

# Operator Assisted Drive Test Report

## HYDERABAD SSA

### AY - 2024

## (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%. Call Block Rate (CBR%) benchmark of 3% was achieved by all TSP's except BSNL 2G.

The Operator Assisted Drive Test (OADT) has been carried out by TRAI RO Hyderabad with the help of Service Providers in HYDERABAD and inside areas Nampally, Charminar, Koti, LB Nagar, Secendarabad, KPHB, Gachibowli, Kondapur, Miyapur, LB Nagar, Balanagar, Jubilee hills, Panjagutta, Begumpet, Tarnaka, A S Rao Nagar, Dilsukh Nagar etc. from 9:00 AM to 9:00 PM during 27<sup>th</sup> to 30<sup>th</sup> May 2024. The drive test covered drive route of 420+ KMs & 7 hotspot over a period of 4 days. Approximately 750 calls were made for each of the 7 networks: Three 2G networks, One 3G network and Three LTE network covering four TSPs.

Overview

Voice  
Summary

Data  
Summary

# Overview

TRAI Hyderabad conducted Operator Assisted Drive Test from 27<sup>th</sup> to 30<sup>th</sup> May 2024 covering various locations HYDERABAD and inside areas Nampally, Charminar, Koti, LB Nagar, Secunderabad, KPHB, Gachibowli, Kondapur, Miyapur, LB Nagar, Balanagar, Jubilee hills, Panjagutta, Begumpet, Tarnaka, AS Rao Nagar, Dilsukhnagar etc. The performance of Airtel, BSNL, Jio and Vodafone Idea Limited 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, 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 over a period of 4 days from 27<sup>th</sup> to 30<sup>th</sup> May 2024. Approximately 750 calls were made for each of the 7 networks: three 2G (Lock Mode) networks, one 3G (Dual mode) network and three VoLTE (Free mode) networks covering 4 unique TSPs.

## **Data Tests:**

1. Dynamic data test was conducted for 422 kms over a period of 3 days for download throughput for 3G & 4G technologies.

Data Tests were performed at 7 static locations for 2G, 3G & 4G technologies of five iterations at each location.

2. 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.

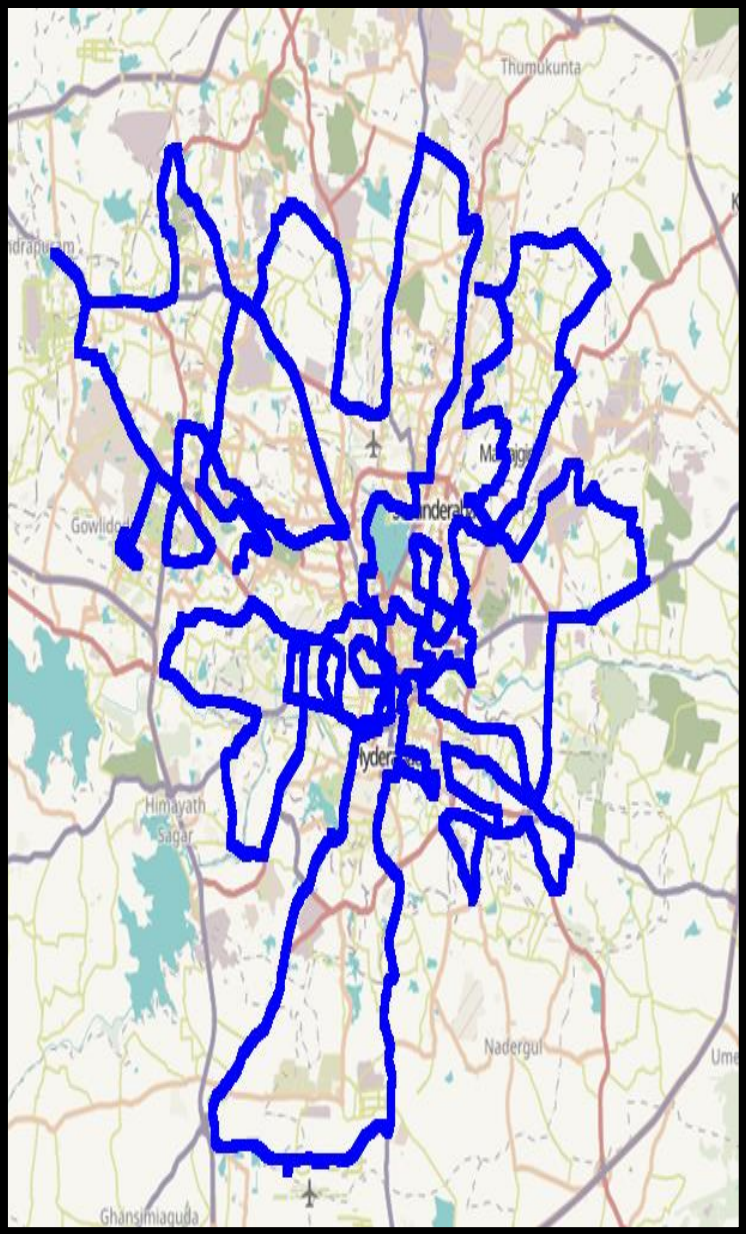
\* 3G KPI's which are calculated from UE in Dual Mode (2G & 3G) includes samples and events of 2G.

\* 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/m commerce website www.amazon.in, www.flipkart.com and www.myntra.com
Video Streaming	130 Sec Clip
Latency	32 Bytes on www.google.com

# Overview

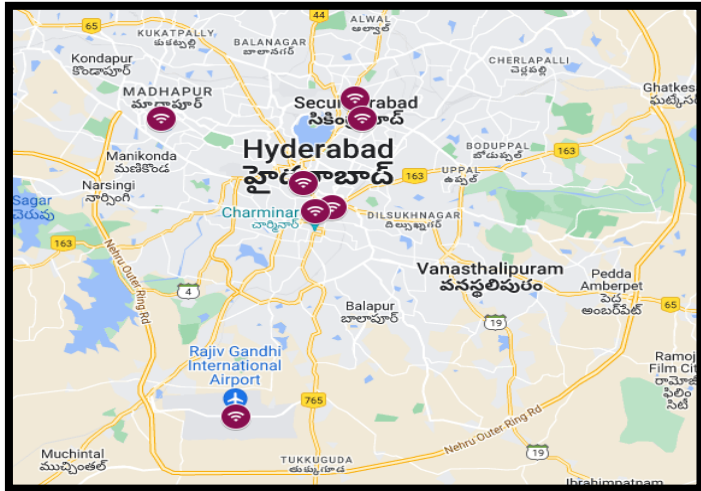
## Voice & Dynamic Data Test Drive Route



Day	Area Covered
Day-1	Nampally – Masabtank – Mehidipatnam – Tolichowk – Shaikpet – Manikonda –Narsingi -Langer House- hyderasha- Bandlaguda- Attapur- Chandrayagutta- zoopark- Rajendra Nagar- Katedan- Shamshabad- airport- Pahadi Sharief- Balapur- Rci- Badangipet- gurranguda- Turkayamzal- BN Reddy Nagar- hastinapur- Gayathri Nagar- Karmanghat- Saidabad- chanchalguda- Santhoshnagar- Falaknuma- Charminar- Yakuthpura- Dabeerpura- Afzalgunz- dhoolpet- Ziyaguda- Gudi Malkapur- Ghosha Mahal- Begumbazar- Namapally-end.
Day-2	Nampally - Basheer Bagh - Himayath Nagar – Narayanaguda - Ashok Nagar- Kavadiguda – Musheerabad -Kachiguda – Barkathpura – Vidyanagar – Adikmet – Warasiguda – Mettuguda – Malkajgiri –AOC – Kowkur - Balajinagar - Jawahar Nagar – Dammayiguda – Nagaram – ECIL – Moulali –Tarnaka – Habsiguda -Nacharam - Charlapally – Rampally- Ghatkesar- Narapally – Medipally – Chengicherl –Boduppall - Uppal- Ramanthapur- Amberpet- Shivam Road- OU - Tarnaka- Uppal- Nagole- Kothapet-lb Nagar- Nagole- Bandlaguda- Mansurabad- Vanastalipuram- Hayathnagar- Pedda Amberpet- BN Reddy Nagar- Sagar Ring Road- Lbnagar- Dilshuk Nagar- Malakpet- mgbs - Koti- Namapally- End
Day-3	Namapally – Lakdikapool- Kharithabad - Banjara Hills- jubli Hills- Madharapur- Gachibowli- Nanakram Guda - HCU- BHEL- Lingam Pally- Madinguda – Miyapur – Bachupally – Nizampet – Pragathinagar – JNTU – KPHB – Moosapet – Ameerpet - Begumpet- Sanath Nagar - Balanagar- Jagadgiri Gutta- Jeedimetla- Gandhi Mysamma – Bahadurpalli – Kandlakoya – Kompally – Suchithra – Bollram – Hakimpet – Alwal - Secundra Bad – CTO – Ranigunj – Tankbund - Nampally TRAI Office - End

## Data Service Test- Static Locations

<b>7 Static Locations</b>
RGI Airport
Mind Space
JBS Bus stand
Secunderabad Railway Station
Nampally Railway Station
MGBS Bus Stand
Osmania Hospital

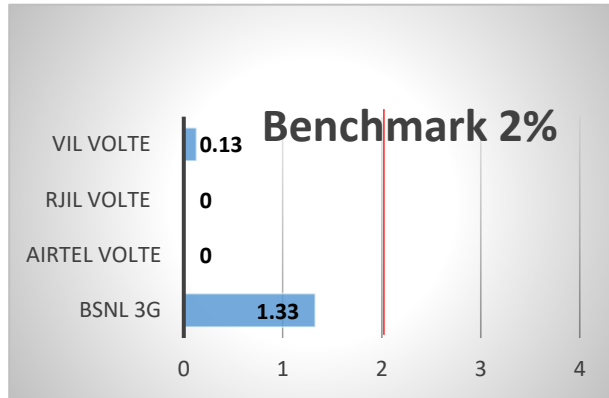


# Voice Calls

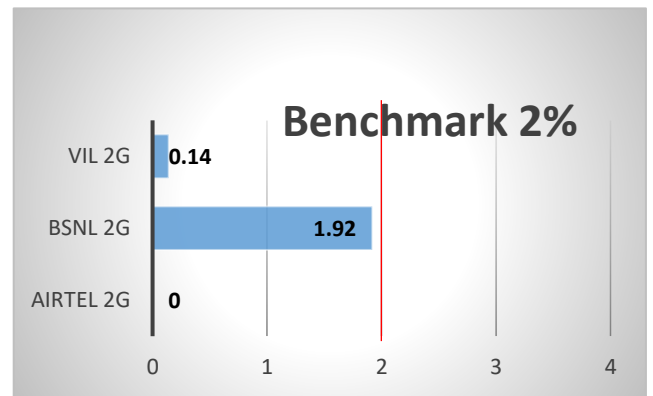
## Key Observations

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

Drop Call Rate (%)

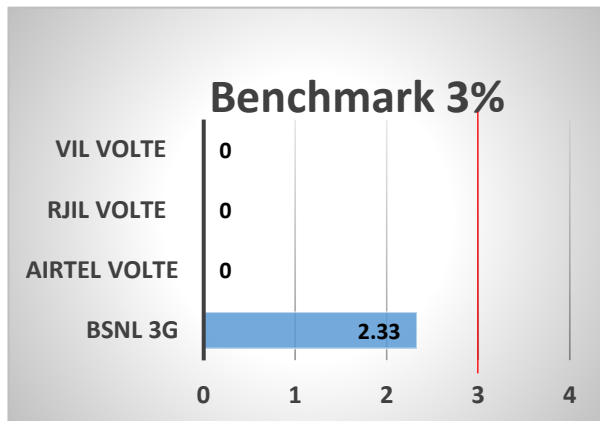


3G/VoLTE Network

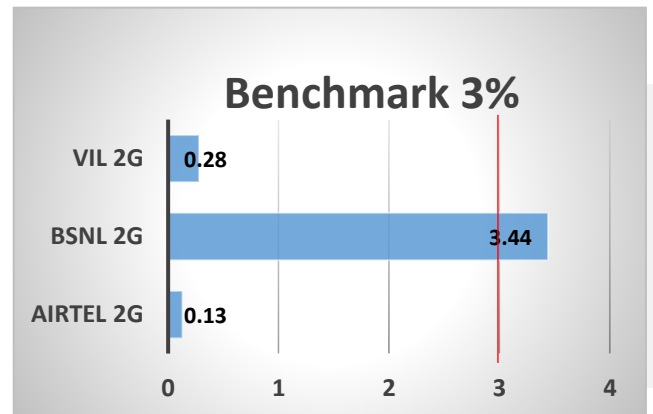


2G Network

Block Call Rate (%)



3G / VoLTE Network



2G Network

KPIs	2G			3G	VoLTE		
	Airtel	BSNL	VIL	BSNL	Airtel	RJIL	VIL
Drop Call Rate %	0	1.92	0.14	1.33	0	0	0.13
Block Call Rate %	0.13	3.44	0.28	2.33	0	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 except BSNL 2G.

## Coverage

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

TSPS	2G		
	Airtel	BSNL	VIL
Coverage %	96.3	97.69	89.74

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

TSP	3G	VoLTE ( $\geq$ -110 dBm)		
	BSNL	Airtel	JIO	VIL
Coverage %	89.5	99.61	99.70	95.30

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

TSP	3G	VoLTE		
	BSNL	Airtel	JIO	VIL
Time spent %	71.2	100	100	99.93



# Data Services Static

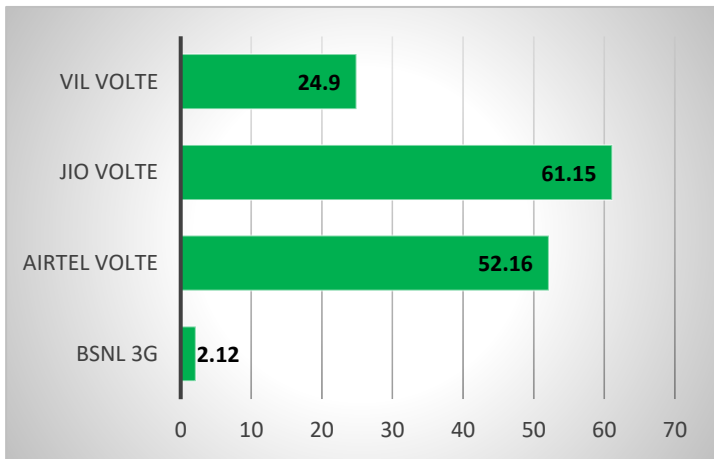
**Key Observations  
(Average of 7  
Hotspots)**

Data was tested at 7 locations .Following services were tested: Data Download/Upload, Latency (www.google.com), and Web browsing delay (Flipkart, Amazon, Myntra)

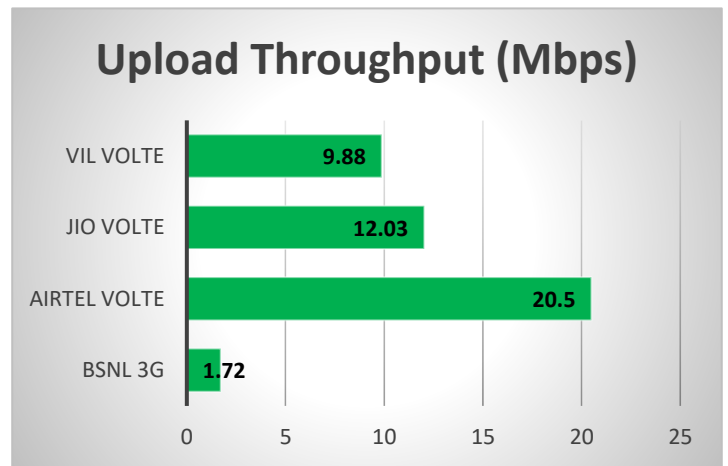
## Data Download and Upload Performance (Mbps)

3G/4G Network:

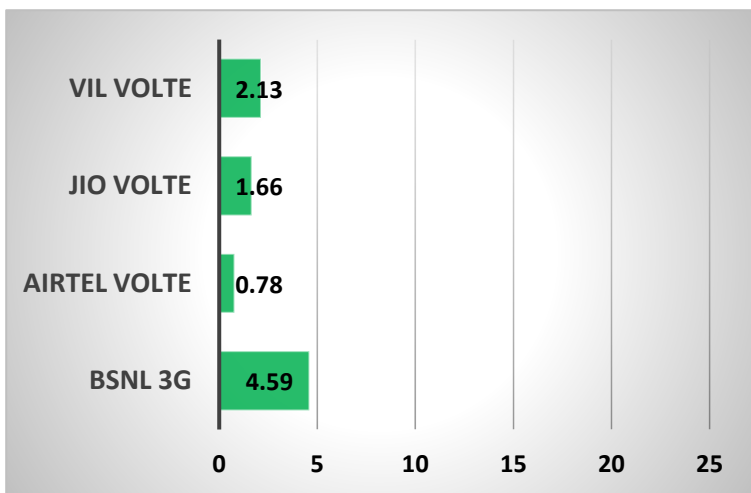
### Download Throughput (Mbps)



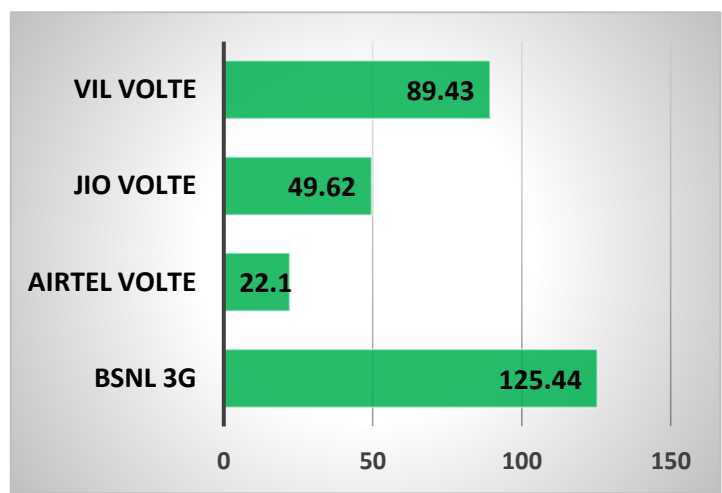
### Upload Throughput (Mbps)



### Web Browsing delay (Sec)



### Latency (ms)



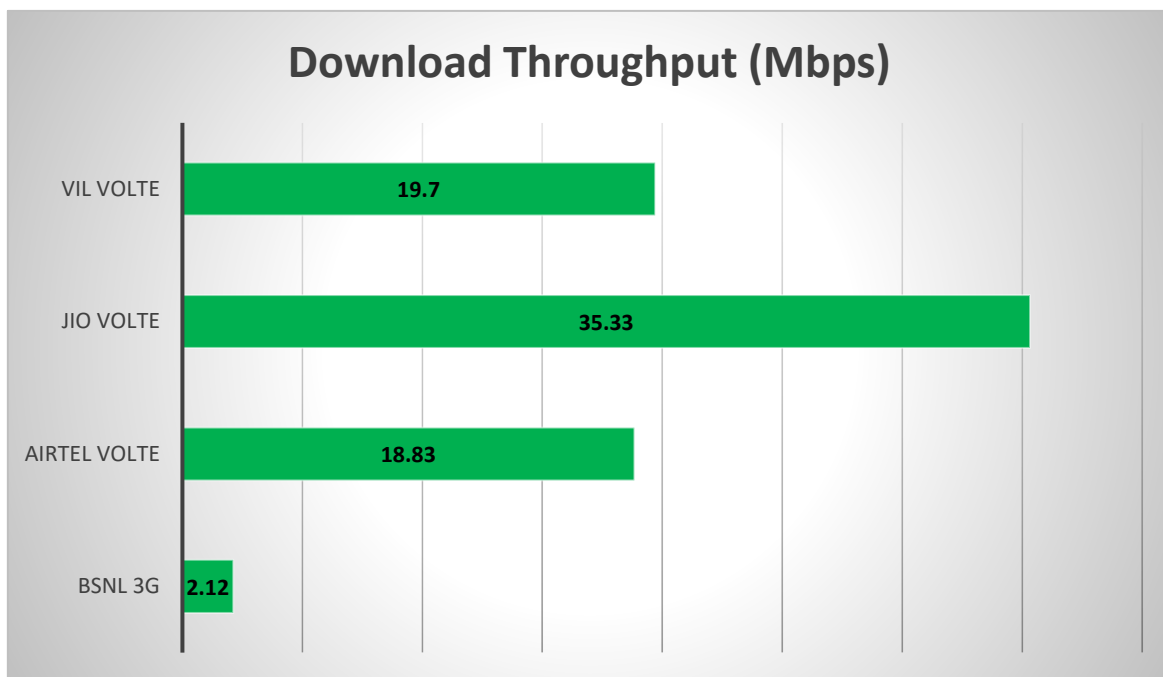
# Data Services Dynamic

Key Observations

Dynamic Data was tested for 422 Kms. Download Throughput was tested.

## Data Download Performance (kbps) - Dynamic

3G/4G Network:



Data Services Dynamic	VoLTE			
	BSNL 3G	Airtel 4G	JIO 4G	VIL 4G
Download throughput in Mbps	2.12	18.83	35.33	19.7

# Summary

## SSA Level Summary-Voice

Voice Call	2G		
	Airtel	BSNL	VIL
Call Attempt	715	755	727
Blocked Call Rate (%)	0.13	3.44	0.28
CSSR% (Accessibility)	99.86	96.55	99.72
Drop Call Rate (%)	0	1.92	0.14
Mobility HOSR (%)	96.02	96.34	99.65
Rx Quality (%)	95.11	94.2	96.1
Average CT(Sec)	2.4	2.9	5.89

Voice Call	3G	VoLTE		
	BSNL	Airtel VoLTE	JIO VoLTE	VIL VoLTE
Call Attempt	616	739	775	748
Blocked Call Rate (%)	2.33	0	0	0
CSSR% (Accessibility)	97.67	100	100	100
Drop Call Rate (%)	1.33	0	0	0.13
Mobility HOSR (%)	100	99.94	99.67	99.86
Rx Quality (%)	95.58	93.97	97.75	97.18
Average CT(Sec)	2.7	0.65	1.01	0.82



# Summary

## SSA Level Summary- (Average of 7 hotspots)- Data Services

Data Services Static	2G		
	Airtel	BSNL	VIL
Download Throughput (Kbps)	199	92.15	49.00
Upload Throughput (Kbps)	46.42	54.32	35.45
Web Browsing Delay (sec)	5.74	9.86	14.66
Latency (msec)	91.93	265.49	188.79

Data Services Static	3G	VoLTE		
	BSNL	Airtel VoLTE	JIO VoLTE	VIL VoLTE
Download Throughput (Mbps)	2.12	52.16	61.15	24.90
Upload Throughput (Mbps)	1.72	20.5	12.03	9.88
Video streaming delay (sec)	10.15	0	0.95	1.02
Web Browsing Delay (sec)	4.59	0.78	1.66	2.13
Latency (msec)	125.44	22.1	49.62	89.43

RGIA Shamshabad	2G		
	Airtel	BSNL	VIL
Download Throughput (kbps)	200.6	143	52.24
Upload Throughput (kbps)	31.6	77.41	31.28
Web Browsing Delay (sec)	6.12	8.18	14.5
Latency (msec)	109	323.29	167

Mindspace( IT Park)	2G		
	Airtel	BSNL	VIL
Download Throughput (kbps)	188.8	45.78	43.8
Upload Throughput (kbps)	59.8	28.63	43.02
Web Browsing Delay (sec)	6.2	10.99	13.6
Latency (msec)	76.6	306.8	187.4

Jubilee Bus Stand	2G		
	Airtel	BSNL	VIL
Download Throughput (kbps)	205.8	77.53	46.63
Upload Throughput (kbps)	56.4	27.26	52.41
Web Browsing Delay (sec)	5.21	22.4	13.6
Latency (msec)	82.25	330	193.7

Secunderabad Railway Station	2G		
	Airtel	BSNL	VIL
Download Throughput (kbps)	223.2	123.66	36.78
Upload Throughput (kbps)	49.2	88	34.94
Web Browsing Delay (sec)	4.93	10.93	14.8
Latency (msec)	68.25	218.4	201.4

Nampally Railway Station	2G		
	Airtel	BSNL	VIL
Download Throughput (kbps)	170.4	82.64	52.02
Upload Throughput (kbps)	41.2	44.97	25.48
Web Browsing Delay (sec)	5.37	7.02	14.6
Latency (msec)	128.1	207.23	179

Mahatma Gandhi Bus Stand	2G		
	Airtel	BSNL	VIL
Download Throughput (kbps)	200.6	89.85	53.22
Upload Throughput (kbps)	57.8	69.03	29
Web Browsing Delay (sec)	6.5	2.5	13.5
Latency (msec)	93.7	339.27	195

Osmania Hospital	2G		
	Airtel	BSNL	VIL
Download Throughput (kbps)	203.6	6.98	58.32
Upload Throughput (kbps)	29	43.23	32
Web Browsing Delay (sec)	6.5	10.617	18
Latency (msec)	78.3	614.93	198

RGIA Shamshabad	3G	4G		
	BSNL	Airtel	JIO	VIL
Download throughput in Mbps	3.71	75.8	63.28	32.18
Upload Throughput in Mbps	1.56	17.6	9.98	11.58
Video streaming delay in sec	13	0	0.76	0.98
Web browsing delay in second	1.48	0.66	1.9	2.12
Latency in (msec)	63.46	22.4	55.5	71

Mindspace( IT Park)	3G	4G		
	BSNL	Airtel	JIO	VIL
Download throughput in Mbps	0.98	32.2	35.74	29.62
Upload Throughput in Mbps	0.56	19	7.09	14.36
Video streaming delay in sec	3.02	0	1.08	1.01
Web browsing delay in second	8	0.68	1.86	1.98
Latency in (msec)	134	18.8	53.4	75.4

Jubilee Bus Stand	3G	4G		
	BSNL	Airtel	JIO	VIL
Download throughput in Mbps	1.8	51.9	58.47	18.27
Upload Throughput in Mbps	1.2	24	10.79	8.89
Video streaming delay in sec	12	0	0.93	0.95
Web browsing delay in second	3.58	1	1.71	2.33
Latency in (msec)	102	23.1	47.2	82.2

Secunderabad Railway station	3G	4G		
	BSNL	Airtel	JIO	VIL
Download throughput in Mbps	1.57	37.6	65.19	24.66
Upload Throughput in Mbps	0.98	20.6	14.85	8.02
Video streaming delay in sec	17	0	0.9	1.23
Web browsing delay in second	9.16	0.73	1.77	2.67
Latency in (msec)	92	24.6	50.8	109.2

Nampally Railway station	3G	4G		
	BSNL	Airtel	JIO	VIL
Download throughput in Mbps	1.28	86.2	65.72	16.90
Upload Throughput in Mbps	2.22	19.2	12.6	7.92
Video streaming delay in sec	14	0	0.93	1.03
Web browsing delay in second	3.58	0.93	1.38	1.98
Latency in (msec)	180.22	22.7	50.04	108.2

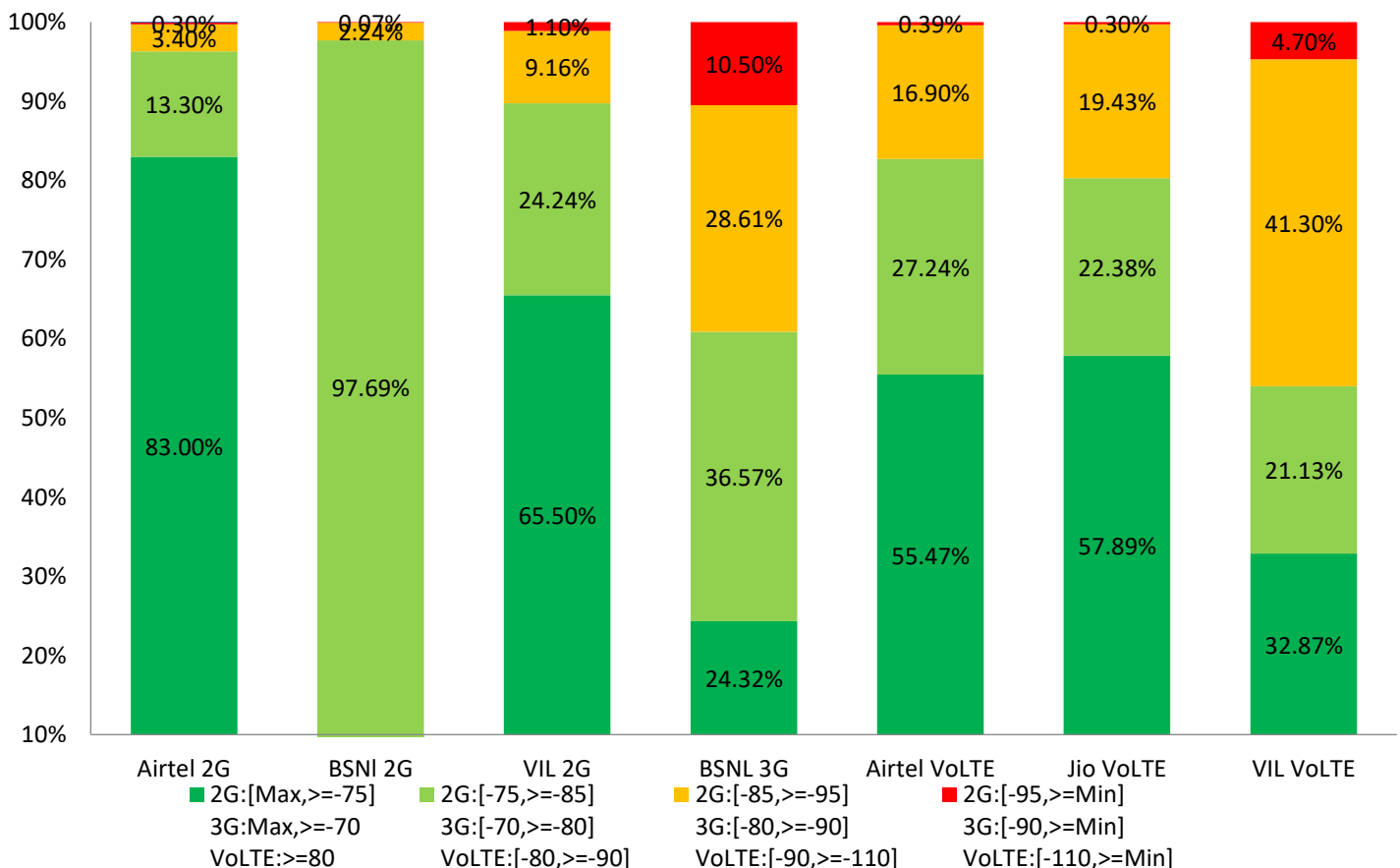
Mahatma Gandhi Bus Stand	3G	4G		
	BSNL	Airtel	JIO	VIL
Download throughput in Mbps	3.725	38.6	62.34	33.56
Upload Throughput in Mbps	2.546	24.2	13.37	10.5
Video streaming delay in sec	4	0	1.02	0.98
Web browsing delay in second	3.68	0.74	1.83	1.94
Latency in (msec)	81	18.6	47.2	81.2

Osmania Hospital	3G	4G		
	BSNL	Airtel	JIO	VIL
Download throughput in Mbps	1.75	42.8	77.36	19.08
Upload Throughput in Mbps	2.98	18.9	15.53	7.89
Video streaming delay in sec	8	0	1	0.99
Web browsing delay in second	2.66	0.73	1.19	1.86
Latency in (msec)	225.4	24.3	43.2	98.8

# 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	<b>96.3</b>
BSNL 2G	<b>97.69</b>
VIL 2G	<b>89.74</b>
BSNL 3G	<b>89.50</b>
Airtel VoLTE	<b>99.61</b>
Jio VoLTE	<b>99.7</b>
VIL VoLTE	<b>95.30</b>



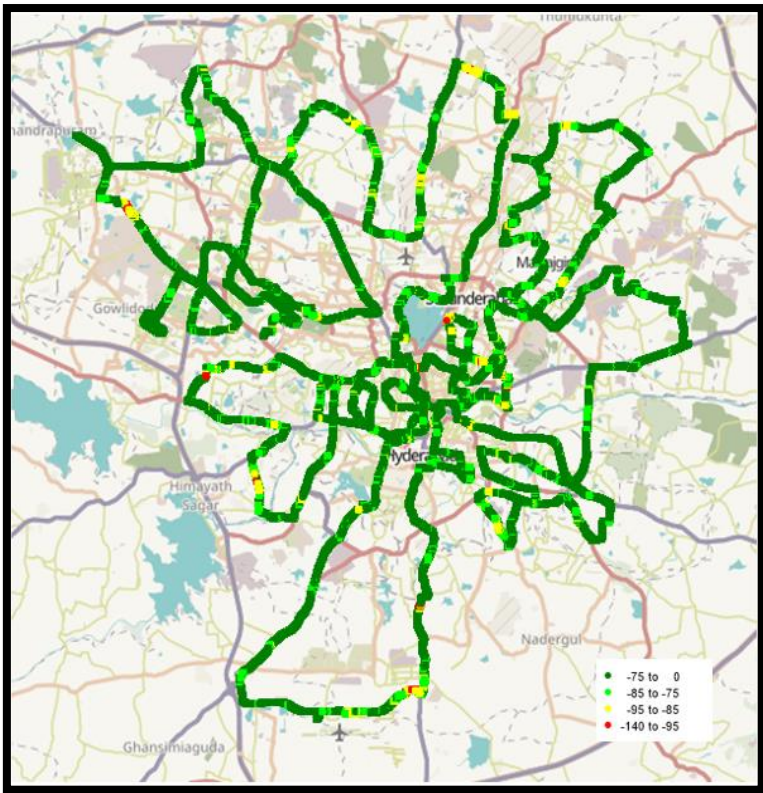


# I. Coverage Details

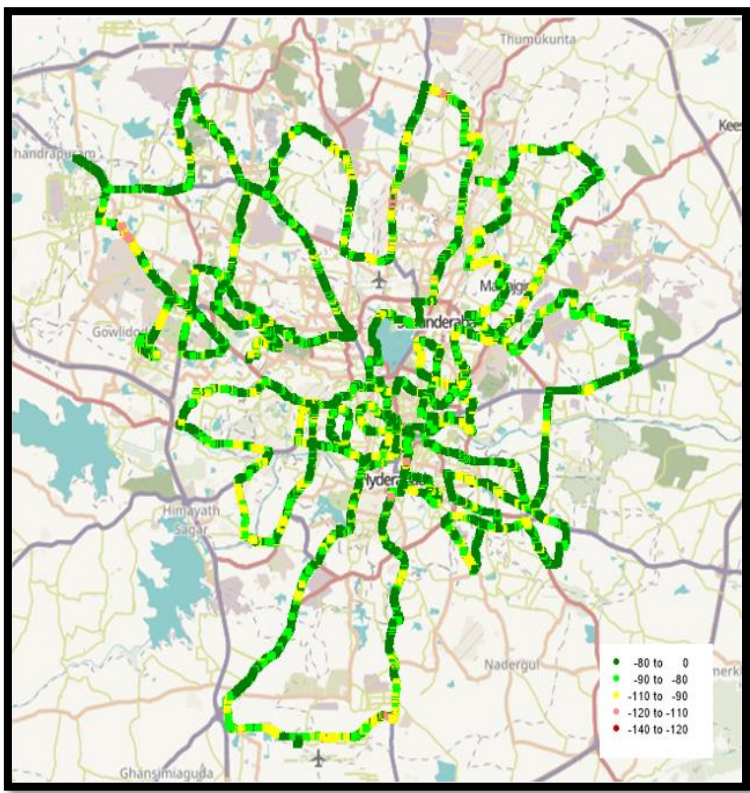
## AIRTEL

TSP	Coverage Rate %
Airtel 2G	<b>96.3</b>
Airtel VoLTE	<b>99.61</b>

### 2G



### VoLTE



Overall RxLevel	# Samples	%
[Max, >=-75]	4399768	83.0%
[-75, >=-85]	706502	13.3%
[-85, >=-95]	181179	3.4%
[-95, >=Min]	14240	0.3%
<b>Total</b>	<b>5301689</b>	

Overall RSRP	# Samples	%
[Max, >=-80]	3984057	55.47%
[-80, >=-90]	1956735	27.24%
[-90, >=-110]	1213432	16.90%
[-110, >=-120]	25951	0.36%
[-120, >=Min]	2002	0.03%

# I. Coverage Details

## BSNL

Technology	Coverage Rate %
2G	97.69
3G	89.50

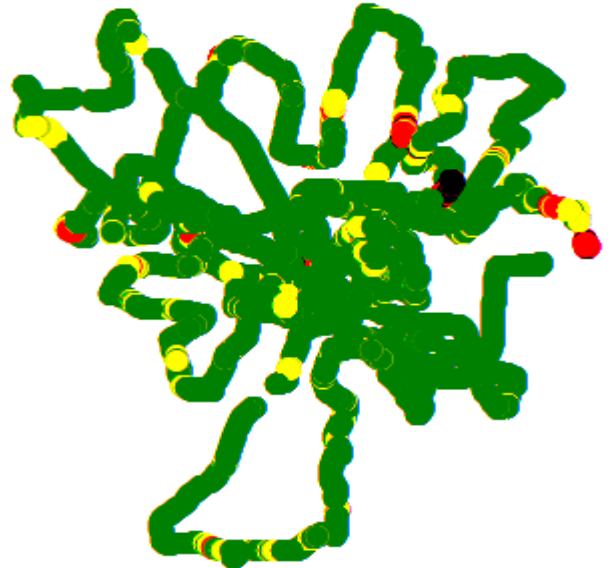
**2G**

**3G**

2G RX Level Map



Dual Mode 3G Mobile Level Map



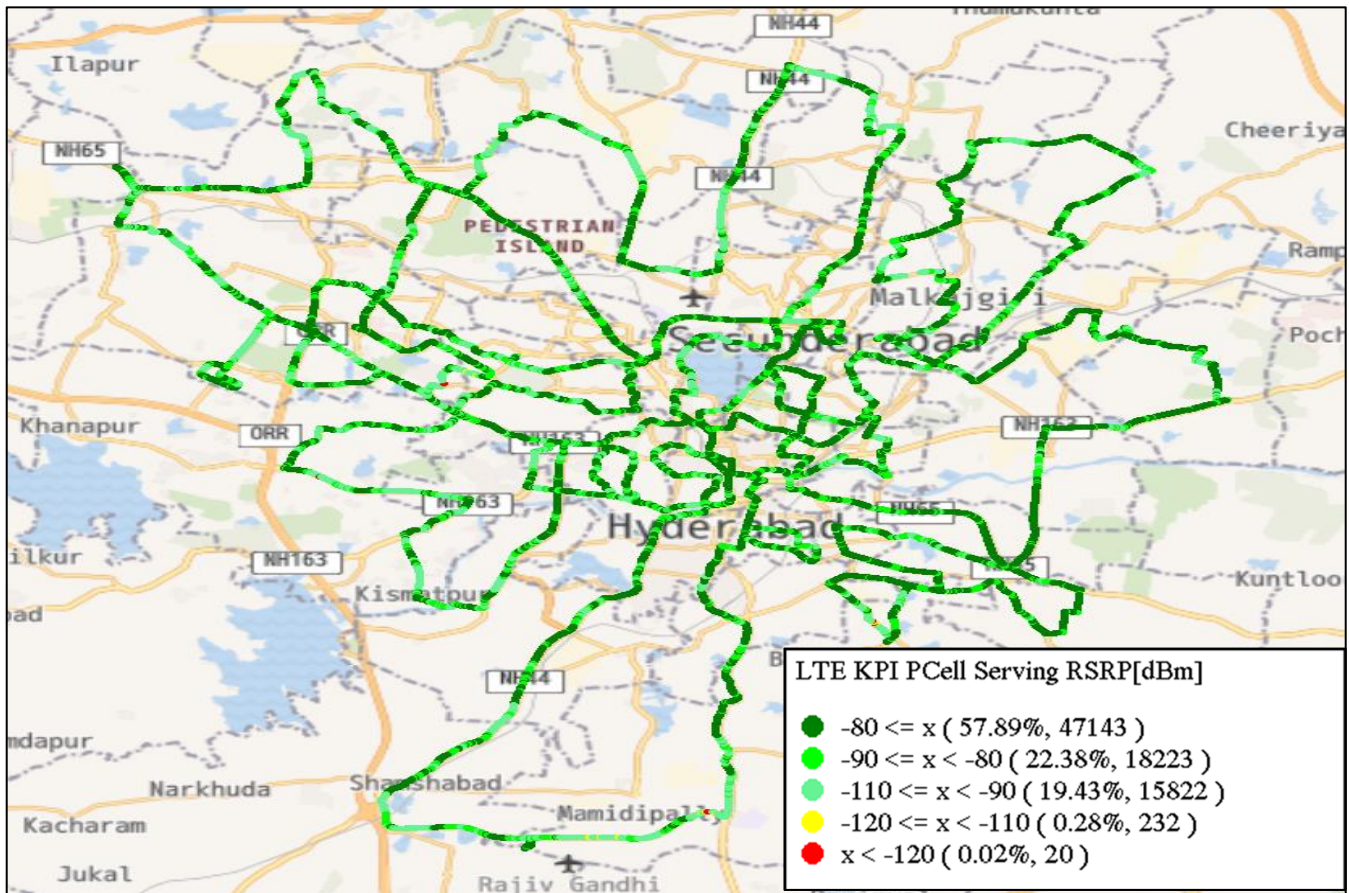
Overall RxLevel	# Samples	%
[Max, >=-75]	0	0
[-75, >=-85]	129640	97.69
[-85, >=-95]	2986	2.24%
[-95, >=Min]	93	0.07%
<b>Total</b>	<b>132719</b>	<b>100</b>

3G		
Overall RSCP	# Samples	%
[Max, >=-70]	42173	24.32
[-70, >=-80)	63422	36.57
[-80, >=-90)	49615	28.61
[-90, >=Min)	18215	10.50
<b>Total</b>	<b>173425</b>	<b>100</b>

# I. Coverage Details

## JIO

Technology	Coverage Rate %
VoLTE	99.70



VoLTE		
Overall RSRP	# Samples	%
[Max, $\geq -80$ ]	47143	<b>57.89%</b>
$[-80, \geq -90]$	18223	<b>22.38%</b>
$[-90, \geq -110]$	15822	<b>19.43%</b>
$[-110, \geq -120]$	232	<b>0.28%</b>
$[-120, \geq \text{Min}]$	20	<b>0.02%</b>
<b>Total</b>	<b>81440</b>	<b>100</b>

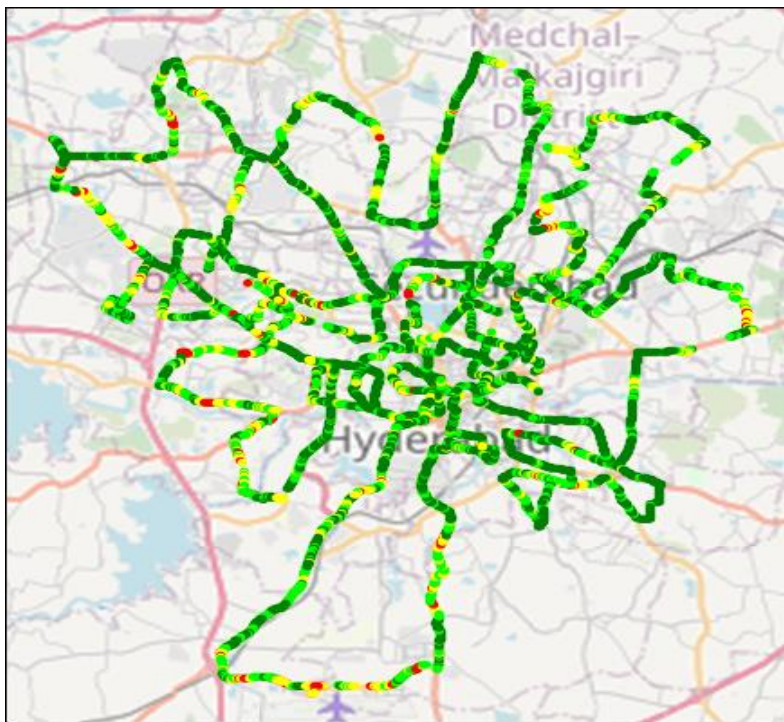


# I. Coverage Details

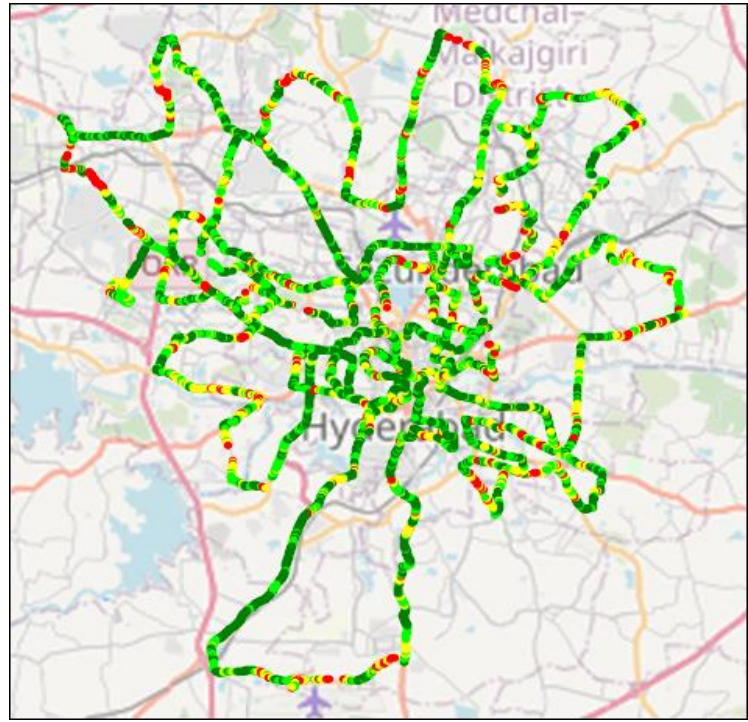
## VIL

Technology	Coverage Rate %
2G	89.74
VoLTE	95.30

### 2G



### VoLTE



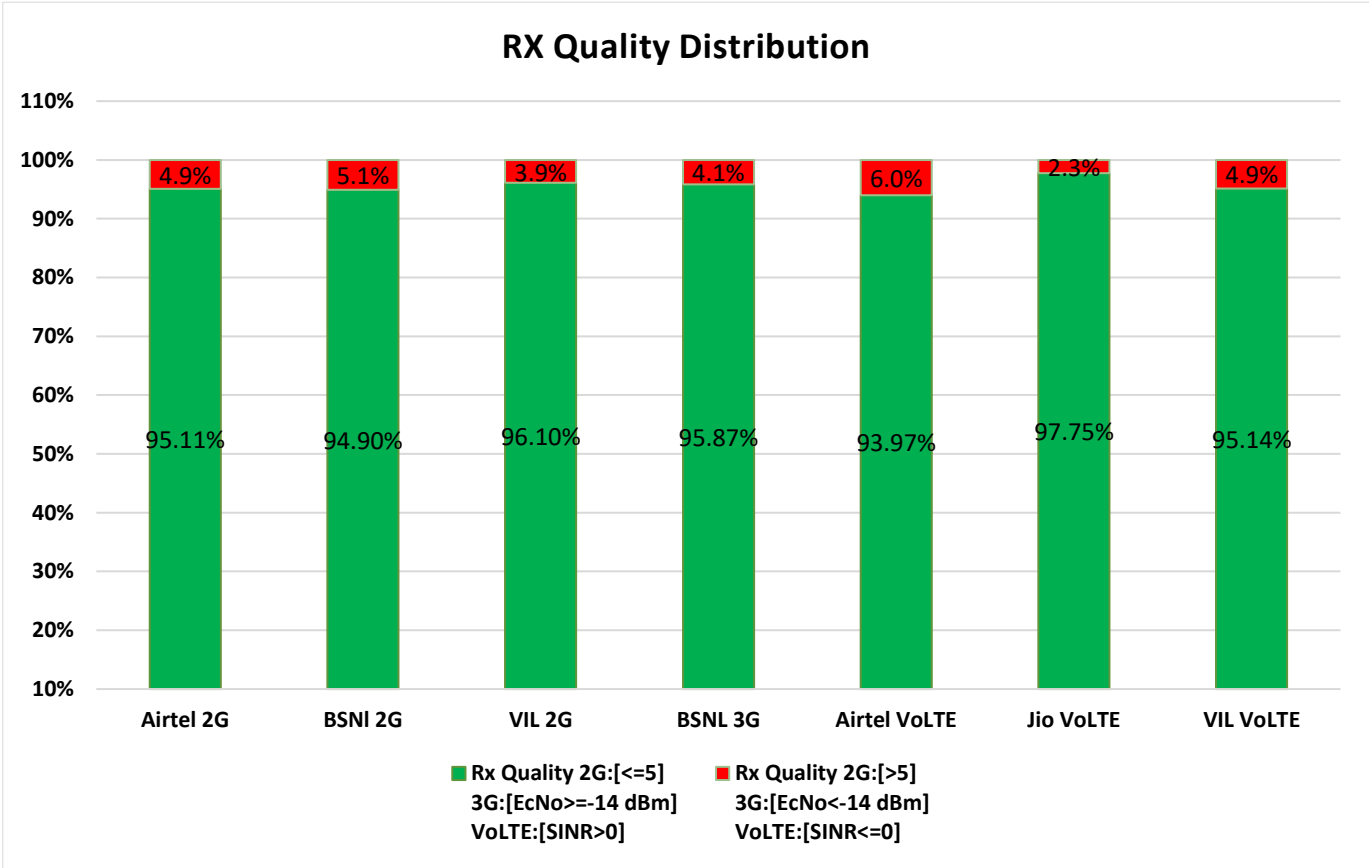
Overall RxLevel	# Samples	%
[Max, >=-75]	3781363	65.50
[-75, >=-85]	1398776	24.23
[-85, >=-95]	528957	9.16
[-95, >=Min]	63559	1.10
<b>Total</b>	<b>5772655</b>	<b>100</b>

VoLTE		
Overall RSRP	# Samples	%
[Max, >=-80]	3544056	32.87
[-80, >=-90]	2277941	21.13
[-90, >=-110]	4452800	41.30
[-110, >=-Min]	506962	4.70
<b>Total</b>	<b>10781759</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, whereas quality beyond this benchmark is considered to be bad. The benchmark should usually be  $\geq 95\%$ .

TSP	Rx Quality %
Airtel 2G	<b>95.11</b>
BSNL 2G	<b>94.90</b>
VIL 2G	<b>96.10</b>
BSNL 3G	<b>95.87</b>
Airtel VoLTE	<b>93.97</b>
Jio VoLTE	<b>97.75</b>
VIL VoLTE	95.14

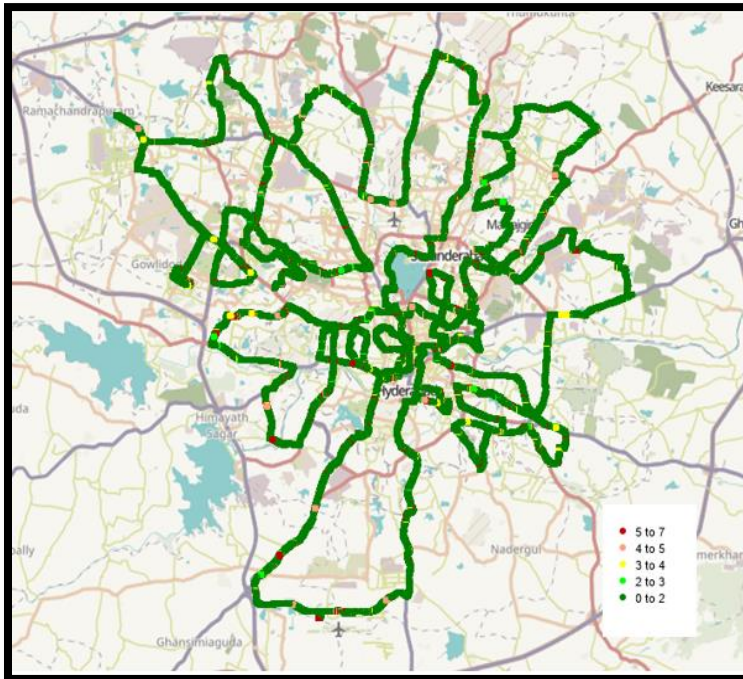


## II. Quality Details

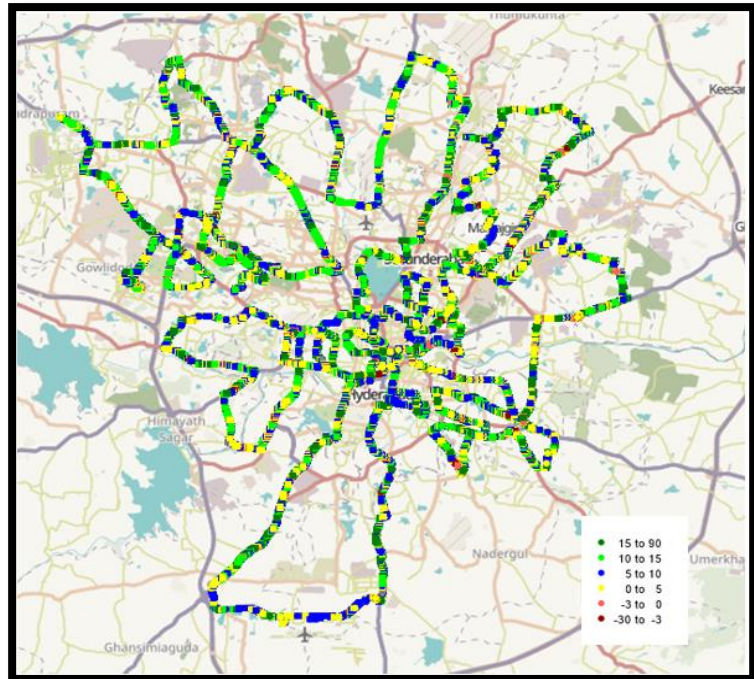
### Airtel

Technology	Rx Quality %
2G	95.11
VoLTE	93.97

#### 2G



#### VoLTE



Overall Rx Quality	# Samples	%
(Min, <=2)	3969698	89.60%
(2, <=3)	78829	1.78%
(3, <=4)	85594	1.93%
(4, <=5)	79712	1.80%
(5, <=Max)	216497	4.89%
<b>Total</b>		<b>95.11%</b>

Overall SINR	# Samples	%
(Min, <=-3)	216730	2.09%
(-3, <=0)	407591	3.94%
(0, <=5)	2914096	28.14%
(5, <=10)	2910006	28.10%
(10, <=15)	2371448	22.90%
(15, <=Max)	1536299	14.83%
<b>Total</b>	<b>10356170</b>	<b>93.97%</b>



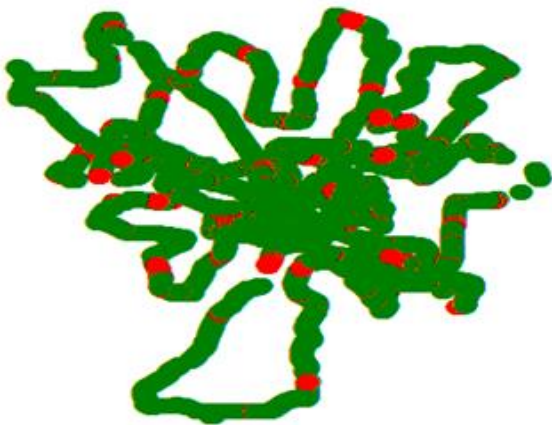
## II. Quality Details

### BSNL

Technology	Rx Quality %
2G	94.90
3G	95.87

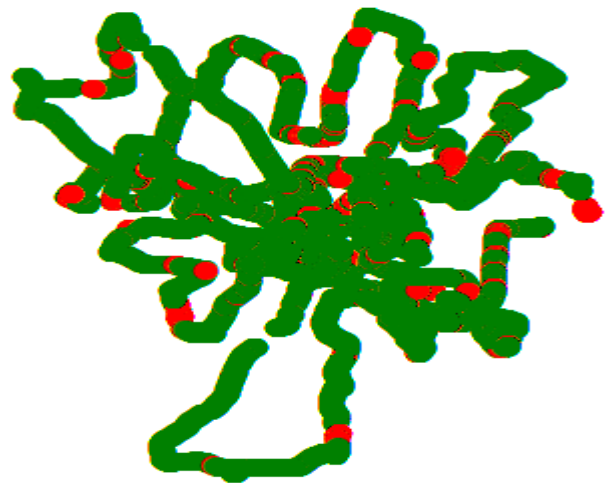
### 2G

2G Rx Quality Map



### 3G

Dual 3G Mobile Quality Map

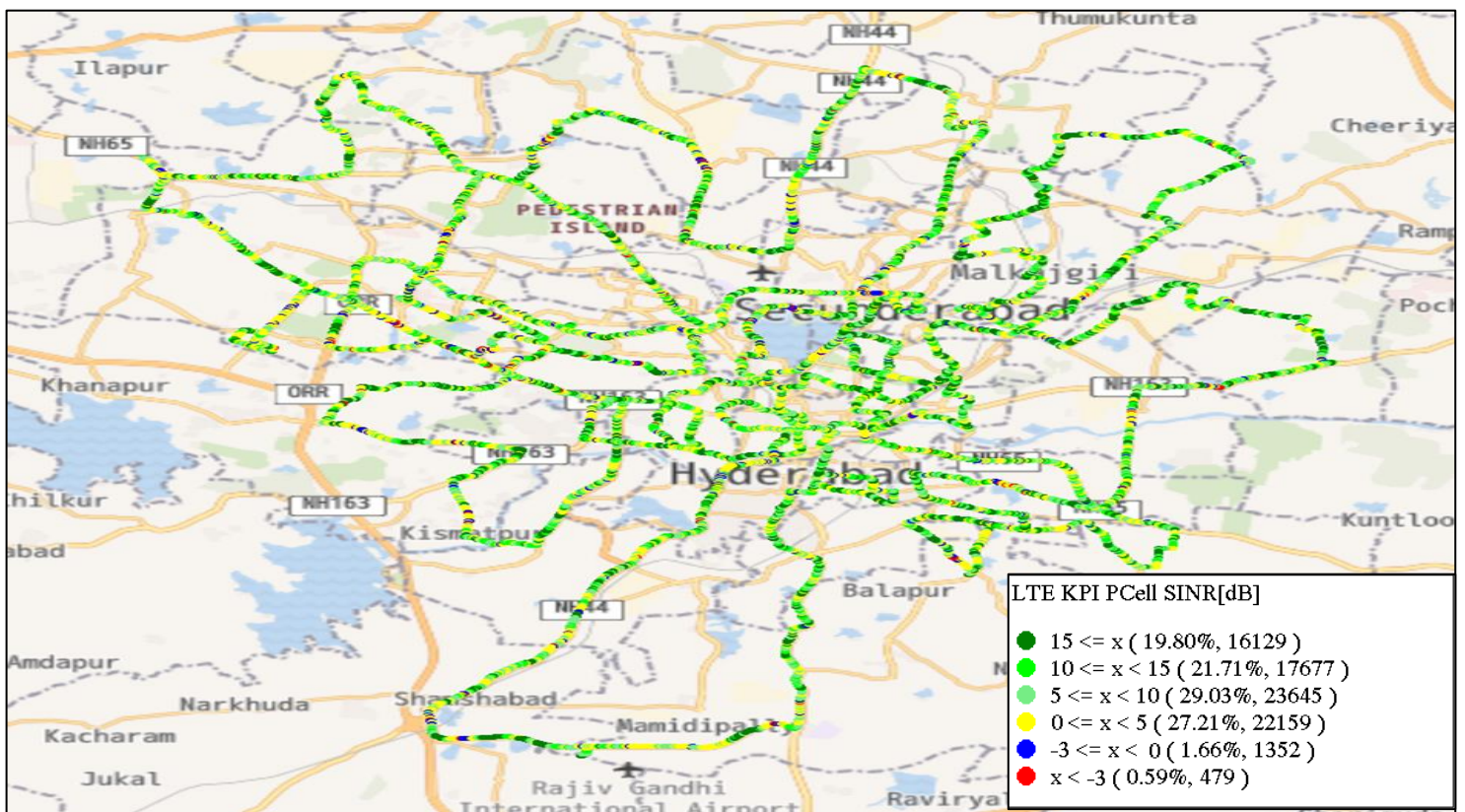


Overall Rx Quality	# Samples	%
(Min, <=2)		
(2, <=3)		
(3, <=4)	125958	94.90
(4, <=5)		
(5, <=Max)	6761	5.10
<b>Total</b>	<b>132719</b>	<b>100</b>

Overall EcNo	# Samples	%
(Max, <=-6)		
(-6, <=-9)		
(-9, <=-11)	166259	95.87
(-11, <=-14)		
(-14, <= Min)	7166	4.13
<b>Total</b>	<b>173425</b>	<b>100</b>

## II. Quality Details

JIO	
Technology	Rx Qualit %
VoLTE	97.75



Overall SINR	# Samples	%
(15, <=Max)	16129	19.80%
(10, <=15)	17677	21.71%
(5, <=10)	23645	29.03%
(0, <=5)	22159	27.21%
(-3, <=0)	1352	1.66%
(Min, <=-3)	479	0.59%
<b>Total</b>	<b>81441</b>	<b>100</b>

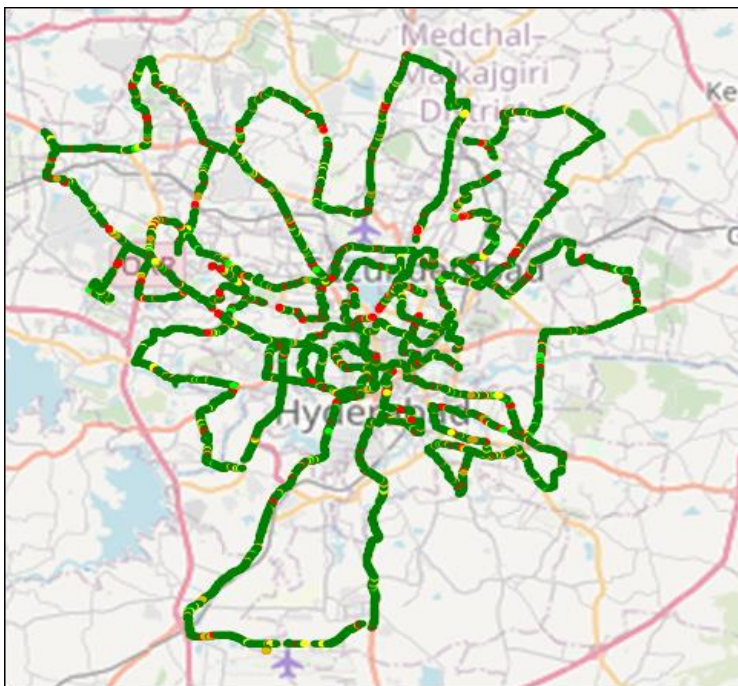
## II. Quality Details

For measuring voice quality, as per the QoS norms, RxQual  $\leq 5$  for GSM TSPs, EcNo  $\geq -14$  dBm for 3G TSPs and SINR  $> -3$  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  $\geq 95\%$ .

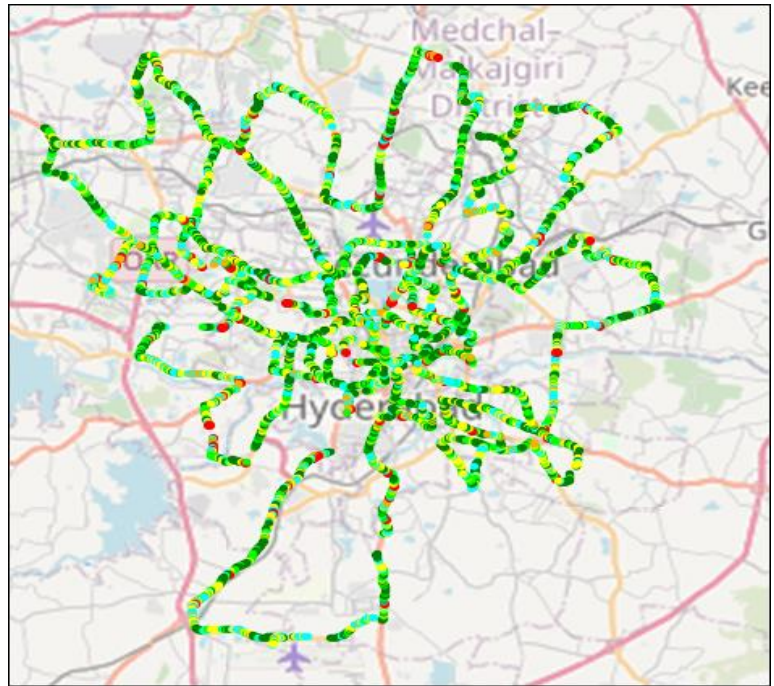
### VIL

Technology	Rx Quality %
2G	96.10
VoLTE	95.14

### 2G



### VoLTE

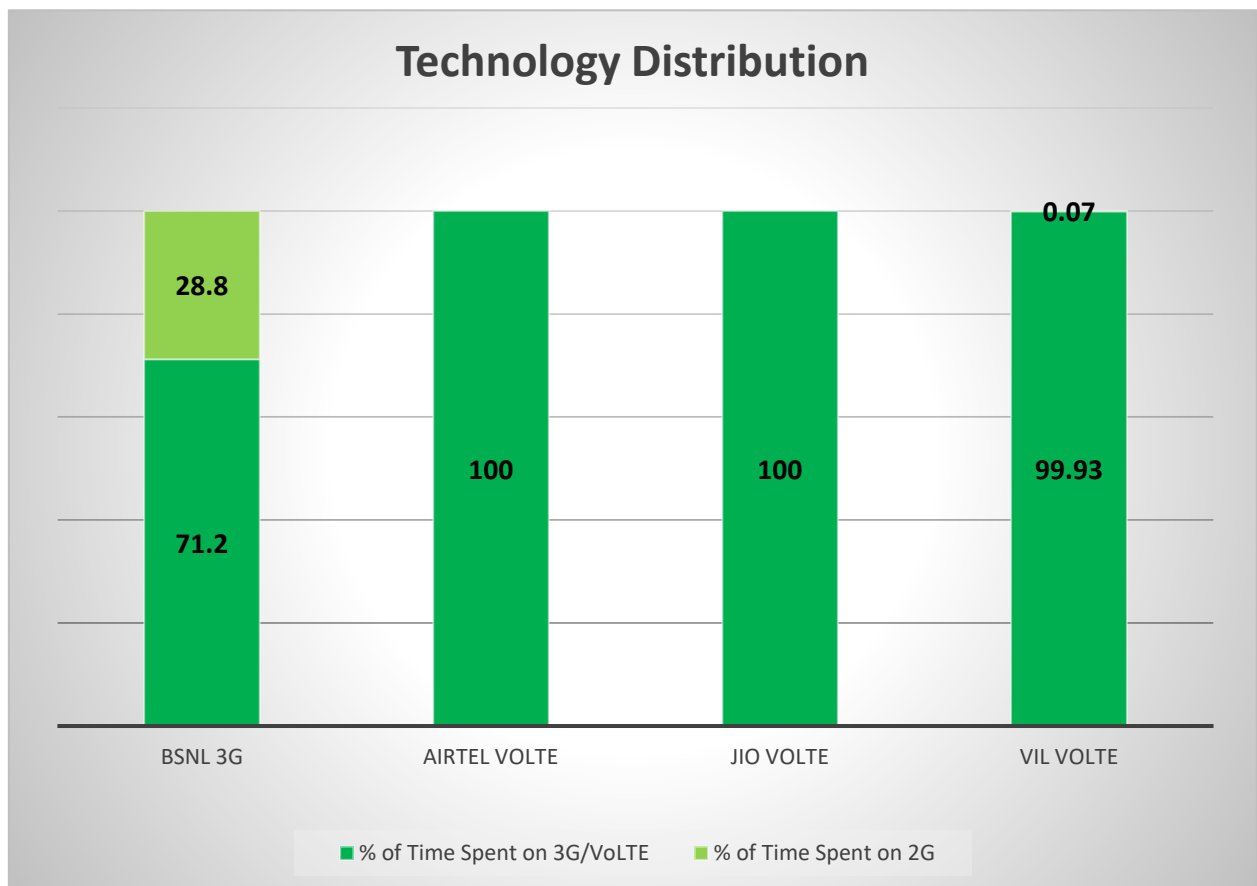


Overall Rx Quality	# Samples	%
(Min, $\leq 2$ )	5254839	92.06
(2, $\leq 3$ )	73707	1.29
(3, $\leq 4$ )	77584	1.36
(4, $\leq 5$ )	79579	1.39
(5, $\leq$ Max)	222647	3.90
<b>Total</b>	<b>5708356</b>	<b>100</b>

Overall SINR	# Samples	%
(Min, $\leq -3$ )	296834	2.82
(-3, $\leq 0$ )	214536	2.04
(0, $\leq 5$ )	154797	1.47
(5, $\leq 10$ )	794284	7.54
(10, $\leq 15$ )	2886791	27.40
(15, $\leq$ Max)	6187464	58.73
<b>Total</b>	<b>10534706</b>	<b>100</b>

### III. Technology Details

TSP	% of Time Spent on 3G/VoLTE
BSNL 3G	71.2
Airtel VoLTE	100
Jio VoLTE	100
VIL VoLTE	<b>99.93</b>



### III. Technology Details

#### Airtel

Technology	Time Spent on 4G
4G	100

#### BSNL

Technology	Time Spent on 3G
3G	71.2

#### JIO

Technology	Time Spent on 4G
4G	100

#### VIL

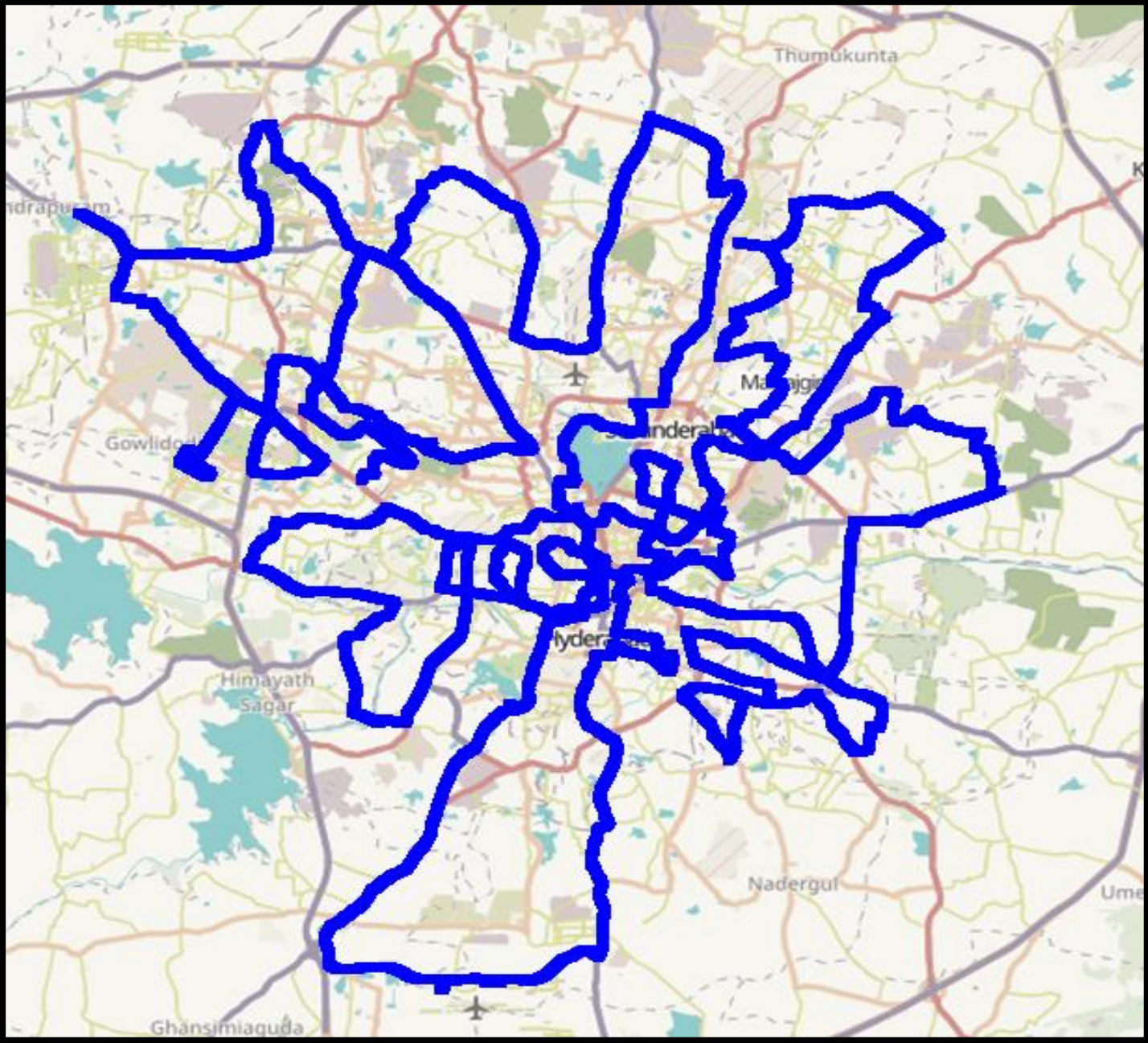
Technology	Time Spent on 4G
4G	99.93



### III. Technology Details

#### Airtel

Technology	Time Spent on 4G
4G	100%

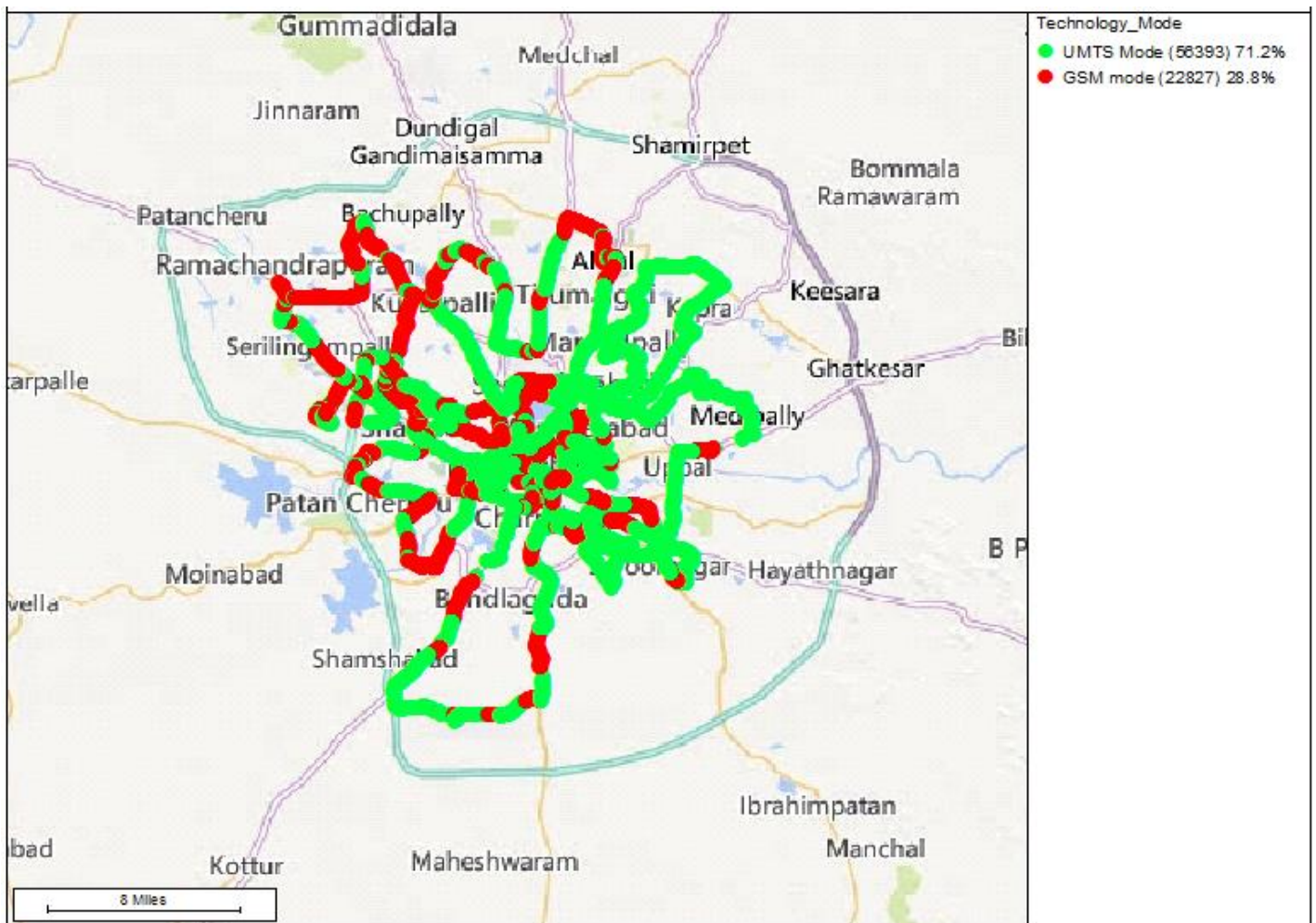




### III. Technology Details

#### BSNL

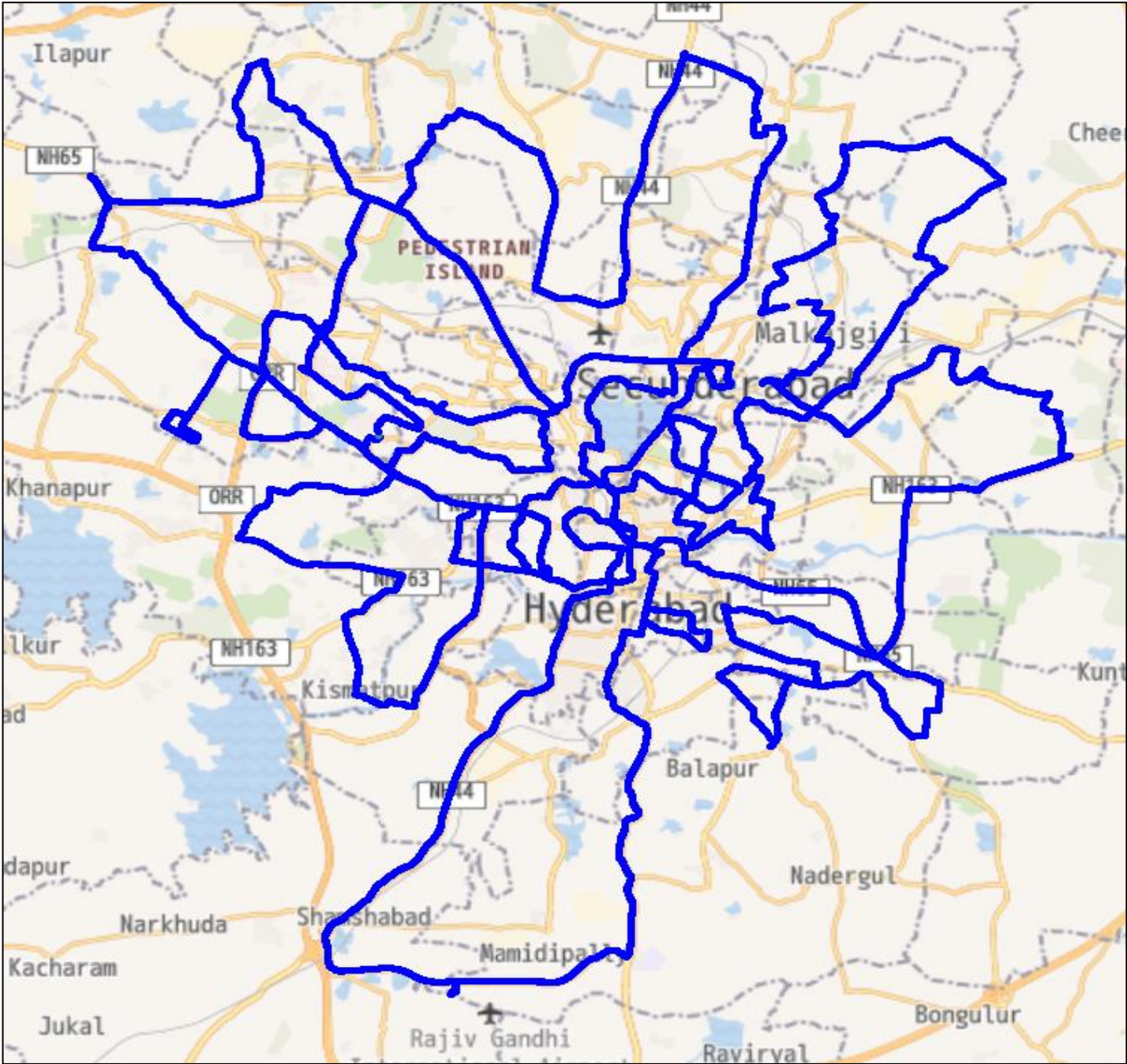
Technology	Time Spent on 3G
3G	71.2



### III. Technology Details

#### JIO

Technology	Time Spent on 4G
4G	100%

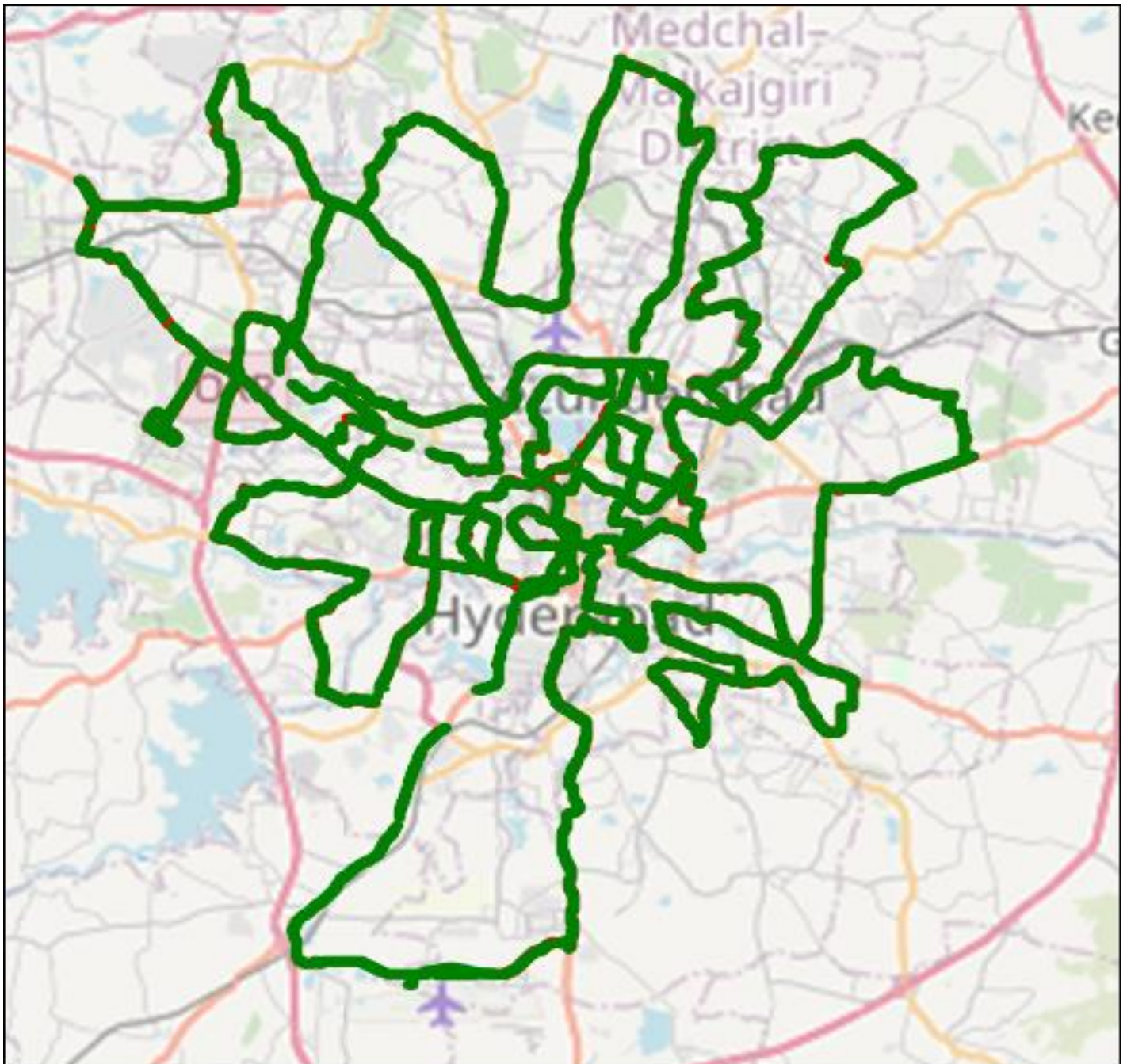




### III. Technology Details

#### VIL

Technology	Time Spent on 4G
4G	99.93 %

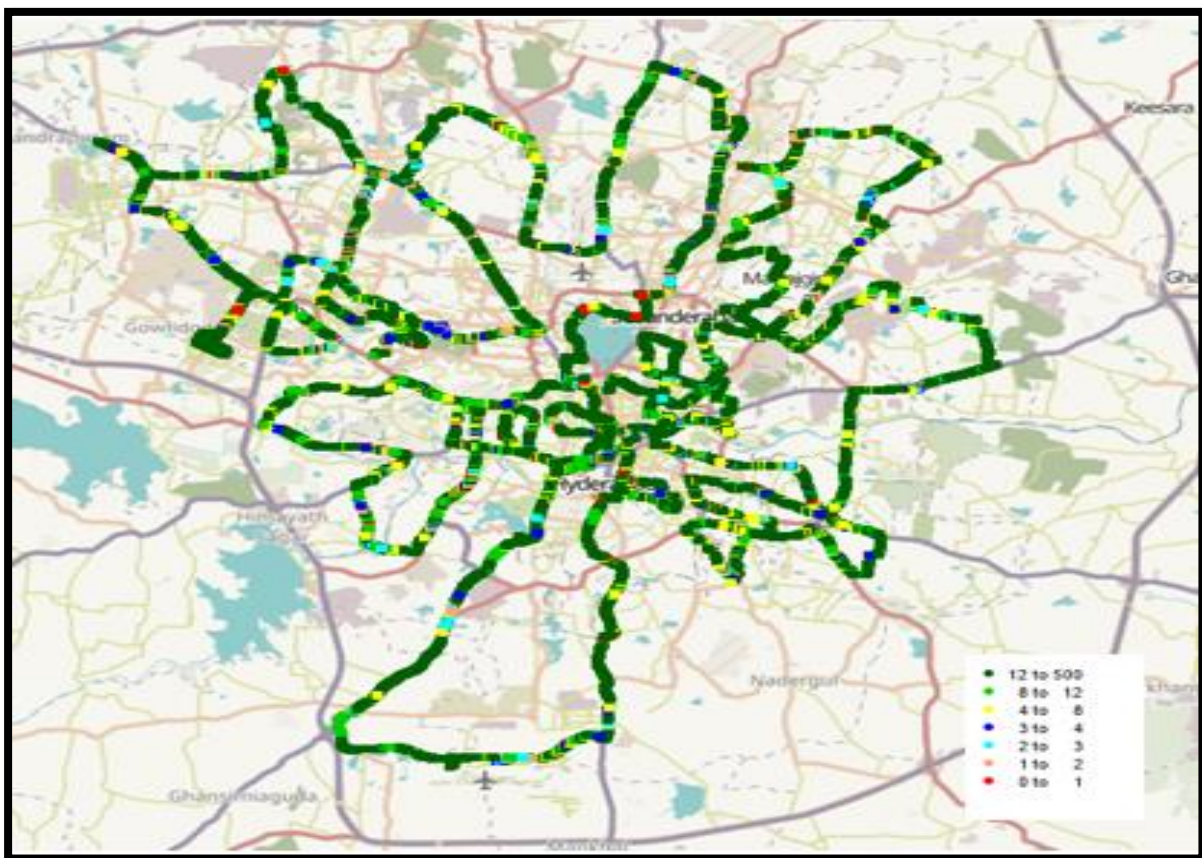


## IV. Dynamic Data Test- 4G DL Details

### Airtel

#### Data Statistics - Dynamic Complete SSA

Data KPIs – Overall	4G
Download Throughput (Mbps)	18.83



DL throughput	No of Sample	%
0 to 1 Mbps	404260	1.8%
1 to 2 Mbps	340626	1.5%
2 to 3 Mbps	750996	3.3%
3 to 4 Mbps	611625	2.7%
4 to 8 Mbps	2316415	10.2%
8 to 12 Mbps	2302954	10.1%
>12 Mbps	16085817	70.51%
<b>Total</b>	<b>22812693</b>	

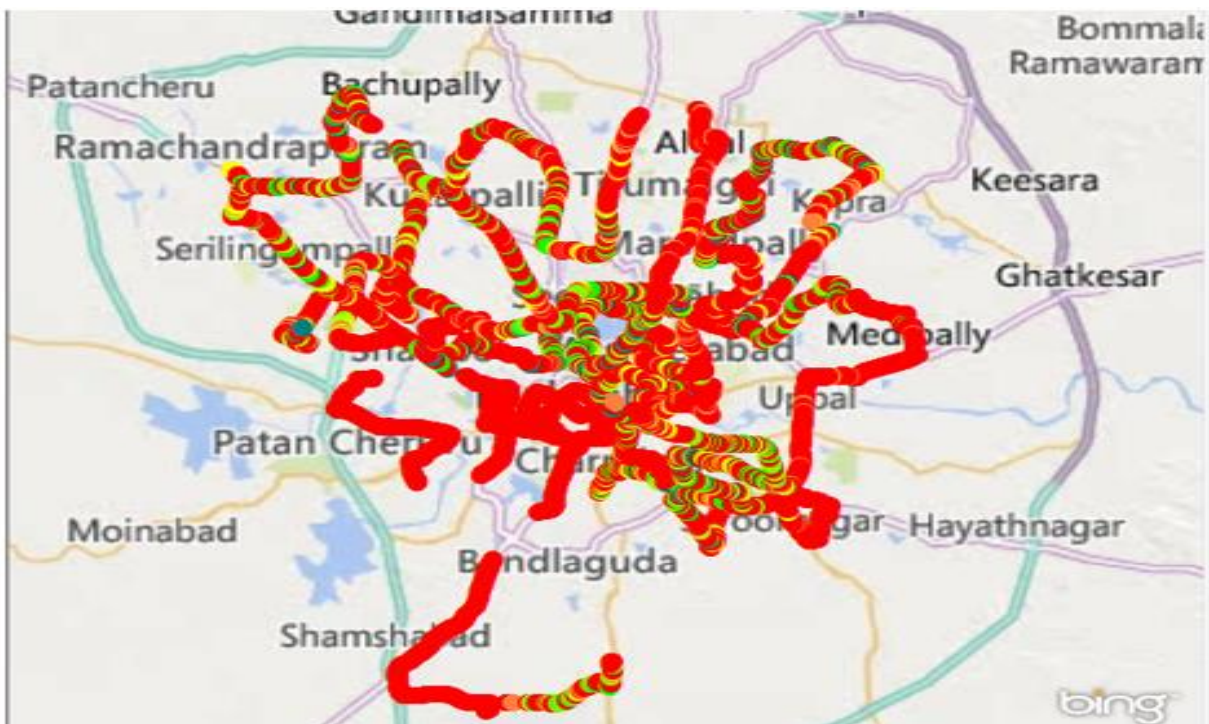


## IV. Dynamic Data Test- 3G DL Details

### BSNL

#### Data Statistics - Dynamic Complete SSA

Data KPIs - Overall	3G
Download Throughput (Mbps)	<b>2.12</b>



Range(Mbps)	Samples	Percentage
Below 0.256	2054	77.9%
0.256 to 0.512	1034	3.9%
0.512 to 1.024	1068	4.0%
1.024 to 2.048	1345	5.1%
2.048 to 4.096	1577	6.0%
Above 4.096	814	3.1%

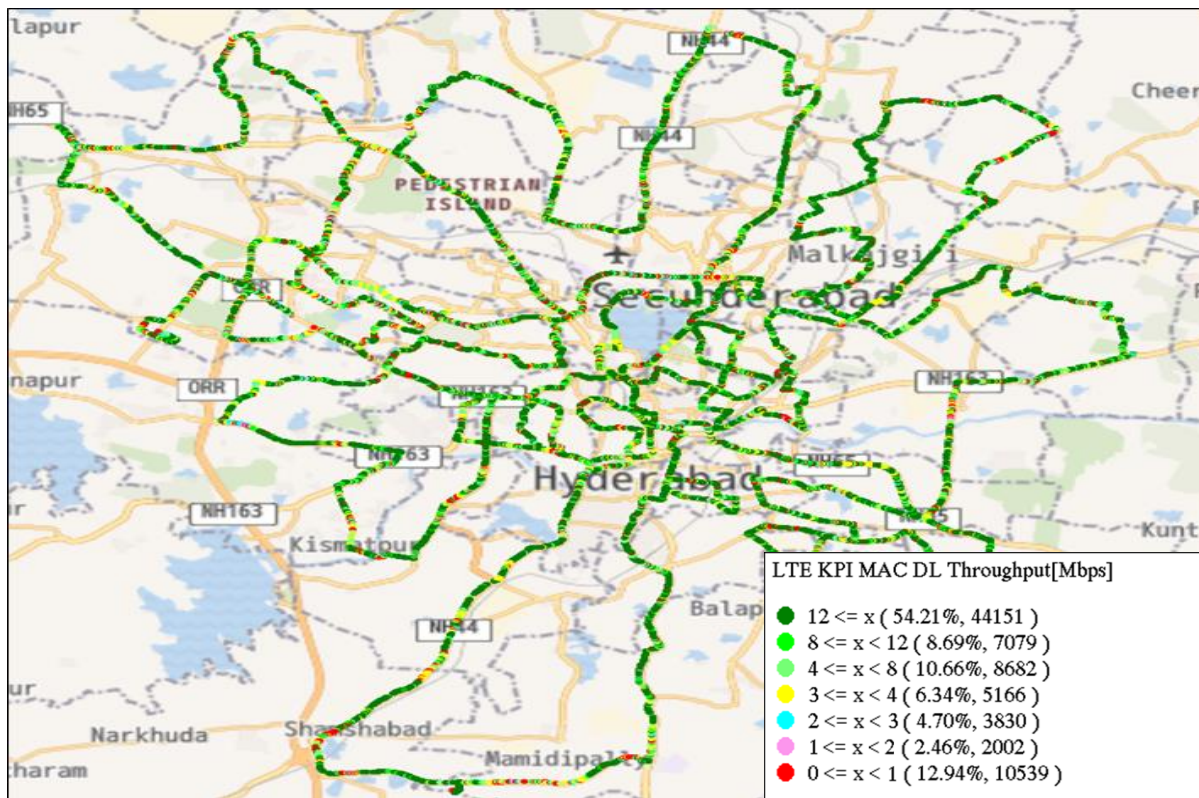


## IV. Dynamic Data Test- 4G DL Details

JIO

### Data Statistics - Dynamic Complete SSA

Data KPIs - Overall	4G
Download Throughput (Mbps)	35.33



DL Throughput	No of Sample	%
0 to 1 Mbps	10539	<b>12.94%</b>
1 to 2 Mbps	2002	<b>2.46%</b>
2 to 3 Mbps	3830	<b>4.70%</b>
3 to 4 Mbps	5166	<b>6.34%</b>
4 to 8 Mbps	8682	<b>10.66%</b>
8 to 12 Mbps	7079	<b>8.69%</b>
>12 Mbps	44151	<b>54.21%</b>
<b>Total</b>	<b>81449</b>	<b>100</b>

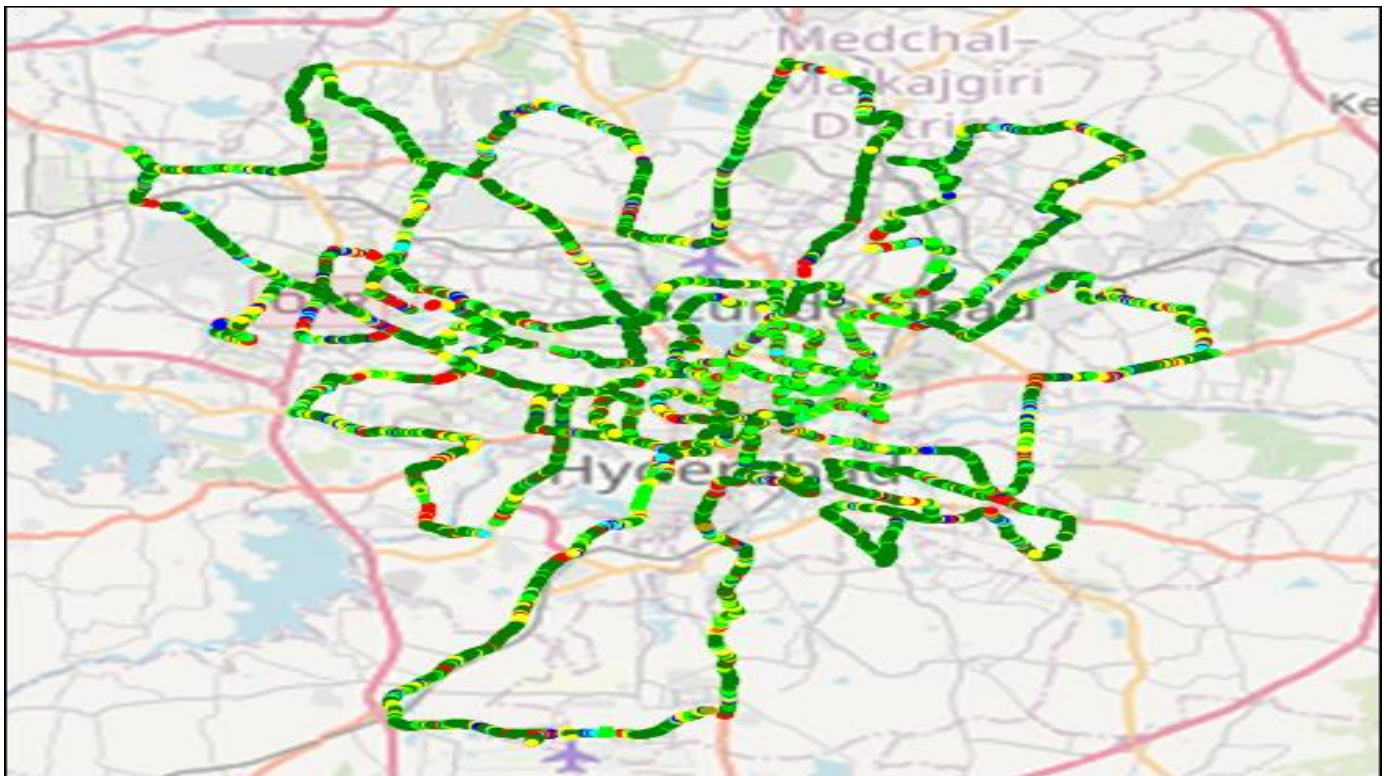


## IV. Dynamic Data Test- 4G DL Details

### VIL

#### Data Statistics - Dynamic Complete SSA

Data KPIs - Overall	4G
Download Throughput (Mbps)	19.7



DL throughput	No of Sample	%
0 to 1 Mbps	1663250	8.69
1 to 2 Mbps	826500	4.32
2 to 3 Mbps	791250	4.13
3 to 4 Mbps	809750	4.23
4 to 8 Mbps	2211500	11.55
8 to 12 Mbps	2136250	11.16
>12 Mbps	10701250	55.91
<b>Total</b>	<b>19139750</b>	<b>100.00</b>

## V. TRAI MySpeed App

### Airtel

Technology-4G	RGI Airport Shamshabad	Mindspace (IT Park)	Jubili Bus Stand	Secundrabad Railway station	Nampally Railway station	Mahatma Gandhi Bus Stand	Osmania Hospital
Download Speed Mbps	58.45	72.99	55.97	43.56	62.49	65.78	82.98
Upload Speed Mbps	13.71	21.17	09.60	15.66	24.43	35.47	20.43

### BSNL

Technology-3G	RGI Airport Shamshabad	Mindspace (IT Park)	Jubili Bus Stand	Secundrabad Railway station	Nampally Railway station	Mahatma Gandhi Bus Stand	Osmania Hospital
Download Speed Mbps	5.41	2.49	2.18	2.18	4.07	2.79	5.08
Upload Speed Mbps	2.50	0.44	0.48	0.48	2.40	1.84	3.00

### JIO

Technology-4G	RGI Airport Shamshabad	Mindspace (IT Park)	Jubili Bus Stand	Secundrabad Railway station	Nampally Railway station	Mahatma Gandhi Bus Stand	Osmania Hospital
Download Speed Mbps	72.8	45.83	64.23	85.94	74.33	81.84	73.4
Upload Speed Mbps	22.34	2.75	8.4	9.63	8.41	5.05	9.94

### VIL

Technology-4G	RGI Airport Shamshabad	Mindspace (IT Park)	Jubili Bus Stand	Secundrabad Railway station	Nampally Railway station	Mahatma Gandhi Bus Stand	Osmania Hospital
Download Speed Mbps	29.29	22.83	46.13	21.58	20.3	31.9	18.57
Upload Speed Mbps	18.14	6.35	25.19	17.63	15.63	18.96	9.86

<b>NH/SH Routes Covered in OADT by Airtel/BSNL/RJIL/VIL</b>				
<b>S.No</b>	<b>No. of NH/SH Routes</b>	<b>NH routes</b>	<b>SH routes</b>	<b>Distance(Km)</b>
1	Bandlaguda Jagir to Medpally	NH 163	-	29.7
2	Shamshabad to Kompally	NH 44	-	42.5
3	Ramachandarapuram to Vanastalipuram	NH 65	-	47
4	Charminar to Kurmalguda	NH 765	-	14.2
	Total KMs			133.4