

# Operator Assisted Drive Test Report

## MADURAI SSA OCTOBER 2022

(RO, HYDERABAD)

**Key Performance Indicators:** All TSPs have met the Drop Call Rate (DCR) benchmark of 2%. All TSPs have met the Call Setup Success Rate (CSSR) of 95%. Rx Quality of 95% is not achieved by Airtel VoLTE, BSNL 3G, Jio VoLTE.

The Operator Assisted Drive Test has been carried out by Regional Office, Hyderabad with the help of Service Providers in Madurai City and surrounding areas Theni & Dindigul from 9:00 AM to 8:00 PM during 10<sup>th</sup> October to 13<sup>th</sup> October 2022. The drive test covered drive route of 380 KMs & 6 hotspots over a period of 4 days. Approximately 584 calls were made for each of the 8 networks: three 2G networks, one 3G network and four LTE network covering four TSPs.

Overview

Voice  
Summary

Data  
Summary

# Overview

Regional Office, TRAI Hyderabad conducted Operator Assisted Drive Test from 10<sup>th</sup> to 13<sup>th</sup> October 2022 covering various locations in Madurai City & surrounding regions Dindigul and Theni. The performance of Airtel, BSNL, Vodafone Idea and Jio were monitored across various technologies (2G, 3G and 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, Handover Success Rate, Call Setup Success Rate, Drop Call Rate and Block Call Rate.

**Data:** Download and Upload Throughputs, Video Streaming Interruption delay, 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 380 KMs over a period of 3 days from 10<sup>th</sup> to 13<sup>th</sup> October 2022. Approximately 584 calls were made for each of the 8 networks: three 2G (Lock Mode) networks, one 3G (Dual mode) network and four VoLTE network covering 4 unique TSPs.

## Data Tests:

1. Dynamic data test was conducted for 380 kms over a period of 3 days for download throughput for 3G & 4G technologies.

2. Data Tests were performed at 6 static locations for 2G, 3G & 4G technologies.

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

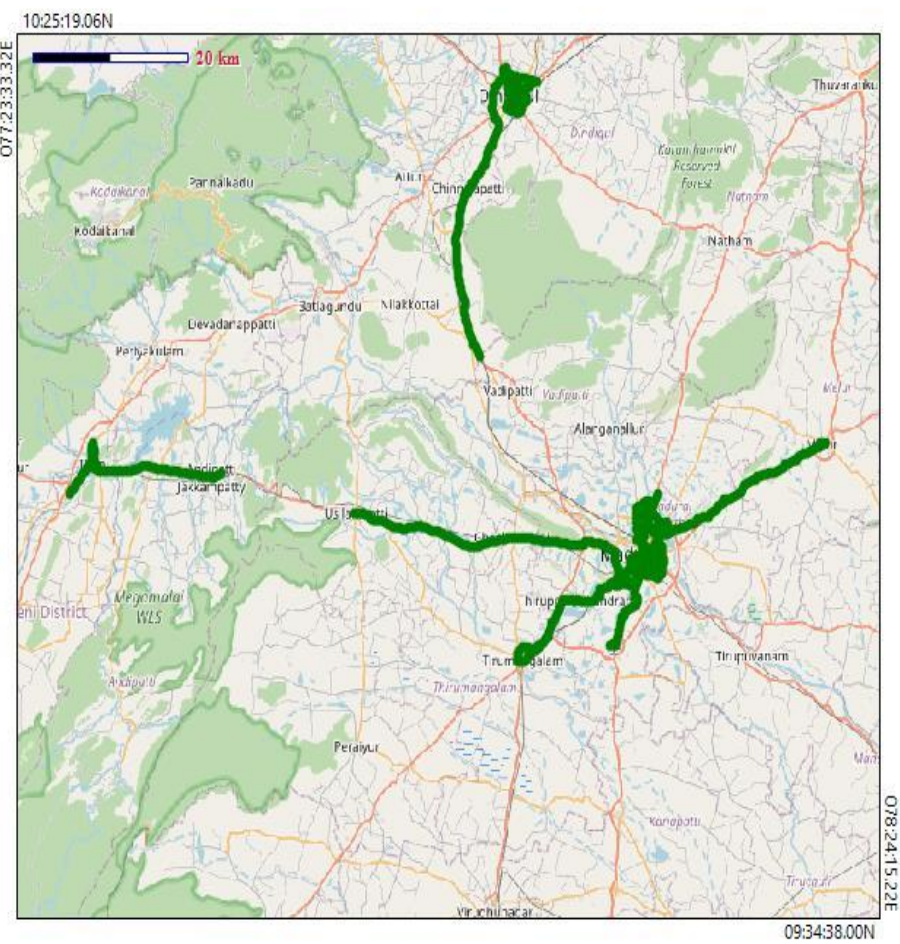
\* 3G KPI's which are calculated from UE in Dual Mode (2G & 3G) includes samples and events of 2G.

\* 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-commerce website www.amazon.in, www.flipkart.com and Myntra.com
Latency	32 Bytes on www.google.com

# Overview

## Voice & Dynamic Data Test Drive Route



### Static Locations

Theni Collector Office

Dindigul Railway station

Madurai Meenakshi Amman Temple

Vishall D Mall Madurai

High Court Madurai Branch

Airport Madurai

### Areas Covered – Madurai (Day 1)

Tallakulam	Iyer bangalow
GH Madurai	MoondruMavadi
Aravind Eye Hospital	Serveyor colony
Ambika college	100 feet road
Suguna store	High court
Yanakkulai road	Melur Road (NH)
Vandiyur road	Melur
Annanagar Busstand	Mattuthavani
Kotsha complex	RTO Madurai
Priya complex	Karthick Theatre
Avin Milk	Lurthu nagar
Appollo Hospital	MahadmaGandi nagar
Madurai Law college	Utchaparambumedu
District court	Tirupalai
K.pudur	Parkdown
Race curse	Sellur Narimedu

### Areas Covered- Theni (Day 2)

### Areas Covered- Dindigul (Day 3)

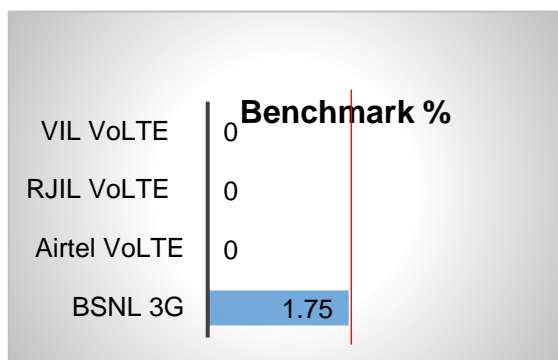
Nelpettai	Alagappan Nagar
Theppakulam	Jaihindpuram
Anuppanadi	Villapuram
Menakshi Temple 2 rounds	Avaniyapuram
TamilNadu Polytechnic	Airport Madurai
Pasumali	Pallapatti Industrial Estimate to Dindigul(NH44)
Thirunagar	Dindigul collector office
Thirumangalm	NS Nagar Dindigul
Palganatham	RF Road Dindigul
HMS colony	Dindigul Bus stand
MKU to Usilampatti(NH 85)	Begampur Dindigul
Andipatty to Theni(NH 85) and Theni city	Dindigul Railway station

# Voice Calls

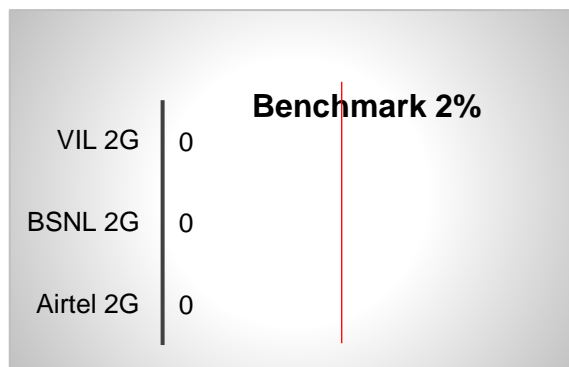
## Key Observations

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

Drop Call Rate (%)

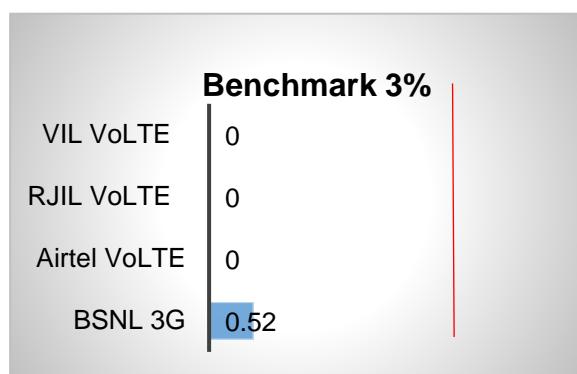


3G/VoLTE Network

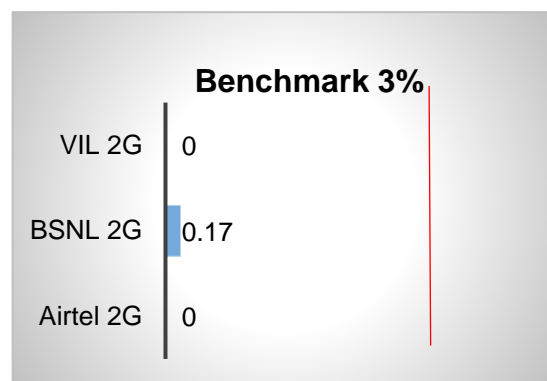


2G Network

Block Call Rate (%)



3G / VoLTE Network



2G Network

KPIs	2G			3G/4G	VoLTE		
	Airtel	BSNL	VIL	BSNL	Airtel	RJIL	VIL
Drop Call Rate %	0	0	0	1.75	0	0	0
Block Call Rate %	0	0.17	0	0.52	0	0	0

- All TSPs have met the 2% QOS benchmark of Drop Call Rate (DCR%).
- Call Block Rate (CBR%) benchmark of 3% was achieved by all TSP's.

# Voice Calls

## Key Observations

### Coverage

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

TSPs	2G		
	Airtel	BSNL	VIL
Coverage %	<b>98.98</b>	91.84	<b>97.92</b>

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

TSPs	3G	VoLTE			
	BSNL	Airtel	BSNL	JIO	VIL
Coverage %	91.69	99.98	99.58	99.82	99.68

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

TSPs	3G	VoLTE		
	BSNL	Airtel	Jio	VIL
Time Spent on 3G/4G %	99.99	<b>100</b>	100	<b>98.73</b>

# Data Services Static

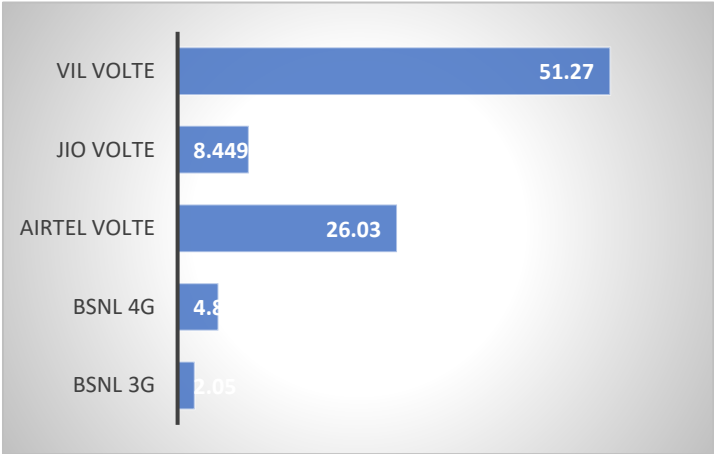
**Key Observations  
(Average of 6  
Hotspots)**

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

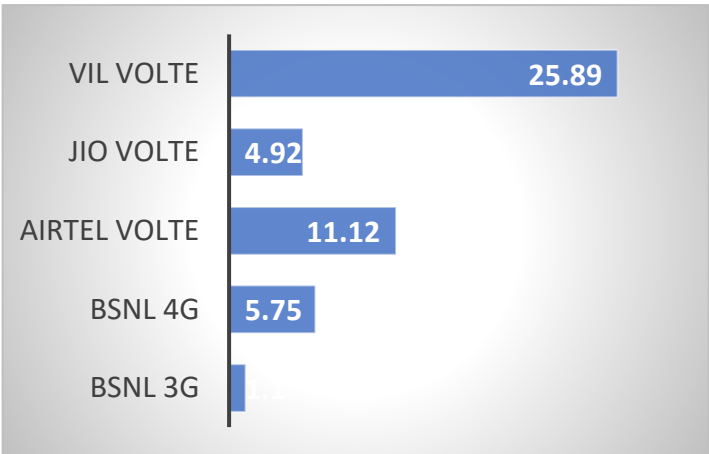
## Data Download and Upload Performance (Mbps)

3G/4G/ Network:

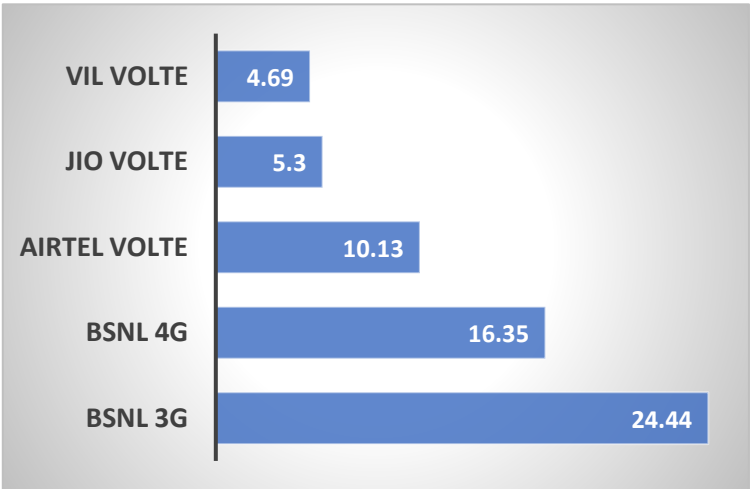
Download Throughput (Mbps)



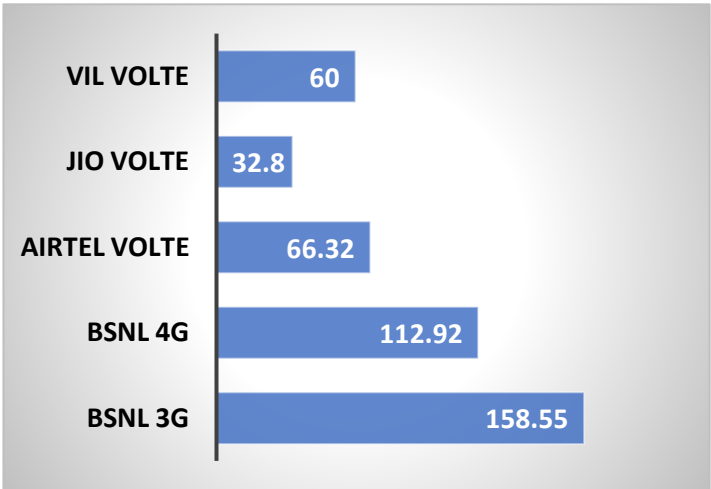
Upload Throughput (Mbps)



Web Browsing delay (Sec)



Latency (ms)



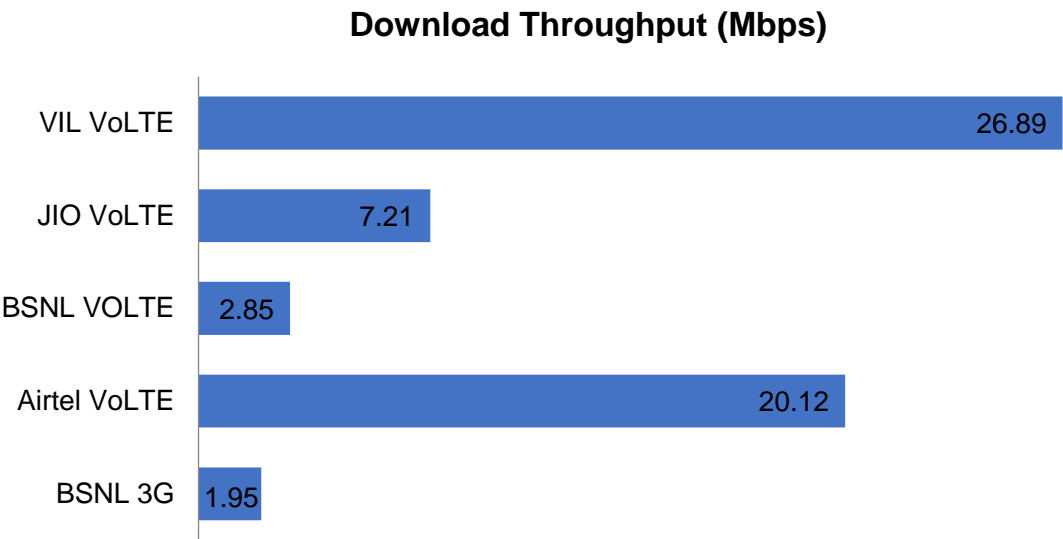
# Data Services Dynamic

Key  
Observations

Dynamic Data was tested for 380 Kms. Download Throughput was tested.

Data Download Performance (kbps) - Dynamic

3G/4G/ Network:



Data Services Static Dynamic	3G/VoLTE				
	BSNL 3G	BSNL 4G	Airtel VoLTE	JIO VoLTE	VIL VoLTE
Download Throughput (Mbps)	1.95	2.85	20.12	7.21	26.89

# Summary

## SSA Level Summary-Voice

Voice Call	2G		
	Airtel	BSNL	VIL
Call Attempt	573	584	587
Blocked Call Rate (%)	0	0.17	0
CSSR% (Accessibility)	100	99.83	100
Drop Call Rate (%)	0	0	0
Mobility HOSR (%)	99.70	98.36	99.32
Rx Quality (%)	96.78	99.34	99.05

Voice Call	3G/VoLTE			
	BSNL 3G Dual Mode & VoLTE	Airtel VoLTE	JIO VoLTE	VIL VoLTE
Call Attempt	286 & 288	575	581	585
Blocked Call Rate (%)	0.7 & 0.34	0	0	0
CSSR% (Accessibility)	99.3 & 99.66	100	100	100
Drop Call Rate (%)	2.1 & 1.39	0	0	0
Mobility HOSR (%)	96.4 & 96.6	99.62	99.26	100
Rx Quality (%)	98.63 & 81.52	84.65	93.76	96.96

# Summary

## SSA Level Summary- (Average of 6 hotspots)- Data Services

Data Services Static	2G		
	Airtel	BSNL	VIL
Download Throughput (kbps)	<b>108.90</b>	134.14	<b>199.97</b>
Upload Throughput (kbps)	103	58.01	<b>113.53</b>
Web Browsing Delay (sec)	19.83	110.01	<b>69.60</b>
Latency (msec)	398.99	384.6	<b>262</b>

Data Services Static	3G/VoLTE				
	BSN 3G	BSNL 4G	Airtel VoLTE	JIO VoLTE	VIL VoLTE
Download Throughput (Mbps)	2.05	4.84	26.03	8.449	<b>51.27</b>
Upload Throughput (Mbps)	1.10	5.75	11.12	4.923	25.89
Web Browsing Delay (sec)	24.44	16.35	10.13	5.3	<b>4.69</b>
Latency (msec)	158.55	112.92	66.32	32.8	<b>60</b>

Theni collector office	2G		
	Airtel	BSNL	VIL
Download Throughput (kbps)	140.53	162.53	208.16
Upload Throughput (kbps)	104.56	73.70	97.10
Web Browsing Delay (sec)	18.17	83.06	53.22
Latency (msec)	361.3	412	200

Dindigul Railway station	2G		
	Airtel	BSNL	VIL
Download Throughput (kbps)	207.5	167.73	243.71
Upload Throughput (kbps)	109.9	54.14	125.30
Web Browsing Delay (sec)	19.64	103.91	86.60
Latency (msec)	413	252.3	199

Madurai meenakshi amman Temple	2G		
	Airtel	BSNL	VIL
Download Throughput (kbps)	167.7	80.75	215.60
Upload Throughput (kbps)	116.36	51.73	124.00
Web Browsing Delay (sec)	20.20	74.92	44.61
Latency (msec)	562	997.3	340

Vishall D -Mall- Madurai	2G		
	Airtel	BSNL	VIL
Download Throughput (kbps)	175.93	119.97	203.20
Upload Throughput (kbps)	90.23	48.29	89.70
Web Browsing Delay (sec)	18.10	158.11	47.92
Latency (msec)	400.66	204	358

High court- Madurai Branch	2G		
	Airtel	BSNL	VIL
Download Throughput (kbps)	214.76	84.63	163.40
Upload Throughput (kbps)	90.73	61.15	124.30
Web Browsing Delay (sec)	20.17	99.88	107.83
Latency (msec)	389.33	241	213

Madurai- Airport	2G		
	Airtel	BSNL	VIL
Download Throughput (kbps)	182.7	189.22	173.94
Upload Throughput (kbps)	106.36	59.28	120.80
Web Browsing Delay (sec)	22.74	140.22	77.39
Latency (msec)	267.66	201	260

Theni Collector office	3G	LTE		
	BSNL	Airtel	JIO	VIL
Download Throughput (Mbps)	2.49	37.61	8.60	56.95
Upload Throughput (Mbps)	1.16	6.18	5.34	19.79
Web Browsing Delay (sec)	17.11	8.73	5.0	6.40
Latency (msec)	199.6	65.3	22.7	67
Dindigul Railway station	3G	LTE		
	BSNL	Airtel	JIO	VIL
Download Throughput (Mbps)	1.61	22.56	6.26	36.79
Upload Throughput (Mbps)	1.05	17.68	6.66	30.61
Web Browsing Delay (sec)	31.78	13.43	5.4	3.13
Latency (msec)	117.5	79.0	36.3	57

Madurai Meenakshi ammam Temple	3G / LTE			
	BSNL LTE	Airtel	JIO	VIL
Download Throughput (Mbps)	5.96	33,92	13.96	43.43
Upload Throughput (Mbps)	5.42	5.83	4.58	25.85
Web Browsing Delay (sec)	12.70	9.53	5.4	4.99
Latency (msec)	100	49.00	35.3	53

Vishall D- Mall- Madurai	3G / LTE			
	BSNL LTE	Airtel	JIO	VIL
Download Throughput (Mbps)	5.48	19.14	7.72	61.16
Upload Throughput (Mbps)	6.64	9.07	5.03	24.66
Web Browsing Delay (sec)	12.90	8.80	4.7	4.92
Latency (msec)	114.67	58.66	35.7	54

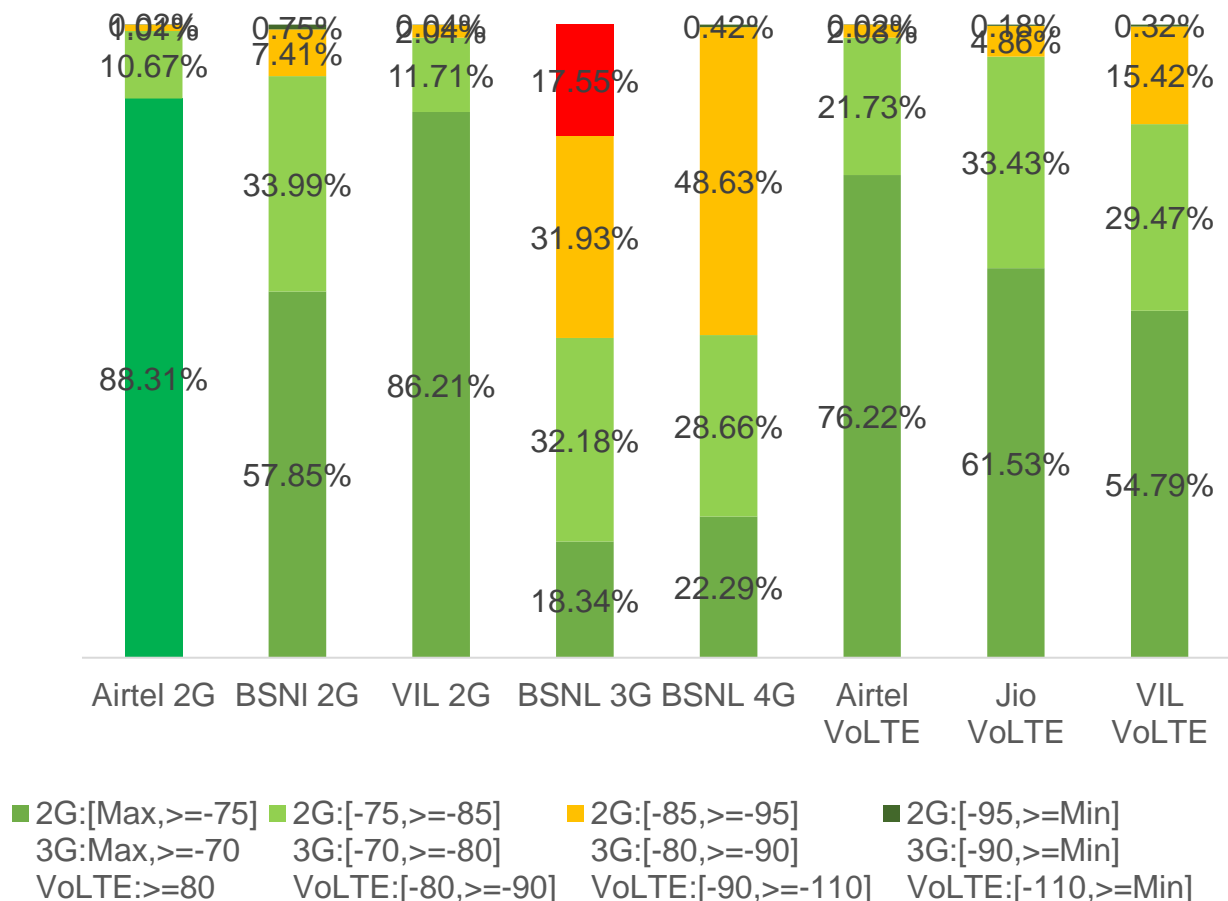
High Court- Madurai Branch	3G / LTE			
	BSNL LTE	Airtel	JIO	VIL
Download Throughput (Mbps)	5.33	17.31	7.74	39.88
Upload Throughput (Mbps)	5.67	8.65	4.63	24.82
Web Browsing Delay (sec)	16.76	9.8	5.4	4.98
Latency (msec)	101	72.66	40.0	64

Madurai- Airport	3G / LTE			
	BSNL LTE	Airtel	JIO	VIL
Download Throughput (Mbps)	2.60	25.64	6.38	69.44
Upload Throughput (Mbps)	5.29	19.30	3.28	29.58
Web Browsing Delay (sec)	23.04	10.50	5.9	3.71
Latency (msec)	136	73.33	26.7	67

## 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  $\geq -85$  dBm, RSCP is  $\geq -90$  dBm & RSRP  $\geq -110$  dBm. The details are as follows.

TSP	Coverage Rate %
Airtel 2G	98.98
BSNI 2G	91.84
VIL 2G	97.92
BSNL 3G / VoLTE	82.45/99.58
Airtel VoLTE	99.98
Jio VoLTE	99.82
VIL VoLTE	99.68

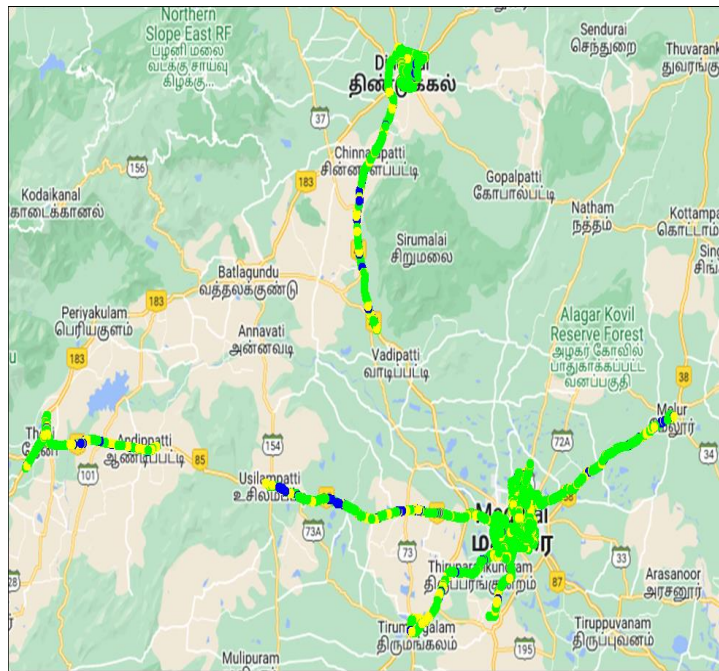


# I. Coverage Details

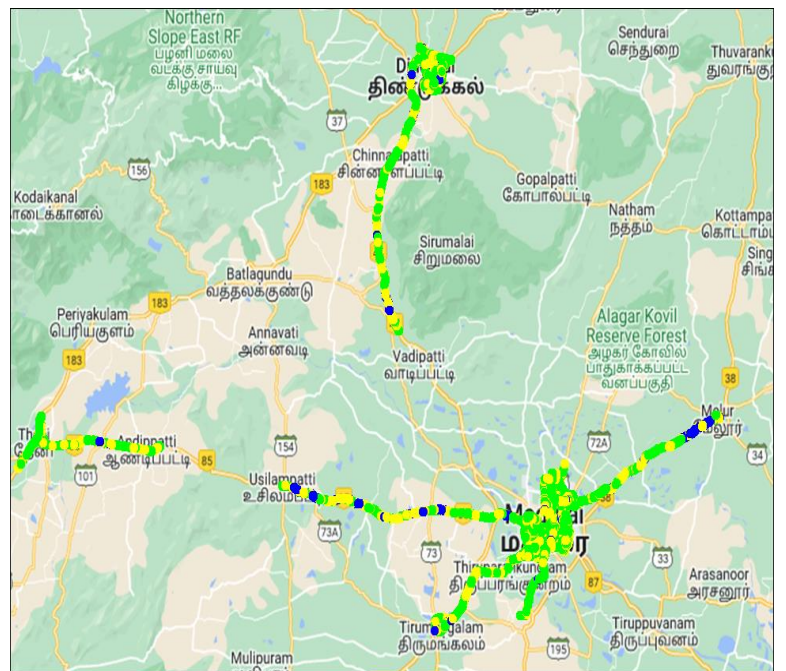
## AIRTEL

TSP	Coverage Rate %
Airtel 2G	98.98
Airtel VoLTE	99.98

### 2G



### VoLTE



Overall RxLevel	# Samples	%
[Max, >=-75]	12041222	88.31
[-75, >=-85)	1454220	10.67
[-85, >=-95)	137256	1.01
[-95, >=Min)	2137	0.02
<b>Total</b>	<b>13634839</b>	<b>100</b>

Overall RSRP	# Samples	%
[Max, >=-80]	7353873	76.22
[-80, >=-90)	2096811	21.73
[-90, >=-110)	195765	2.03
[-110, >=Min)	1510	0.02
<b>Total</b>	<b>9647959</b>	<b>100</b>

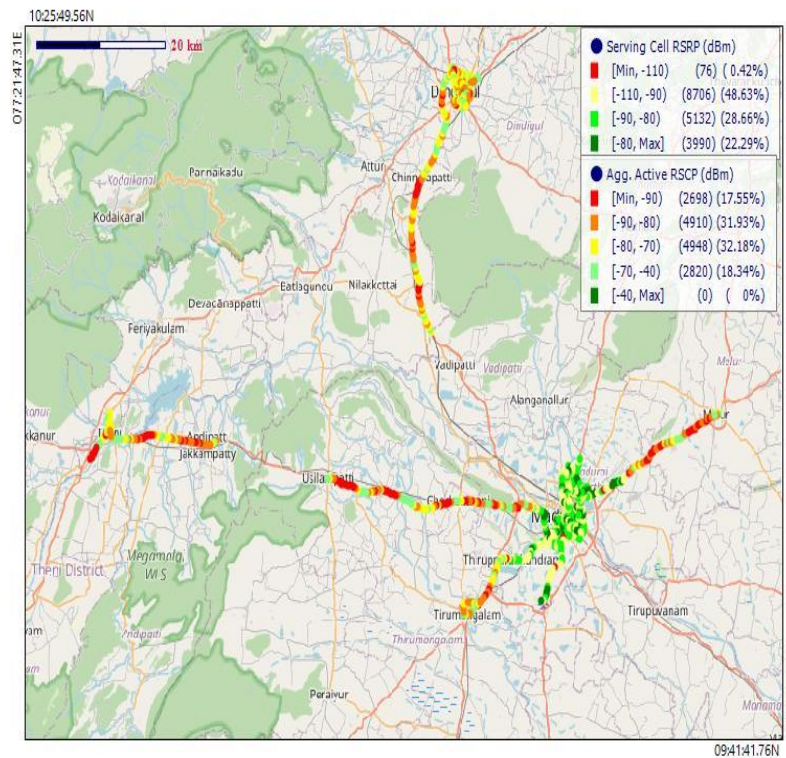
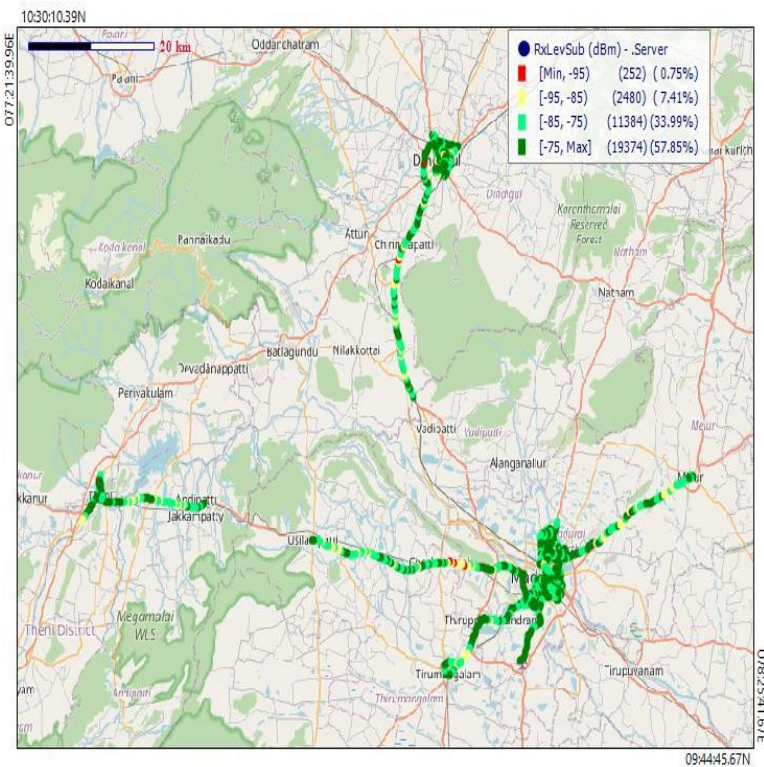
# I. Coverage Details

## BSNL

Technology	Coverage Rate %
2G	91.84
3G/4G	82.45/99.58

### 2G

### 3G/VoLTE



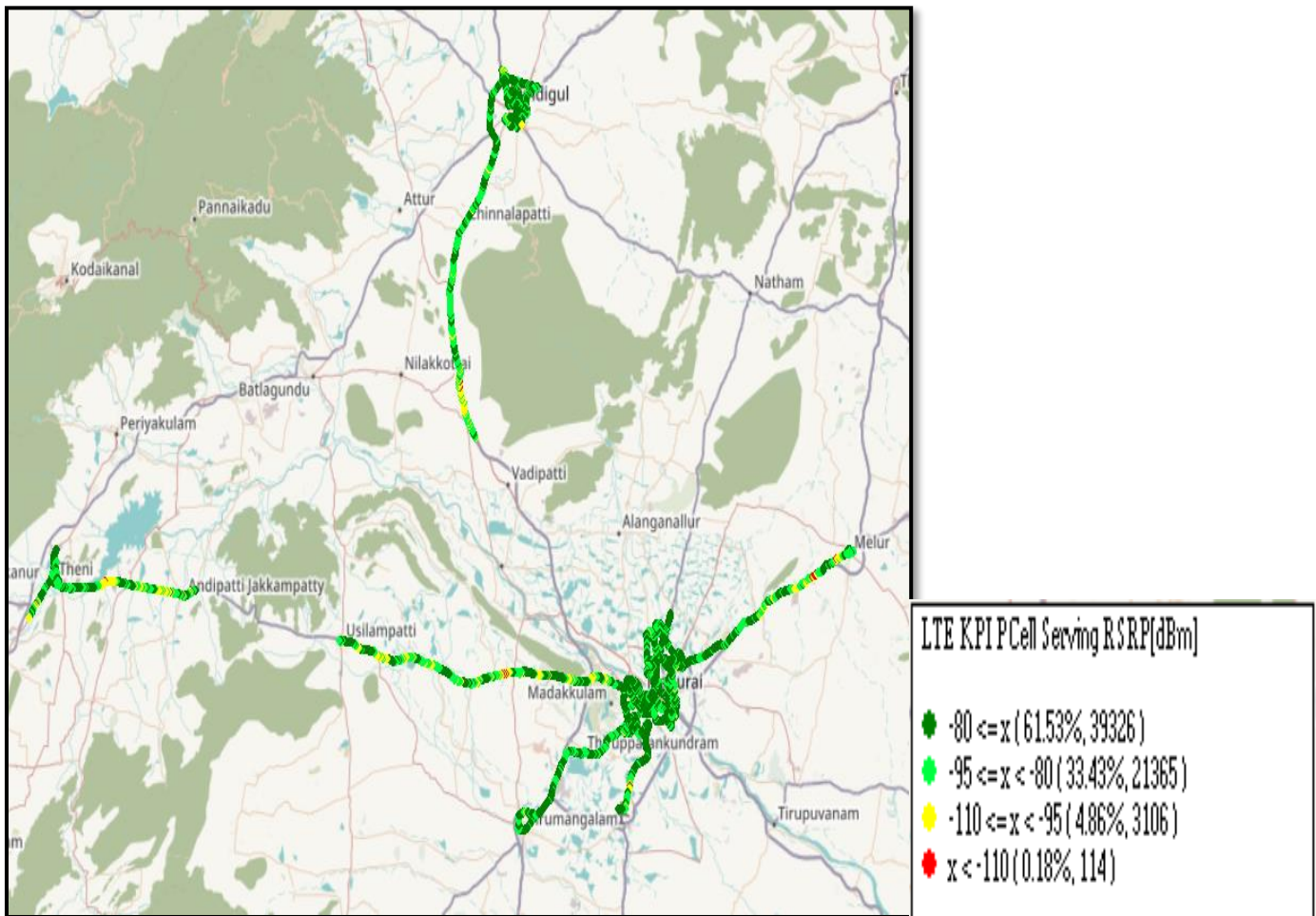
2G		
Overall RxLevel	# Samples	%
[Max, >=-75]	19374	57.85
[-75, >=-85)	11384	33.99
[-85, >=-95)	2480	7.41
[-95, >=Min)	252	0.75
<b>Total</b>	<b>33490</b>	<b>100</b>

3G			VoLTE		
Overall RSCP	# Samples	% PDF	Overall RSRP	# Samples	%
[Max, >=-70]	2820	18.34%	[Max, >=-80]	3990	22.29
[-70, >=-80]	4948	32.18%	[-80, >=-90]	5132	28.66
[-80, >=-90]	4910	31.93%	[-90, >=-110]	8706	48.63
[-90, >=Min)	2698	17.55%	[-110, >=Min)	76	0.42
<b>Total</b>	<b>15376</b>	<b>100 %</b>	<b>Total</b>	<b>17904</b>	<b>100</b>

## I. Coverage Details

### JIO

Technology	Coverage Rate %
VoLTE	99.82



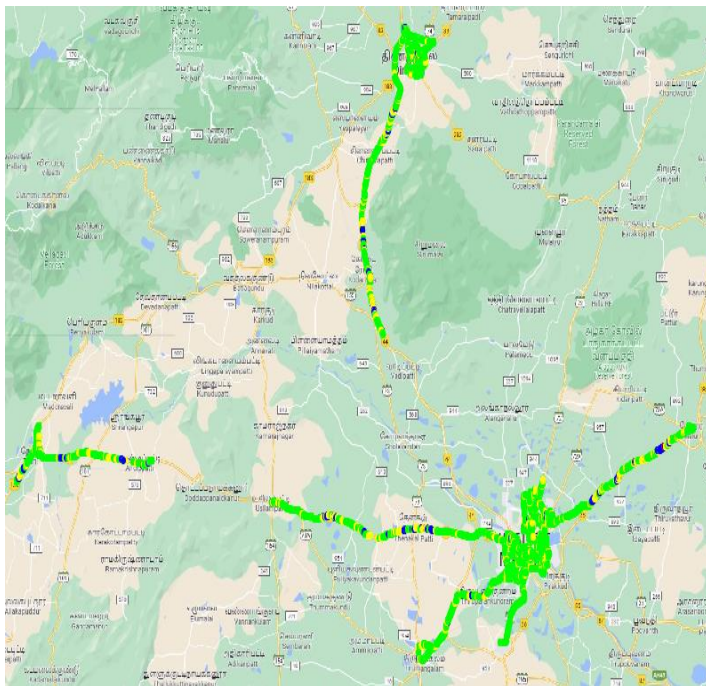
VoLTE		
Overall RSRP	# Samples	%
[Max, >=-80]	39326	61.53
[-80, >=-90)	21365	33.43
[-90, >=-110)	3106	4.86
[-110, >=Min)	114	0.18
<b>Total</b>	<b>63911</b>	<b>100</b>

# I. Coverage Details

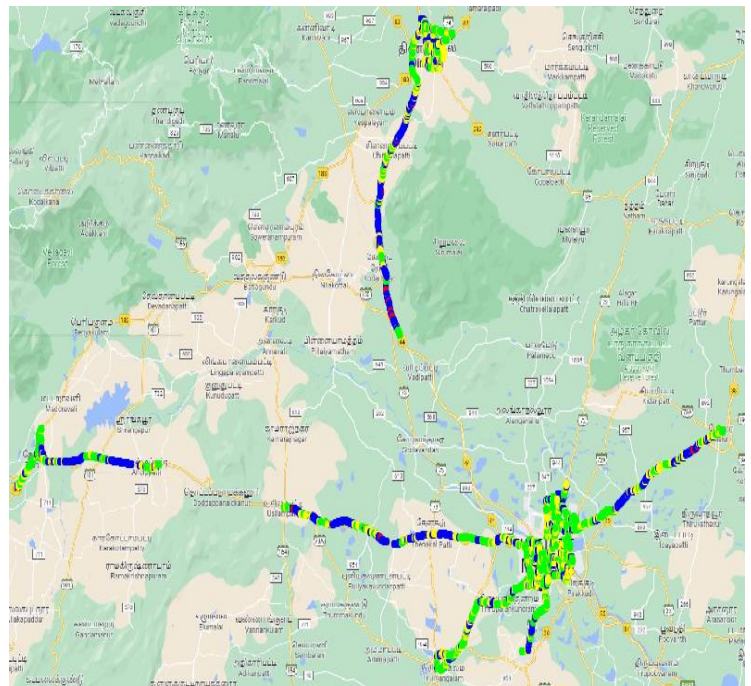
## VIL

Technology	Coverage Rate %
2G	97.92
VoLTE	99.68

### 2G



### VoLTE



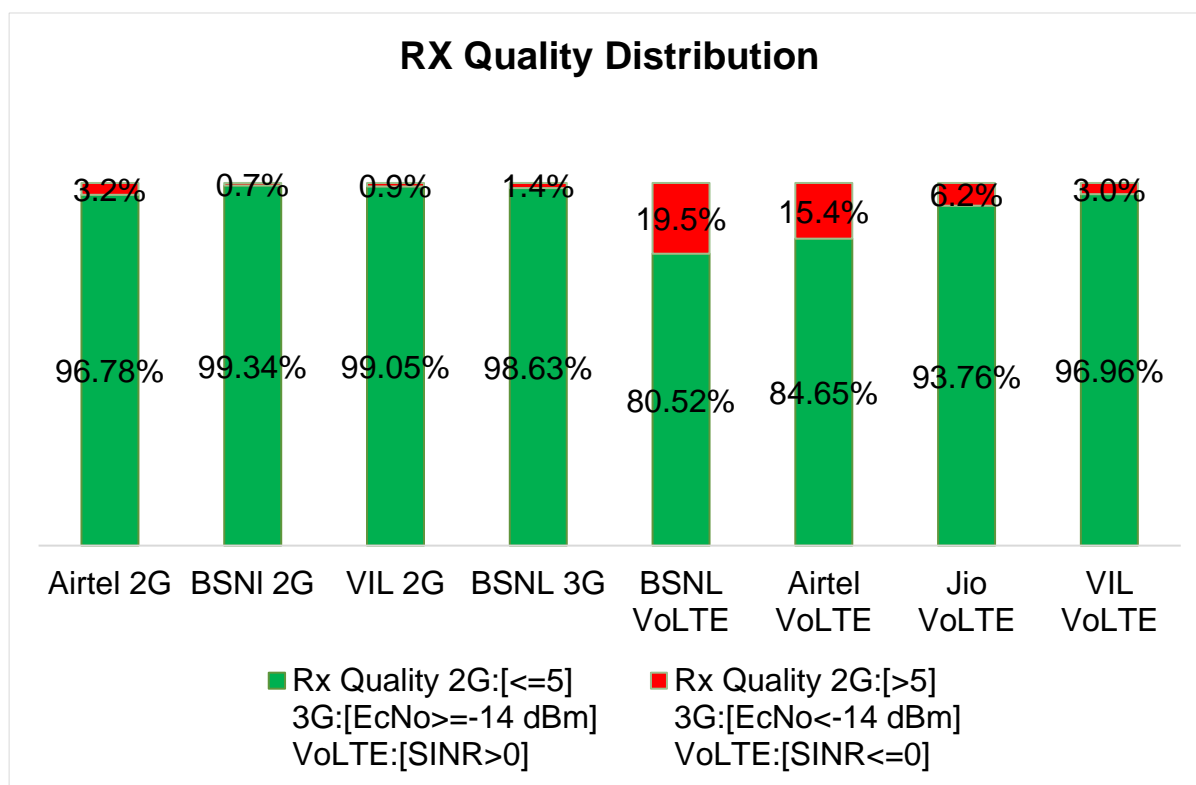
Overall RxLevel	# Samples	%
[Max, >=-75]	39140	86.21
[-75, >=-85)	5317	11.71
[-85, >=-95)	927	2.04
[-95, >=Min)	16	0.04
<b>Total</b>	<b>45400</b>	<b>100</b>

Overall RSRP	# Samples	%
[Max, >=-80]	25249	54.79
[-80, >=-90)	13580	29.47
[-90, >=-110)	7107	15.42
[-110, >=Min)	148	0.32
<b>Total</b>	<b>46084</b>	<b>100</b>

## II. Quality Details

For measuring voice quality, as per the QoS norms, RxQual  $\leq 5$  for GSM TSPs, EcNo  $\geq -14$  dBm for 3G TSP sand SINR  $>0$  in case of VoLTE 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	96.78
BSNL 2G	99.34
VIL 2G	99.05
BSNL 3G	98.63
BSNL VoLTE	80.52
Airtel VoLTE	84.65
Jio VoLTE	93.76
VIL VoLTE	96.96

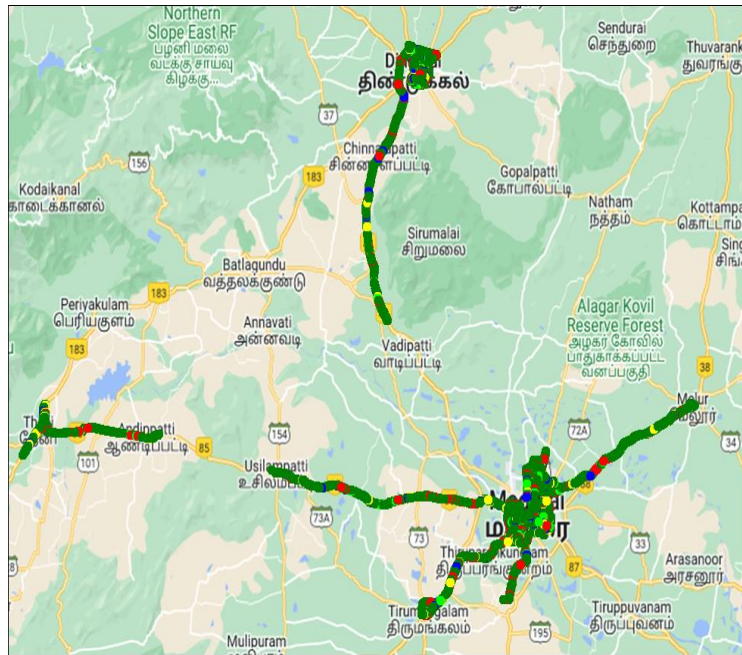


## II. Quality Details

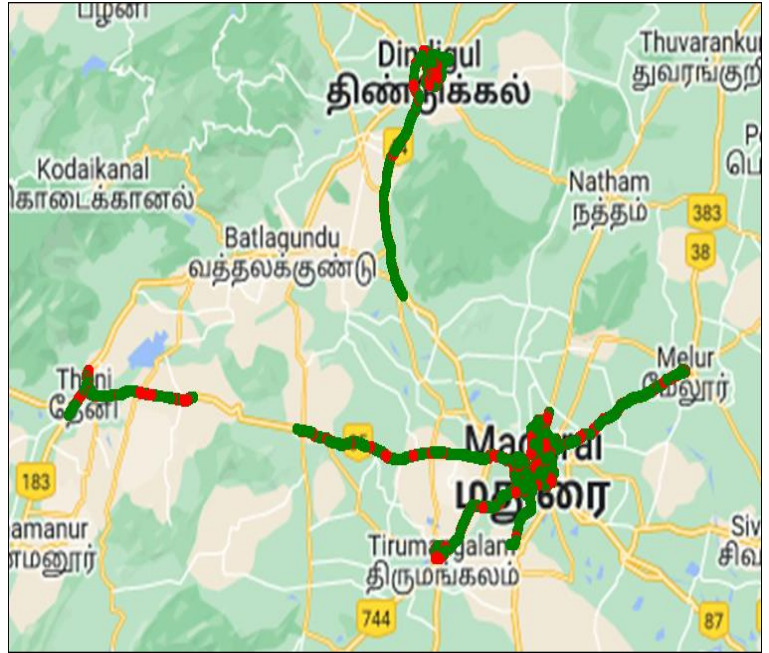
### Airtel

Technology	Rx Quality %
2G	96.78
VoLTE	84.65

### 2G



### VoLTE



Overall Rx Quality	# Samples	%
(Min, <=2)	5547334	35.24
(2, <=3)	254580	1.62
(3, <=4)	246165	22.53
(4, <=5)	5887072	37.40
(5, <=Max)	506103	3.22
<b>Total</b>	<b>15741254</b>	<b>100</b>

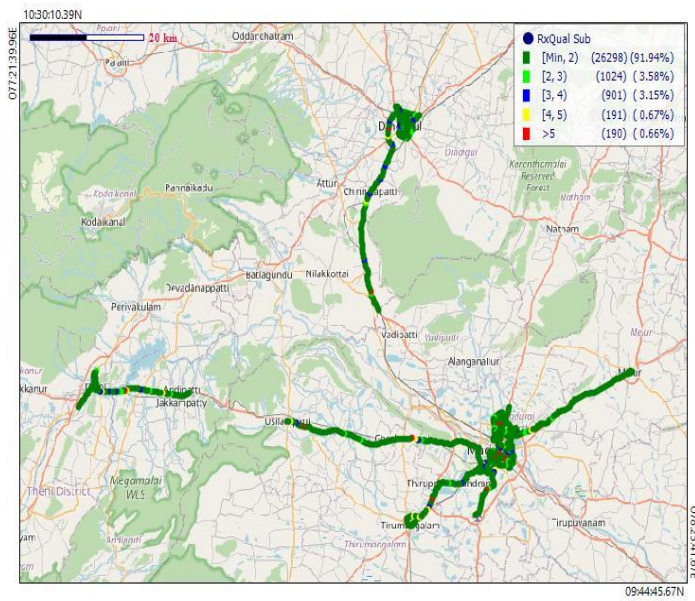
Overall SINR	# Samples	%
(Min, <=0)	1469039	15.35
(0, <=5)	629337	14.36
(5, <=10)	5502759	53.79
(10, <=15)	906324	8.86
(15, <=Max)	781610	7.64
<b>Total</b>	<b>10230237</b>	<b>100</b>

## II. Quality Details

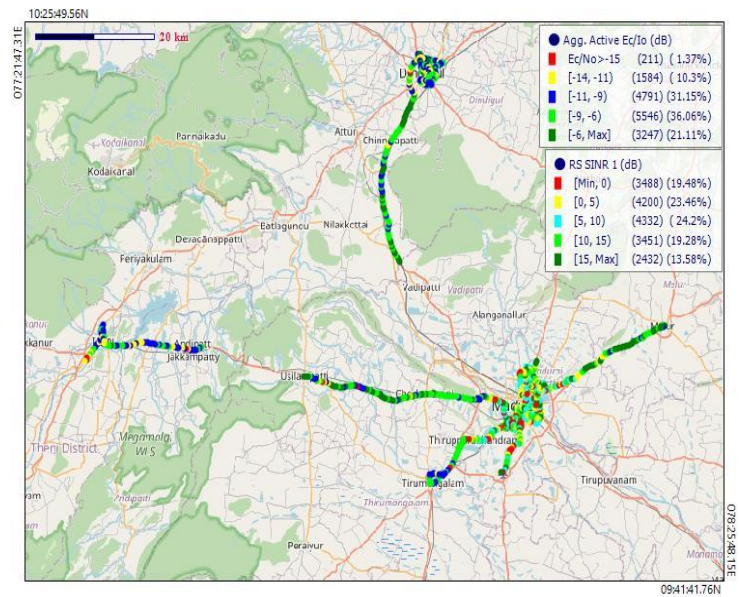
### BSNL

Technology	Rx Quality %
2G	99.34
3G	98.63
4G	80.52

### 2G



### 3G/4G



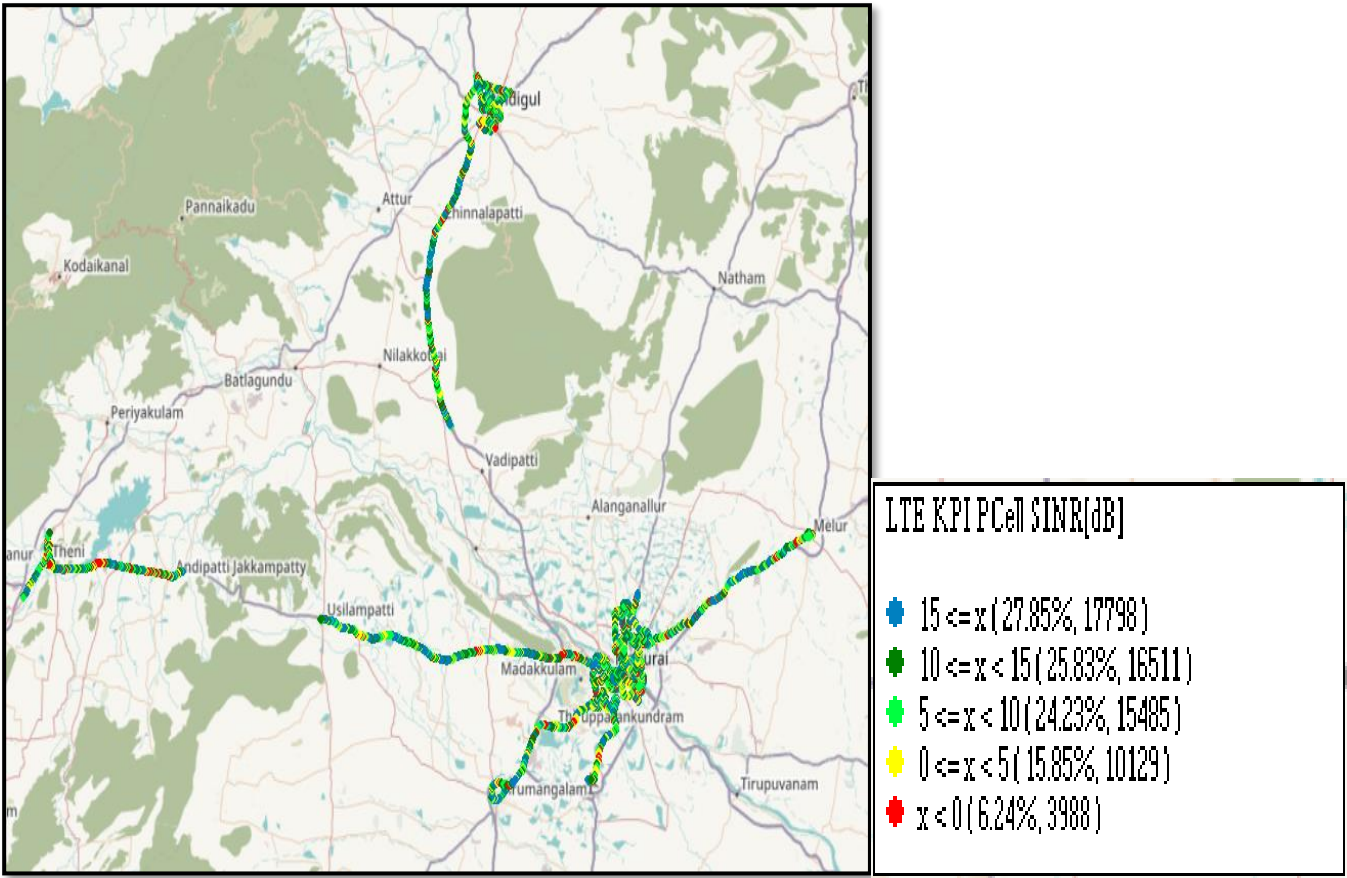
Overall Rx Quality	# Samples	%
(Min, <=2)	26298	91.94
(2, <=3)	1024	3.58
(3, <=4)	901	3.15
(4, <=5)	191	0.67
(5, <=Max)	190	0.66
<b>Total</b>	<b>28604</b>	<b>100</b>

Overall EcNo	# Samples	%	Overall SINR	# Samples	%
(Max, <=-6)	3247	21.11	(Min, <=0)	3488	19.48
(-6, <=-9)	5546	36.06	(0, <=5)	4200	23.46
(-9, <=-11)	4791	31.15	(5, <=10)	4332	24.2
(-11, <=-14)	1584	10.3	(10, <=15)	3451	19.28
(-14, <= Min)	211	1.37	(15, <=Max)	2432	13.58
<b>Total</b>	<b>28210</b>	<b>100</b>	<b>Total</b>	<b>22205</b>	<b>100</b>

## II. Quality Details

### JIO

Technology	Rx Quality %
VoLTE	93.76



### VoLTE

Overall SINR	# Samples	%
(Min, <=0)	3988	6.24
(0, <=5)	10129	15.85
(5, <=10)	15485	24.23
(10, <=15)	16511	25.83
(15, <=Max)	17798	27.85
<b>Total</b>	<b>63911</b>	<b>100</b>

## II. Quality Details

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

### VIL

#### Technology

#### Rx Quality %

2G

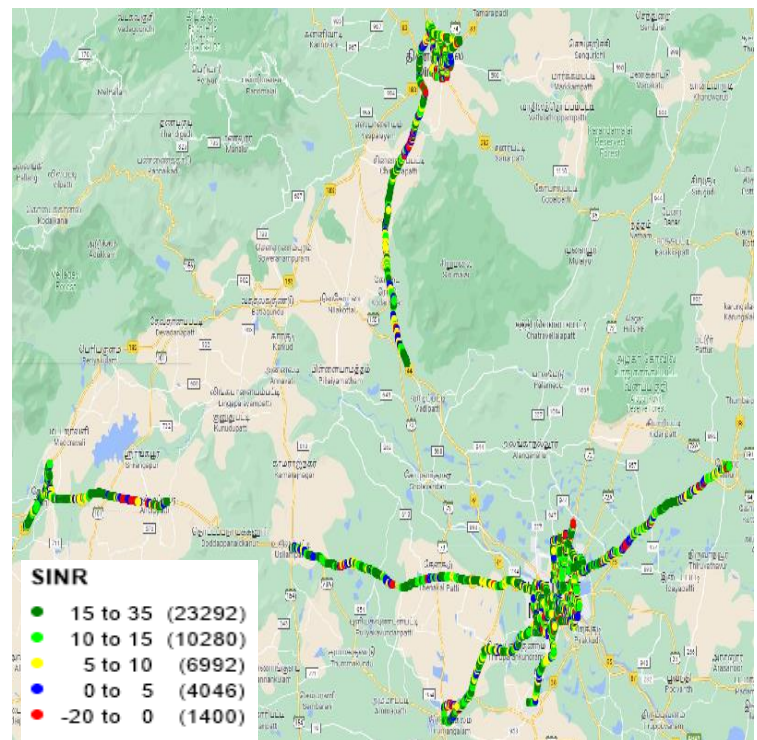
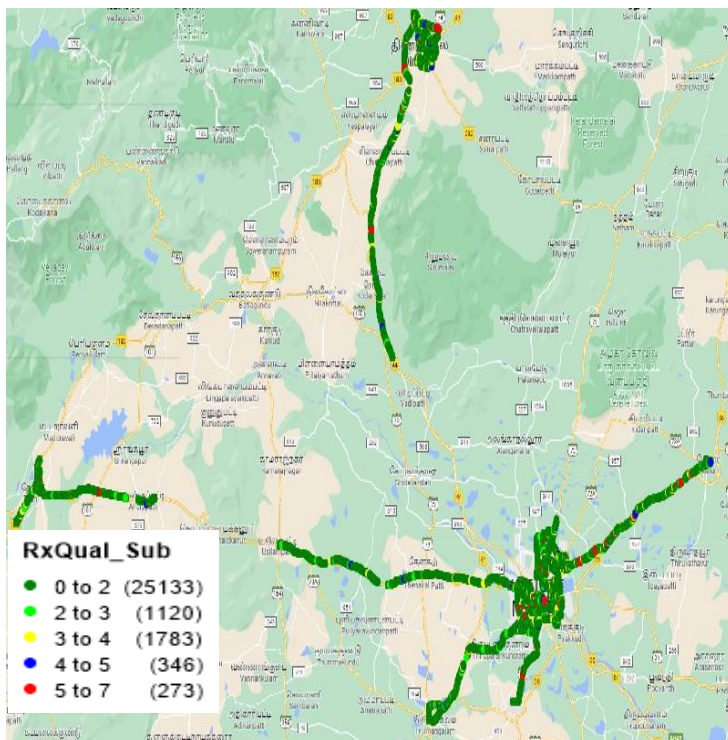
99.05

VoLTE

96.96

2G

VoLTE

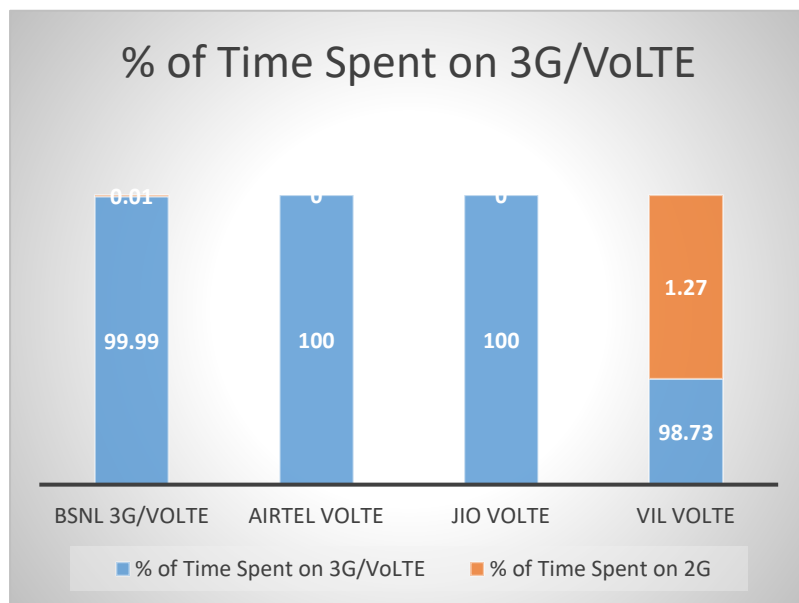


Overall Rx Quality	# Samples	%
(Min, $\leq 2$ )	25133	87.71
(2, $\leq 3$ )	1120	3.91
(3, $\leq 4$ )	1783	6.22
(4, $\leq 5$ )	346	1.21
(5, $\leq \text{Max}$ )	273	0.95
<b>Total</b>	<b>28655</b>	<b>100</b>

Overall SINR	# Samples	%
(Min, $\leq 0$ )	1400	3.04
(0, $\leq 5$ )	4046	8.80
(5, $\leq 10$ )	6992	15.20
(10, $\leq 15$ )	10280	22.34
(15, $\leq \text{Max}$ )	23292	50.62
<b>Total</b>	<b>46010</b>	<b>100</b>

### III. Technology Details

TSP	% of Time Spent on 3G/VoLTE
BSNL 3G / VoLTE	99.99
Airtel VoLTE	100
Jio VoLTE	100
VIL VoLTE	98.73



### III. Technology Details

#### Airtel

Technology	Time Spent on 4G
4G	100%

#### BSNL

Technology	Time Spent on 3G/4G
3G/4G	99.99

#### JIO

Technology	Time Spent on 4G
4G	100%

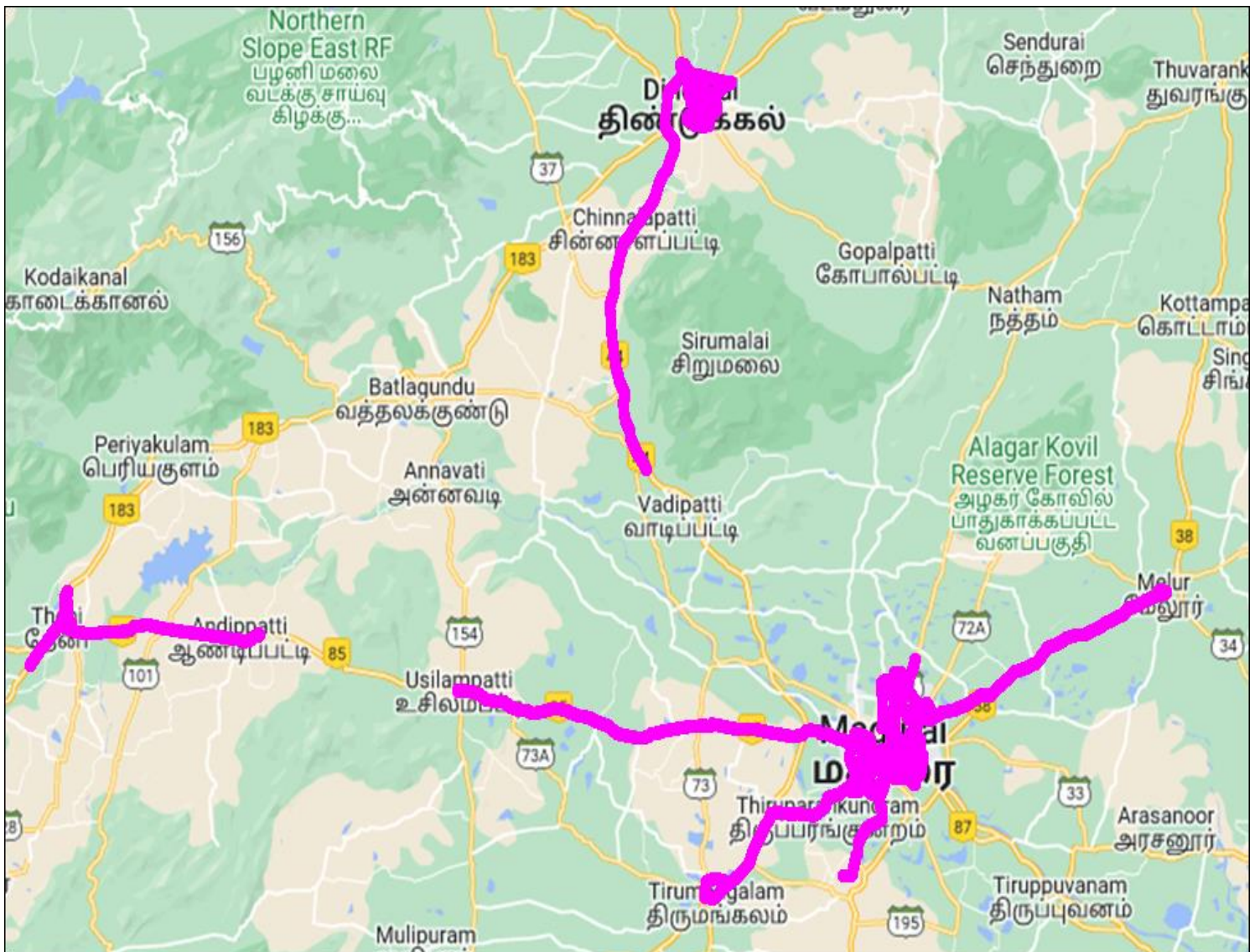
#### VIL

Technology	Time Spent on 4G
4G	98.73

### III. Technology Details

#### Airtel

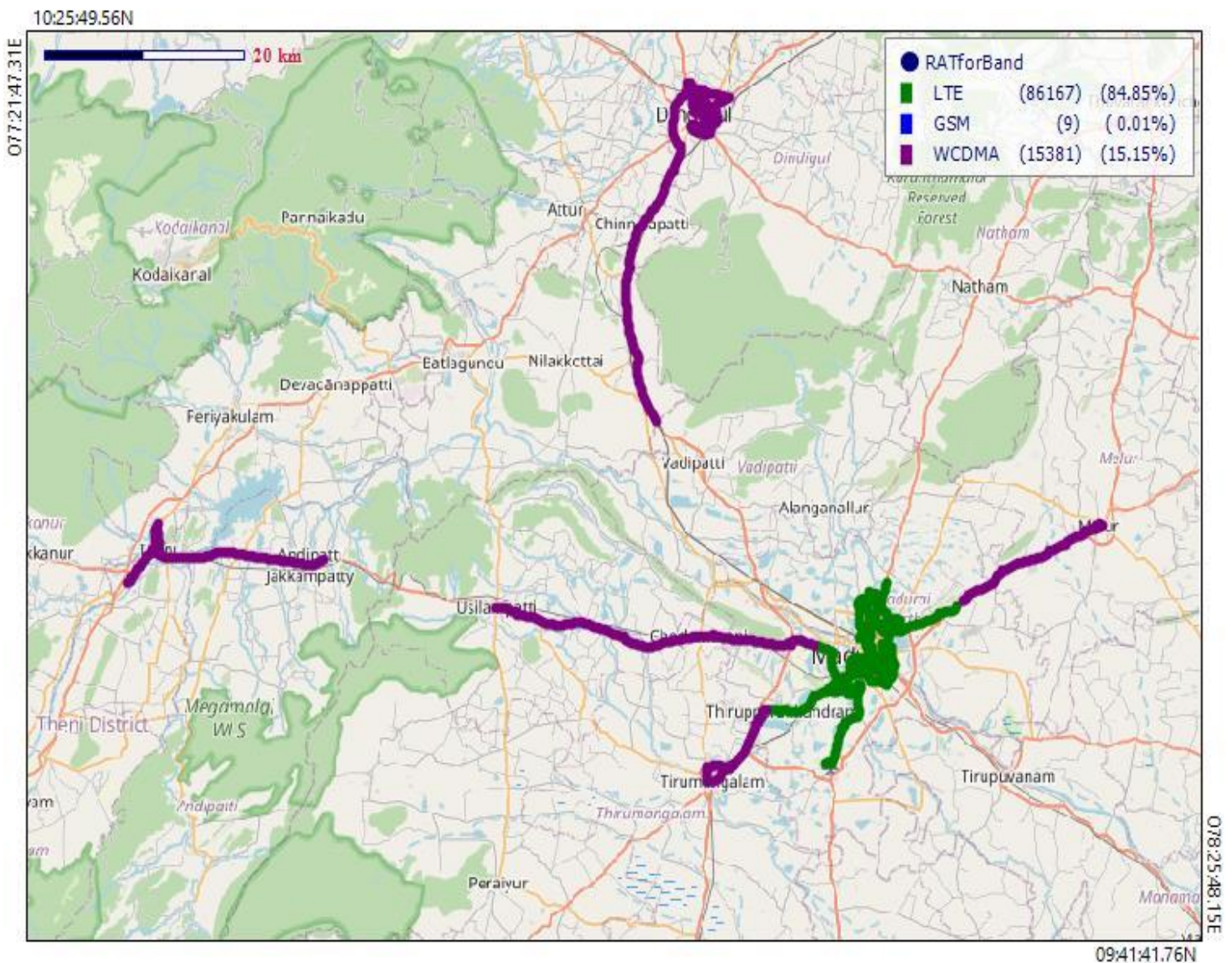
Technology	Time Spent on 4G
4G	100%



### III. Technology Details

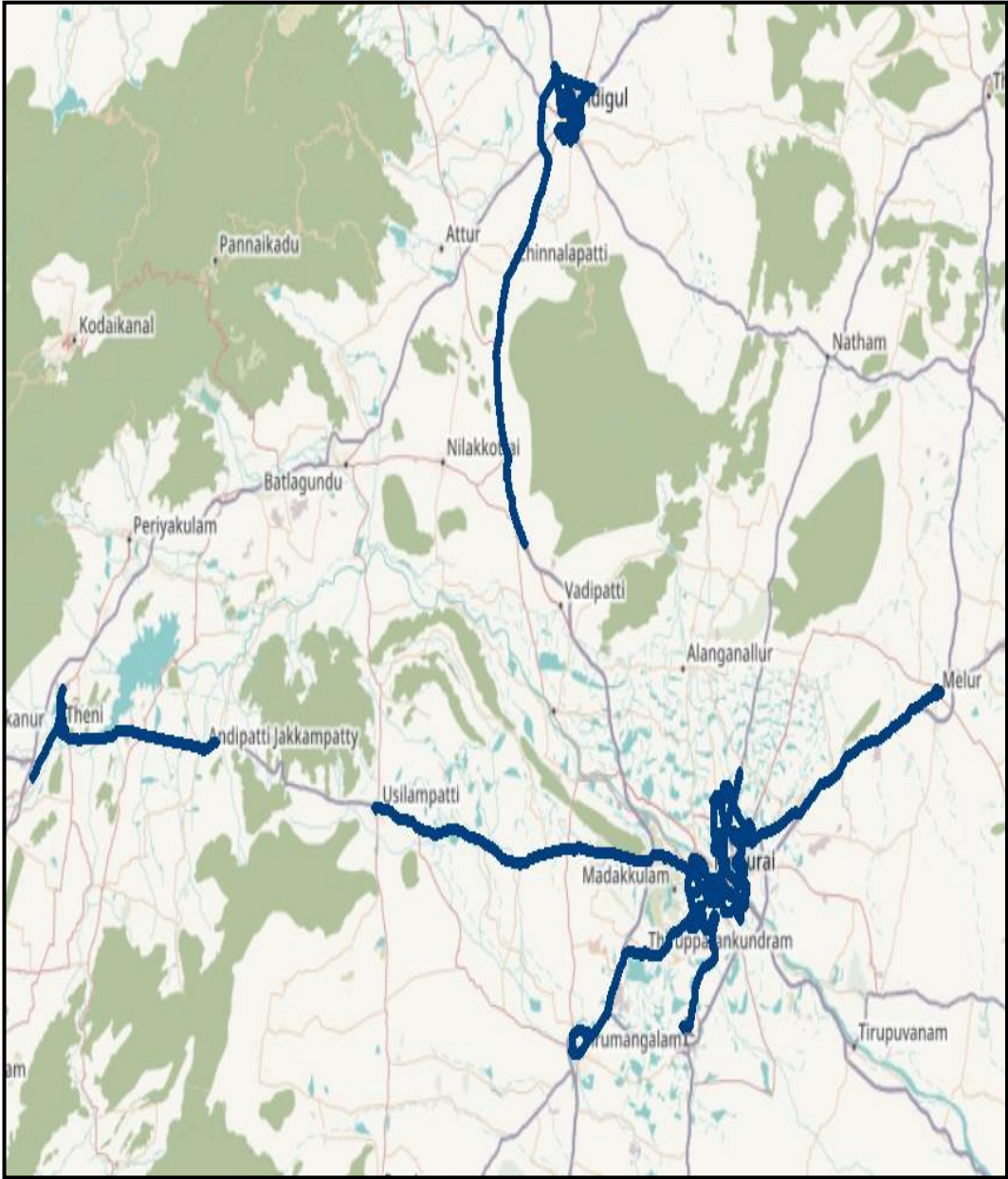
#### BSNL

Technology	Time Spent on 3G
3G / LTE	99.99



JIO

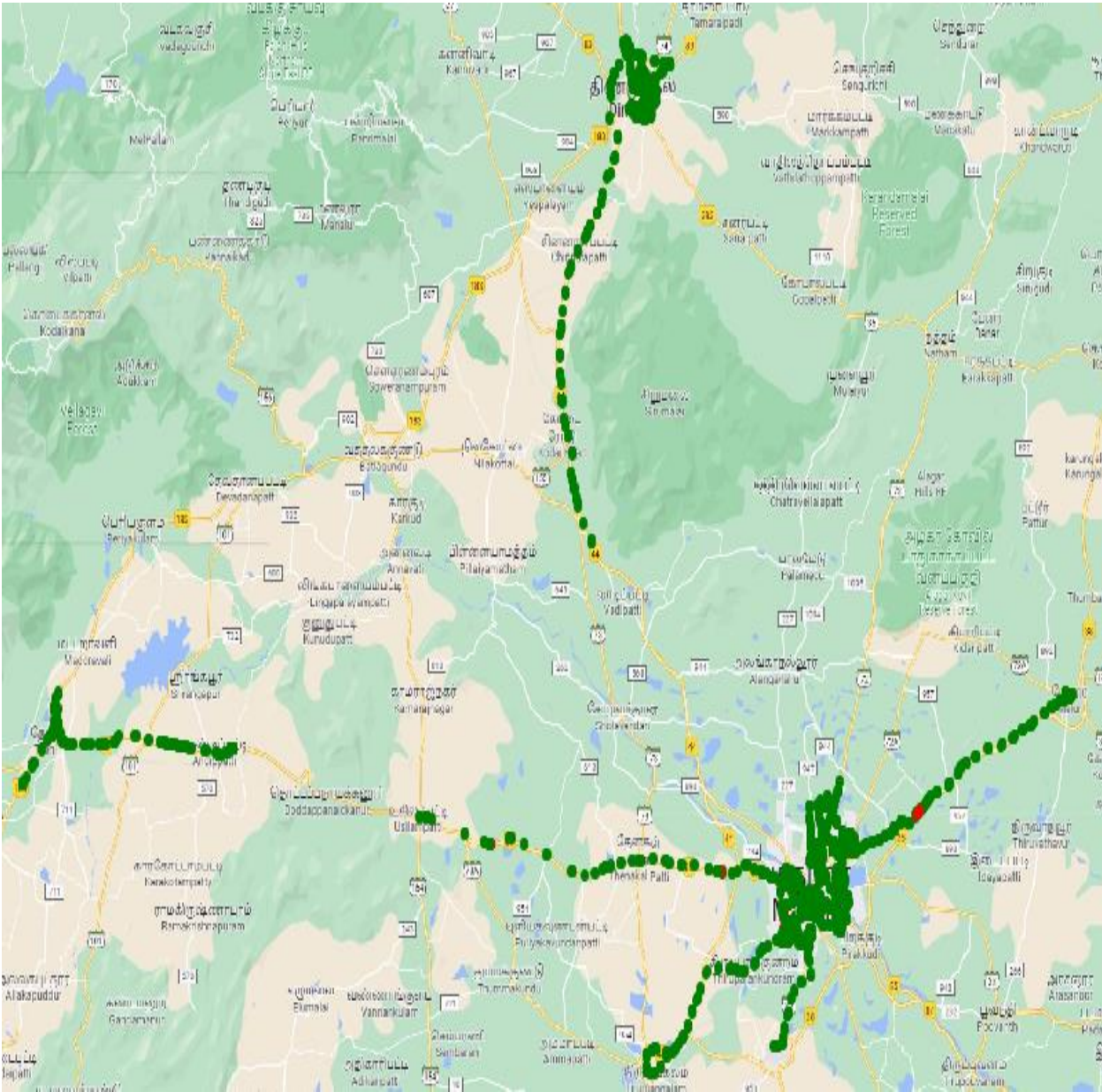
Technology	Time Spent on 4G
4G	100%



### III. Technology Details

#### VIL

Technology	Time Spent on 4G
4G	98.73

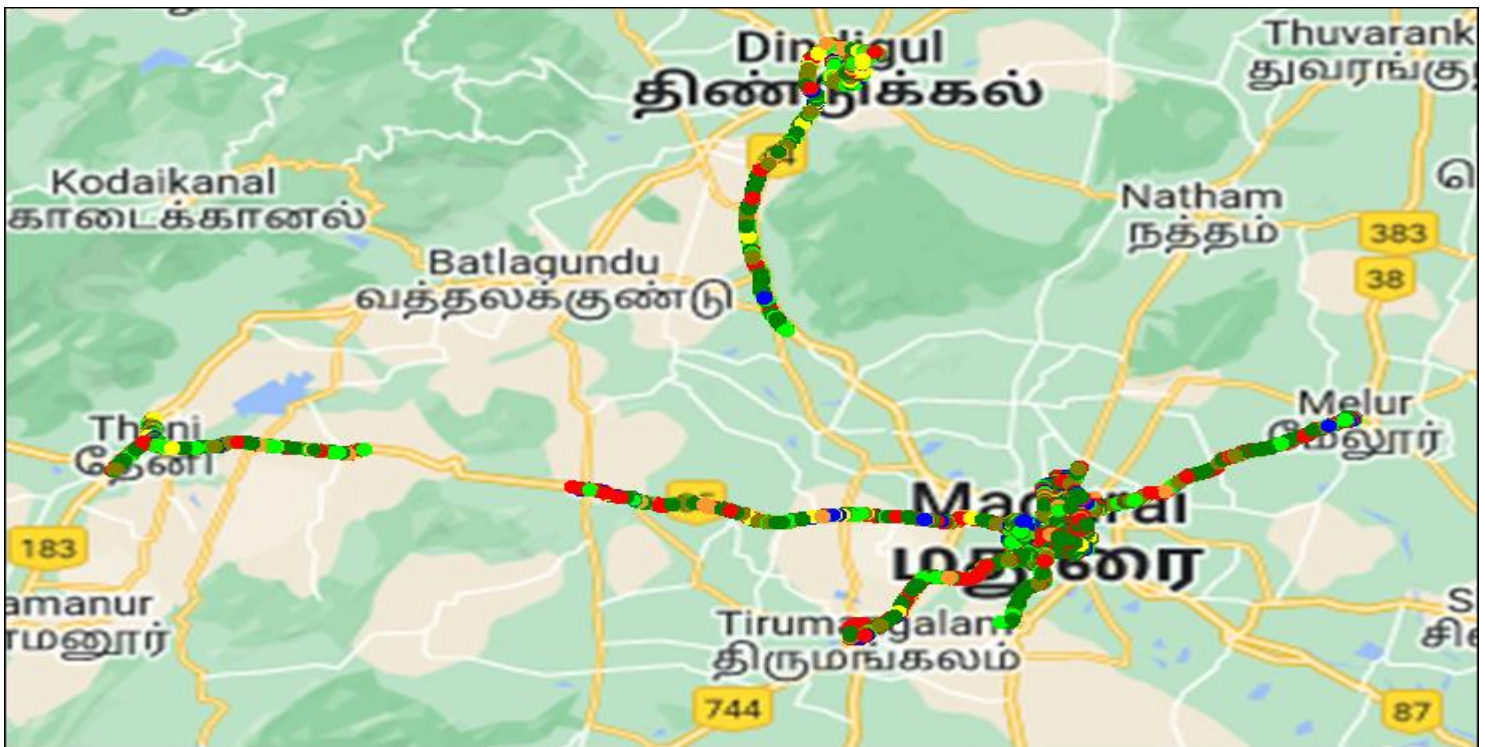


## IV. Dynamic Data Test- 4G DL Details

### Airtel

#### Data Statistics - Dynamic Complete SSA - - 380 Kms

Data KPIs – Overall	4G
Download Throughput (Mbps)	20.13



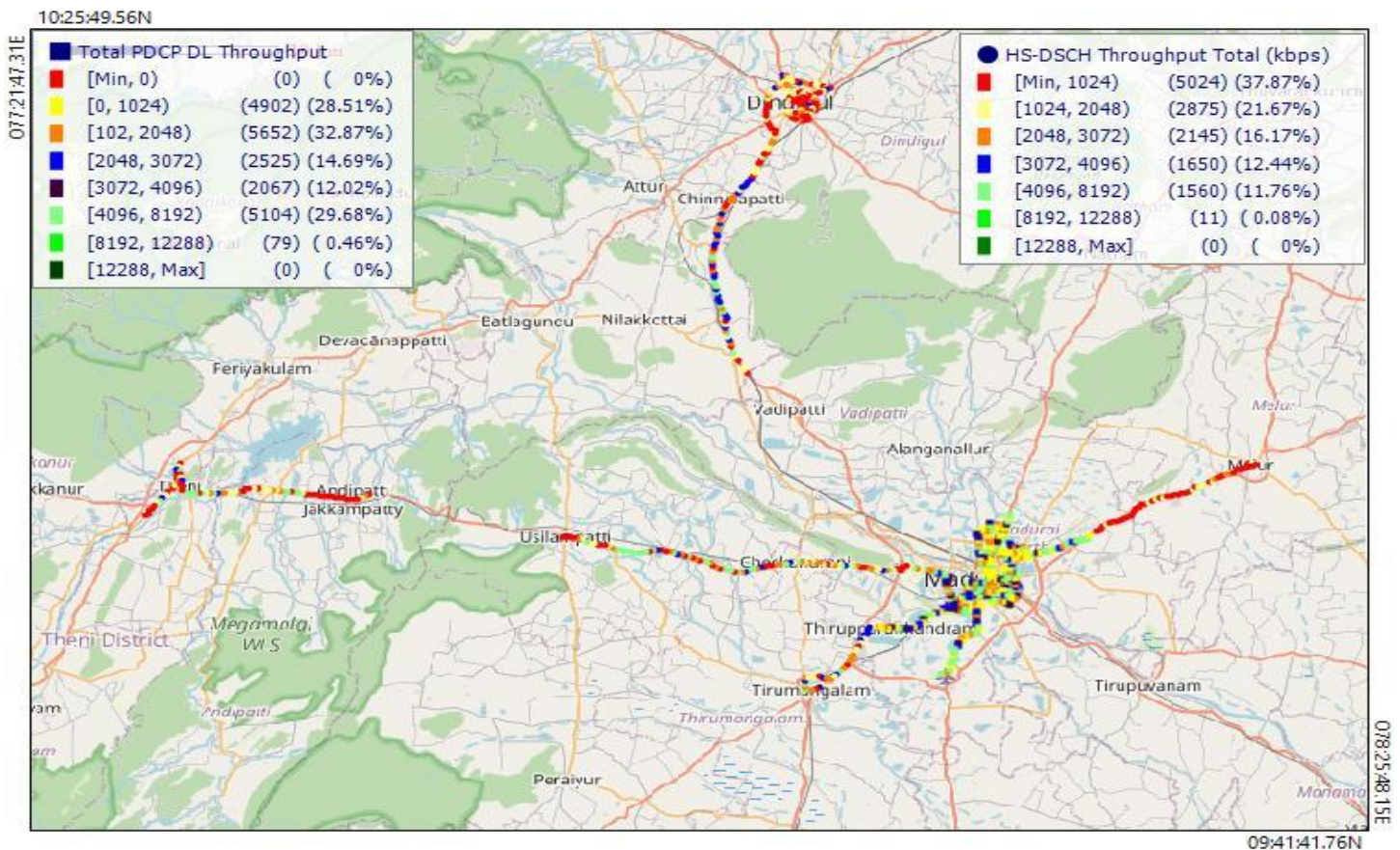
DL throughput	No of Sample	%
0 to 1 Mbps	436332	10.45
1 to 2 Mbps	403111	9.65
2 to 3 Mbps	591386	14.16
3 to 4 Mbps	348600	8.35
4 to 8 Mbps	834237	19.98
8 to 12 Mbps	553222	13.25
>12 Mbps	1008452	24.15
<b>Total</b>	<b>4175340</b>	<b>100</b>

## IV. Dynamic Data Test- 3G DL Details

**BSNL**

### Data Statistics - Dynamic Complete SSA 382 Kms

Data KPIs - Overall	3G	4G
Download Throughput (Mbps)	1.95	2.85



DL throughput	No of Sample	%
0 to 1 Mbps	5024	37.87
1 to 2 Mbps	2875	21.67
2 to 3 Mbps	2145	16.17
3 to 4 Mbps	1650	12.44
4 to 8 Mbps	1560	11.76
8 to 12 Mbps	11	0.08
>12 Mbps	0	0
Total	13265	100

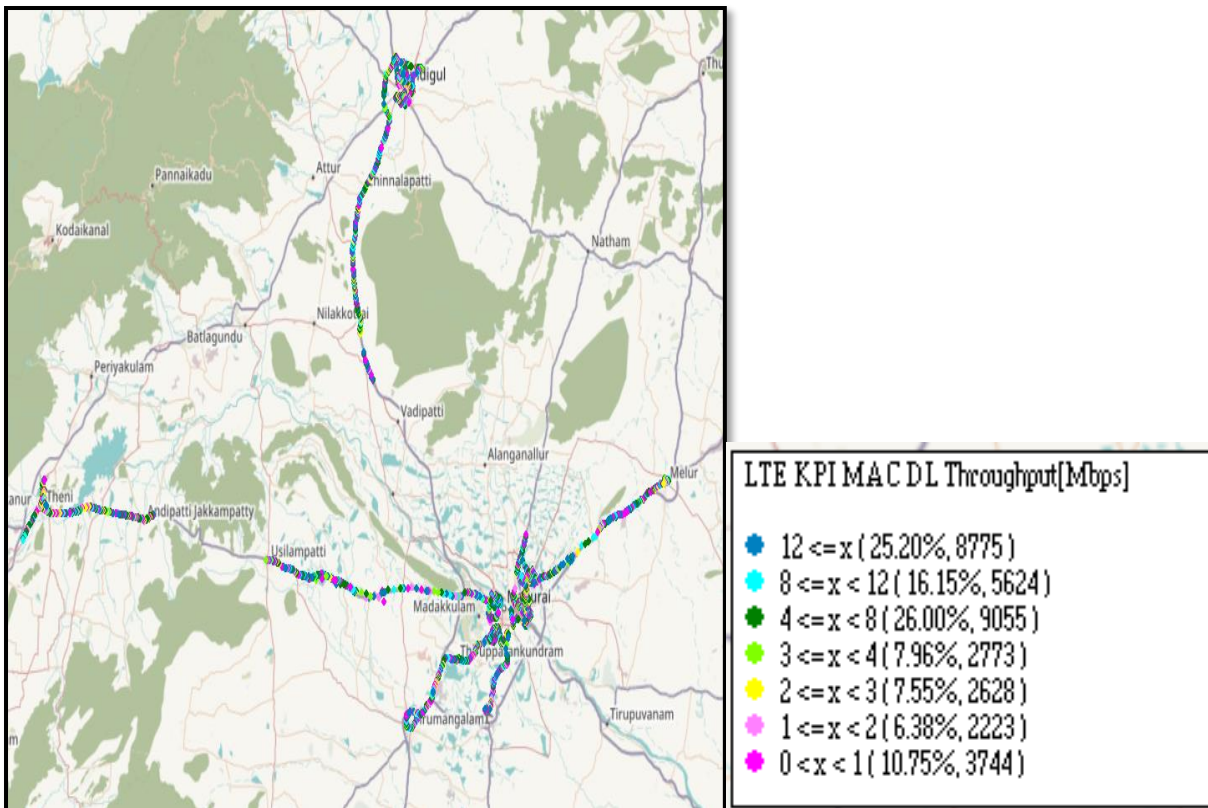
DL throughput	No of Sample	%
0 to 1 Mbps		
1 to 2 Mbps		
2 to 3 Mbps		
3 to 4 Mbps		
4 to 8 Mbps		
8 to 12 Mbps		
>12 Mbps		
Total		

## IV. Dynamic Data Test- 4G DL Details

**JIO**

### Data Statistics - Dynamic Complete SSA - 415 Kms

Data KPIs - Overall	4G
Download Throughput (Mbps)	7.21



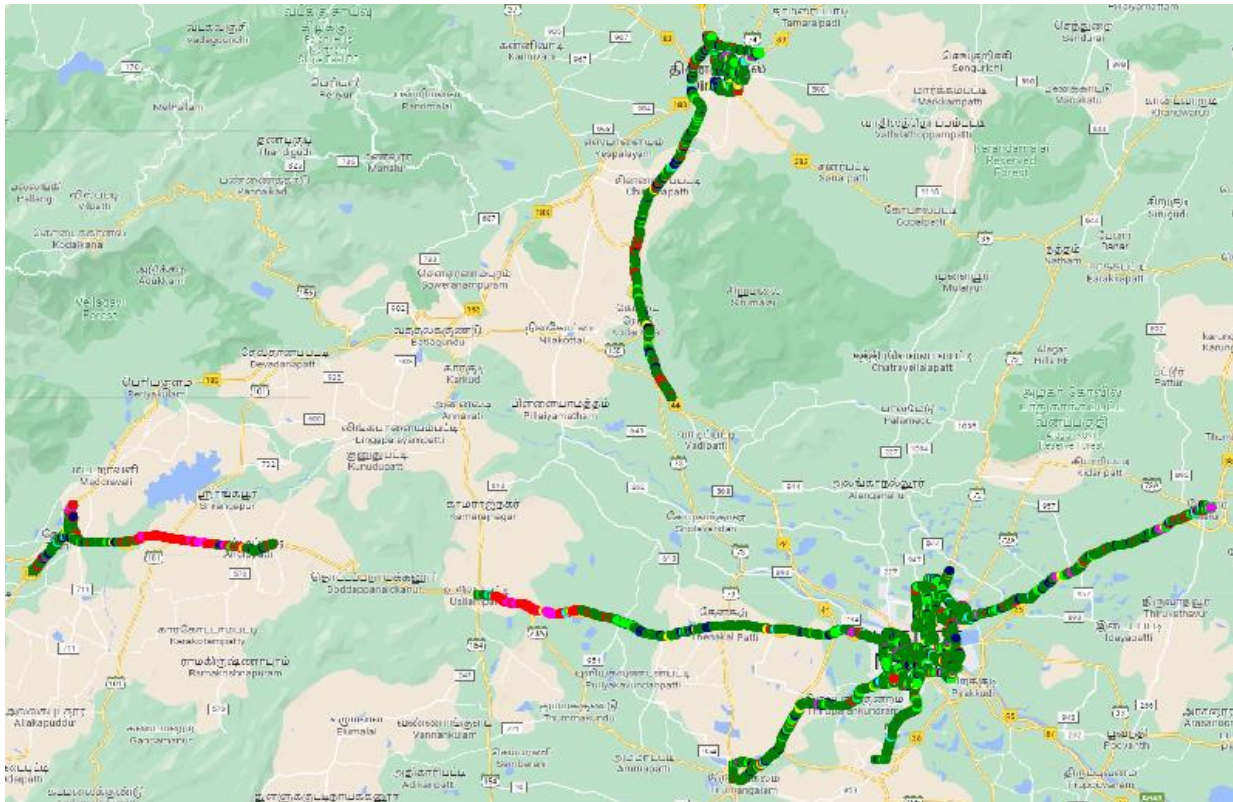
DL throughput	No. of samples	%
0 to 1 Mbps	3744	10.75
1 to 2 Mbps	2223	6.38
2 to 3 Mbps	2628	7.55
3 to 4 Mbps	2773	7.96
4 to 8 Mbps	9055	26.00
8 to 12 Mbps	5624	16.15
>12 Mbps	8775	25.20

## IV. Dynamic Data Test- 4G DL Details

### VIL

#### Data Statistics - Dynamic Complete SSA - 380 Kms

Data KPIs - Overall	4G
Download Throughput (Mbps)	26.89



DL throughput	No of Sample	%
0 to 1 Mbps	3503	10.69
1 to 2 Mbps	731	2.23
2 to 3 Mbps	727	2.22
3 to 4 Mbps	765	2.33
4 to 8 Mbps	2598	7.93
8 to 12 Mbps	3533	10.78
>12 Mbps	20917	63.82
Total	32774	100

## Airtel

Technology- 4G	Theni Collector Office	Dindigul Railway Station	Meenakshi Amman Temple Madurai	Vishal DE Mall Madurai	High Court Madurai	Airport Madurai
Download Speed Mbps	61.42	60.59	74.22	71.66	53.68	132.54
Upload Speed Mbps	2.20	2.86	3.74	1.80	9.62	4.80
Latency Sec	Not Captured in the App					

## BSNL

Technology- 3G / 4G	Theni collector office 3G	Dindigul Railway station 3G	Meenakshi Amman Temple 4G	Vishall D- Mall 4G	High- Court Madurai 4G	Airport- Madurai 4G
Download Speed Mbps	6.38	4.17	22.13	19.52	25.68	8.90
Upload Speed Mbps	1.49	1.46	1.32	7.62	1.41	1.28
Latency Sec	Not Captured in the App					

## JIO

Technology- 4G	Theni Collector Office	Dindigul Railway Station	Meenakshi Amman Temple Madurai	Vishal DE Mall Madurai	High Court Madurai	Airport Madurai
Download Speed Mbps	31.40	33.52	34.77	34.73	37.71	51.54
Upload Speed Mbps	7.04	6.16	27.89	6.59	9.51	22.93
Latency Sec	39.2	42.4	49.3	54.8	37.0	36.1

## VIL

Technology- 4G	Theni-Collectorate	Dindigul – Railway station	Meenakshi Amman temple	Madurai – High court	Madurai - Airport	Vishal Dee Mall
Download Speed Mbps	66.6	124	90.7	75.6	139	70.5
Upload Speed Mbps	24.7	29.7	26.2	34.1	37.2	33.3
Latency Sec	Not captured in the App					