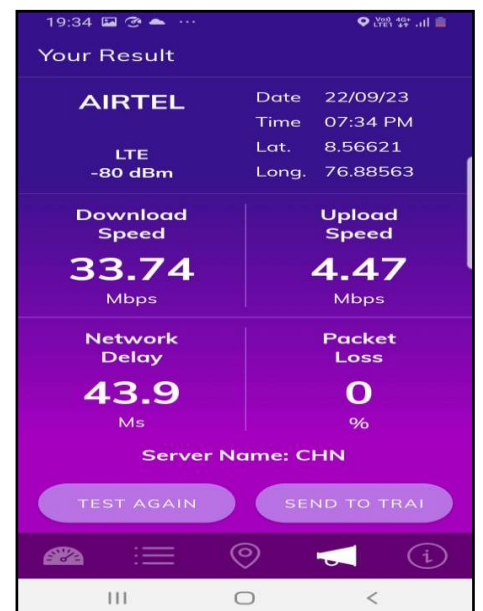
V. TRAI MySpeed App Test Details-2G

Techology-2G	Central Railway Station	Thiruvananthapuram Zoo	Central University Capital Centre	Collectorate Thiruvananthapuram	Government Medical College	Greenfield International Stadium
Download Speed (Mbps)	0.12	0.09	0.03	0.07	0.06s	0.06
Upload Speed (Mbps)	0.01	0.02	0.01	0.01	0.03	0.01
Latency(ms)	237.5	N.A	252.2	407.8	603.4	N.A

Central Railway Station

Thiruvananthapuram Zoo

Central University Capital Centre

Collectorate Thiruvananthapuram

Government Medical College

Greenfield International Stadium

V. TRAI MySpeed App Test Details-3G/4G
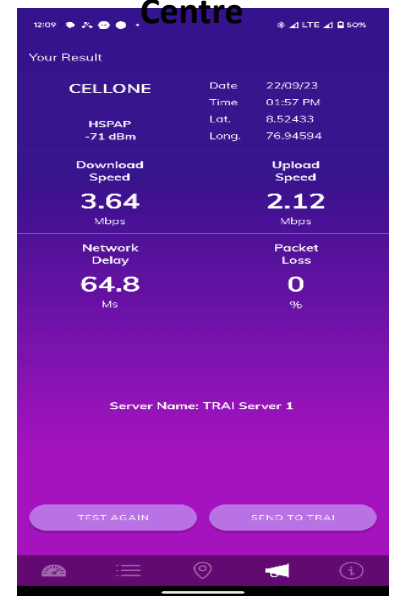
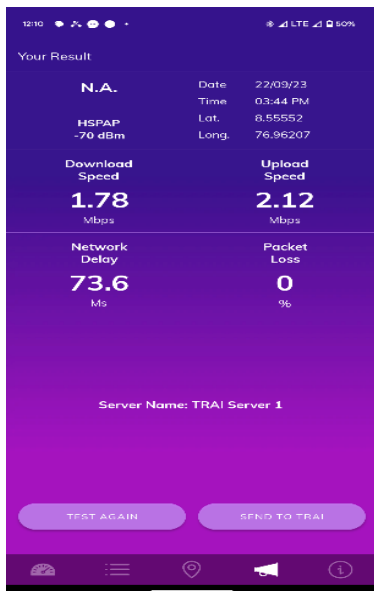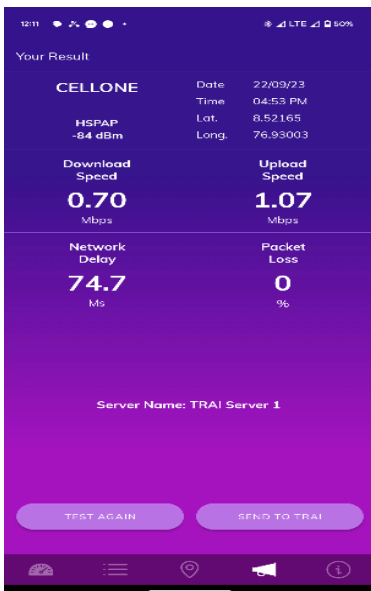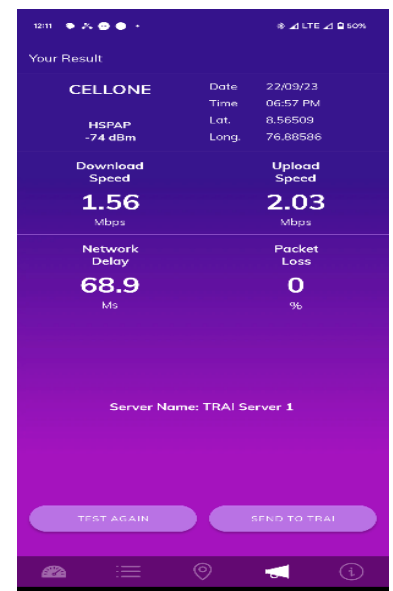| Techology-4G/VoLTE	Central Railway Station	Thiruvananthapuram Zoo	Central University Capital Centre	Collectorate Thiruvananthapuram	Government Medical College	Greenfield International Stadium
Download Speed (Mbps)	3.49	5.31	3.64	1.78	0.70	1.56
Upload Speed (Mbps)	1.93	2.06	2.12	2.12	1.07	2.03
Latency(ms)	76.5	89.7	64.8	73.6	74.7	68.9

Central Railway Station

Thiruvananthapuram Zoo

Central University Capital Centre

Collectorate Thiruvananthapuram

Government Medical College

Greenfield International Stadium
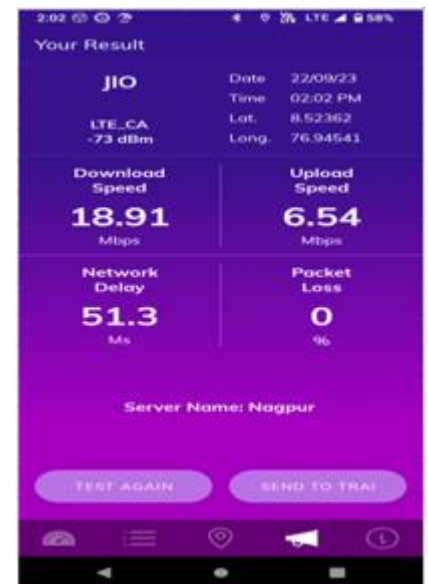
V. TRAI MySpeed App Test Details-4G

Techology-4G	Central Railway Station	Thiruvananthapuram Zoo	Central University Capital Centre	Collectorate Thiruvananthapuram	Government Medical College	Greenfield International Stadium
Download Speed (Mbps)	13.78	21.92	18.91	21.39	15.52	16.96
Upload Speed (Mbps)	7.01	7.7	6.54	9.19	7.72	5.53
Latency	84.1	59.8	51.3	66.4	89.5	58.7

Central Railway Station

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Central University Capital Centre

Collectorate Thiruvananthapuram

Government Medical College

Greenfield International Stadium

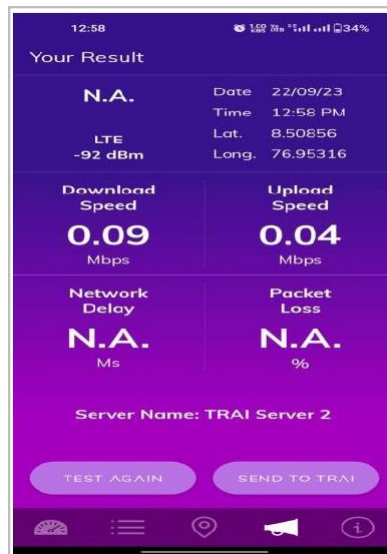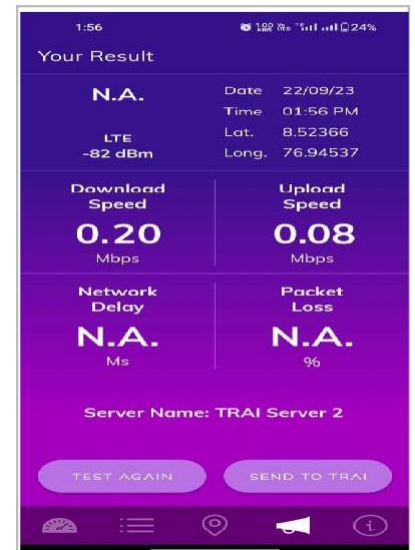| Techology-2G	Central Railway Station	Thiruvananthapuram Zoo	Central University Capital Centre	Collectorate Thiruvananthapuram	Government Medical College	Greenfield International Stadium
Download Speed (Mbps)	0.21	0.09	0.20	0.10	0.11	0.21
Upload Speed (Mbps)	0.08	0.04	0.08	0.07	0.05	0.09
Latency	NA	NA	NA	NA	NA	NA

Central Railway Station

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Government Medical College

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V. TRAI MySpeed App Test Details-4G
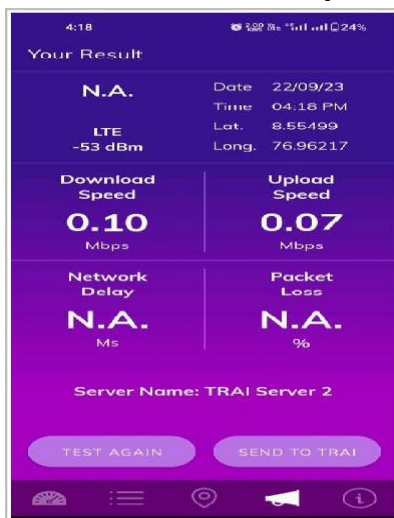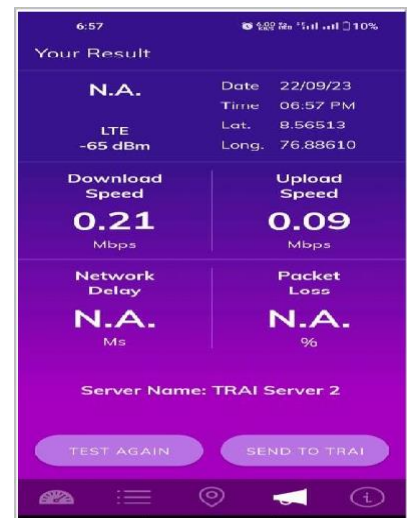
Techology-4G/VoLTE	Central Railway Station	Thiruvananthapuram Zoo	Central University Capital Centre	Collectorate Thiruvananthapuram	Government Medical College	Greenfield International Stadium
Download Speed (Mbps)	25.91	28.31	34.13	23.24	19.24	26.70
Upload Speed (Mbps)	14.75	21.45	28.54	21.48	17.21	23.52
Latency	NA	NA	NA	NA	NA	NA

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