



प्रभावी विनियमन – सुगम संचार
Effective Regulation – Ease of Communication

Operator Assisted Drive Test Report

Ujjain City and nearby Area

17/10/2022 to 19/10/2022

By

TRAI Regional Office Bhopal

The Operator Assisted Drive Test has been carried out by Regional Office, Bhopal with the help of Telecom Service Providers for Ujjain City and surrounding areas from 9:00 AM to 8:00 PM from 17/10/2022 to 19/10/2022. The drive test covered drive route of around 322KMs. Approximately 1057 calls were made for each of the 2G/3G/4G.

TSP	Network tested
Airtel	2G & VoLTE
BSNL	2G & 3G
JIO	VoLTE
VIL	2G, 3G & VoLTE

Key Performance Indicators:

KPI	Benchmark	Observations
Block call rate %	$\leq 3\%$	All TSPs achieved the benchmark
Drop call rate %	$\leq 2\%$	All TSPs achieved the benchmark
CSSR %	$\geq 95\%$	All TSPs achieved the benchmark
Mobility HOSR %	$\geq 95\%$	All TSPs achieved the benchmark
Good RX Quality %	$\geq 95\%$	All TSPs achieved the benchmark, Except Airtel & JIO in VoLTE

Overview

Regional Office, TRAI Bhopal conducted Operator Assisted Drive Test. The performance of Airtel, BSNL, Vodafone Idea and Jio was 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.

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

Data: Download Throughputs

Drive Test Details :

Voice Tests:

- i. 2G – measurement – UE Locked in 2G
- ii. 3G – measurement – UE in Dual mode (2G and 3G)
- iii. 4G – measurement – UE in Free mode

Calls were made for the **90-sec** duration with a wait time of **10 sec** between calls in all technologies.

Data Tests:

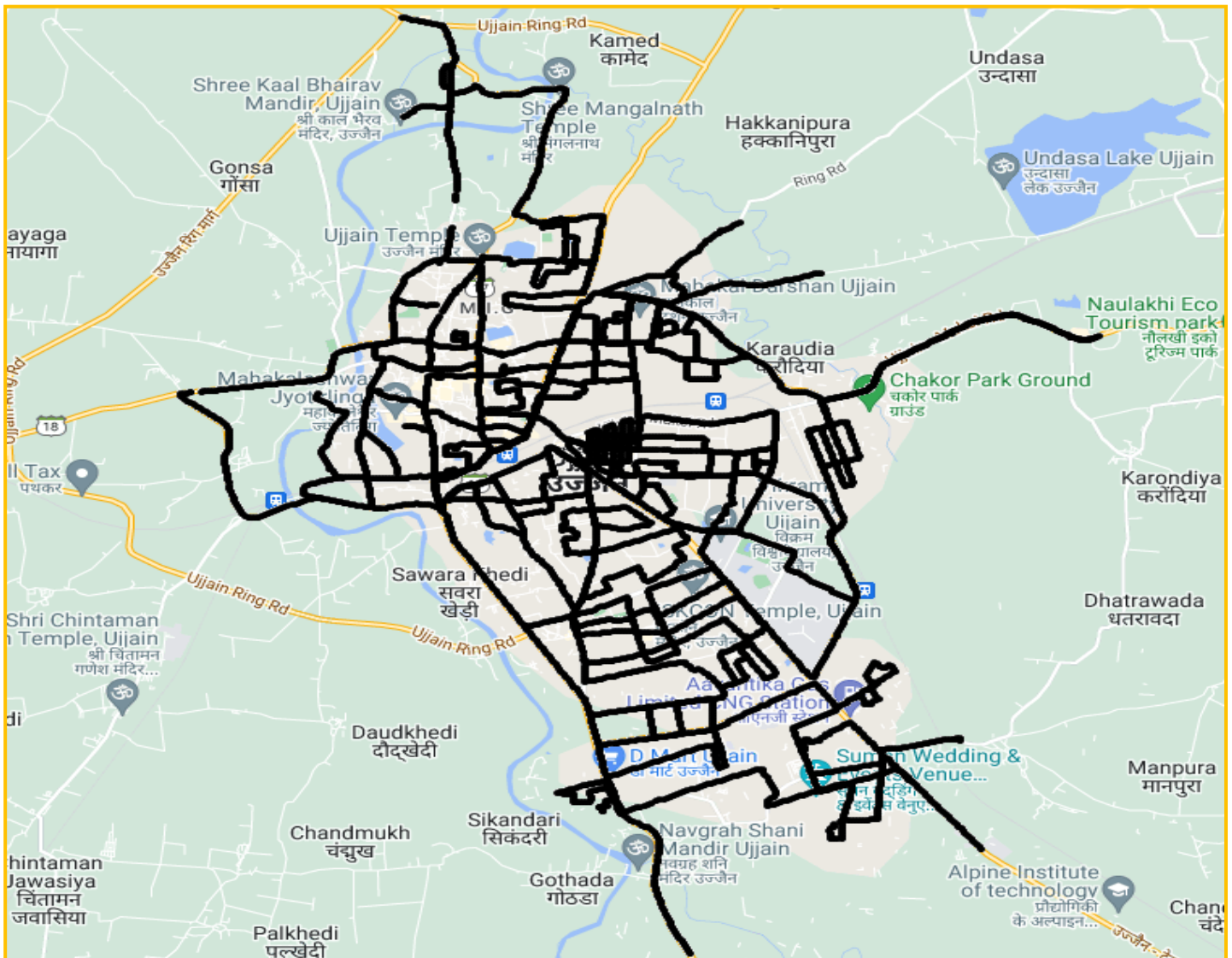
Dynamic data – repeat data file download (to check throughput on the entire route)

- i. 2G – measurement – UE Locked in 2G file size- 500KB
- ii. 3G – measurement – UE in 3G File Size- 20MB
- iii. 4G – measurement – UE in LTE File Size- 40MB

Static Data: Download and Upload Throughputs, Web Browsing Delay, Video Streaming Delay, and Latency

- i. Download- 2G - 500KB ,3G - 20 MB, 4G - 40MB
- ii. Upload - 2G -100KB ,3G - 5 MB, 4G - 10MB
- iii. Web browsing - 3 links of e-commerce websites <https://www.amazon.in>, <https://www.flipkart.com>, <https://paytm.com>.
- iv. Video Streaming – 130 sec clip (only in 3G and LTE)
- v. Latency – 32 Bytes on www.google.com.

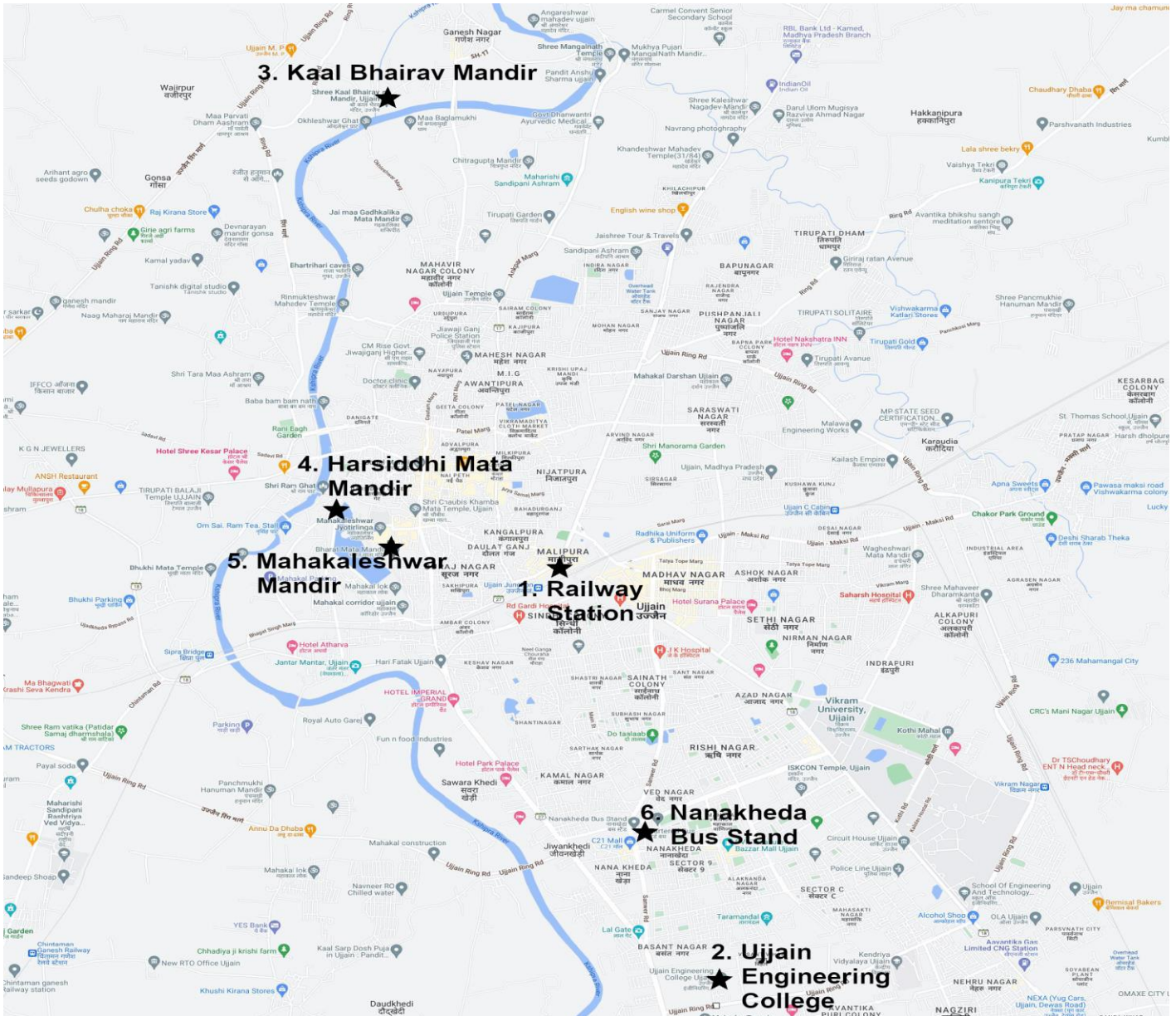
Voice & Dynamic Data Test Drive Route



list of important area covered during the drive test

Freeganj, Rishi Nagar , Sethi Nagar , Nagjari
Nanakheda Bus Stand Area , Basant Vihar , Mahananda Nagar
Ring Road , Ved Nagar , Gopal Mandir , Indra Nagar
Top Khana , Mahakal Mandir Area, Angpath marg
Nai Sadak , Indore Gate , Begam Bhag , Jaisinghpura
Malipura , Suraj Nagar , Makshi Road, Green Park Area
Bheru gad, Viveka nand colony , Prajapati colony

Data Service Test- Static Locations



Hotspot Locations

1. Railway Station, Ujjain

2. Govt Engg college, Ujjain

3. Kaal bhairav Mandir , Ujjain

4. Harsiddhi Mata Mandir , Ujjain

5. Mahakaaleshwar Mandir , Ujjain

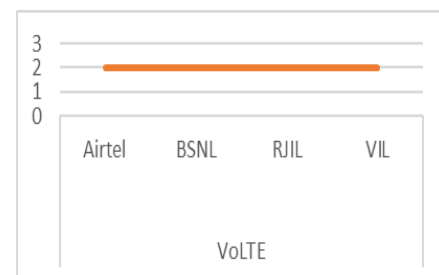
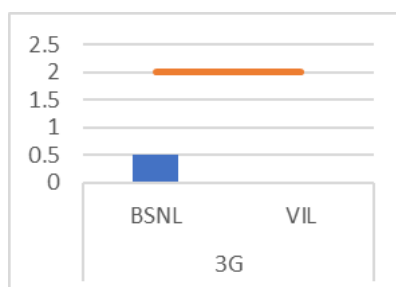
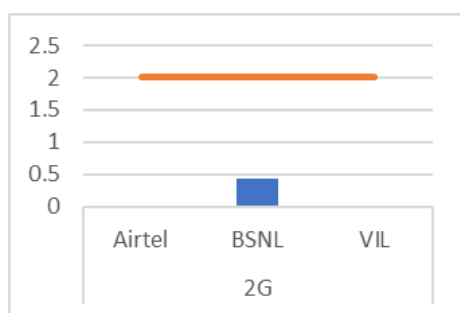
6. Nanakheda bus stand, Ujjain

Voice Calls

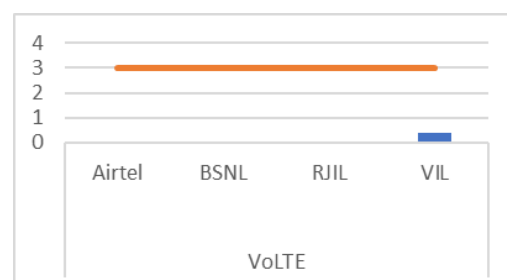
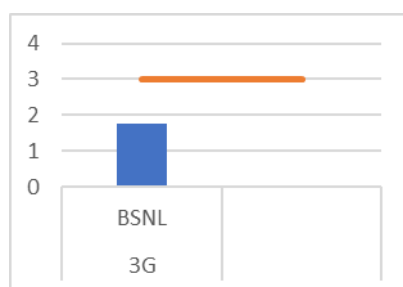
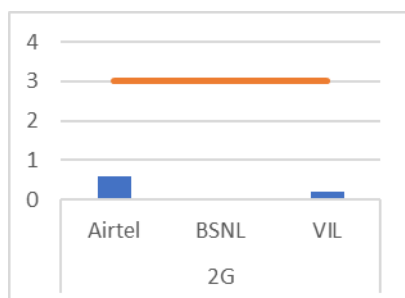
Key Observations

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

Drop Call Rate (%)



Block Call Rate (%)



KPIs	2G			3G		VoLTE		
	Airtel	BSNL	VIL	BSNL	VIL	Airtel	RJIL	VIL
Drop Call Rate %	0	0.44	0	0.51	NA	0	0	0
Block Call Rate %	0.58	0	0.21	1.75	NA	0	0	0.38

- 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 %	93.60	99.03	88.8

b) Percentage of coverage samples for 3G \geq -90 dBm

TSPs	3G	
	BSNL	VIL
Coverage %	95.21	NA

b) Percentage of coverage samples for LTE \geq -110 dBm.

TSPs	VoLTE		
	Airtel	JIO	VIL
Coverage %	99.96	99.43	99.01

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

TSPsNA	3G		VoLTE		
	BSNL	VIL	Airtel	VIL	JIO
Time Spent on 3G/4G %	89	NA	100	99.51	100

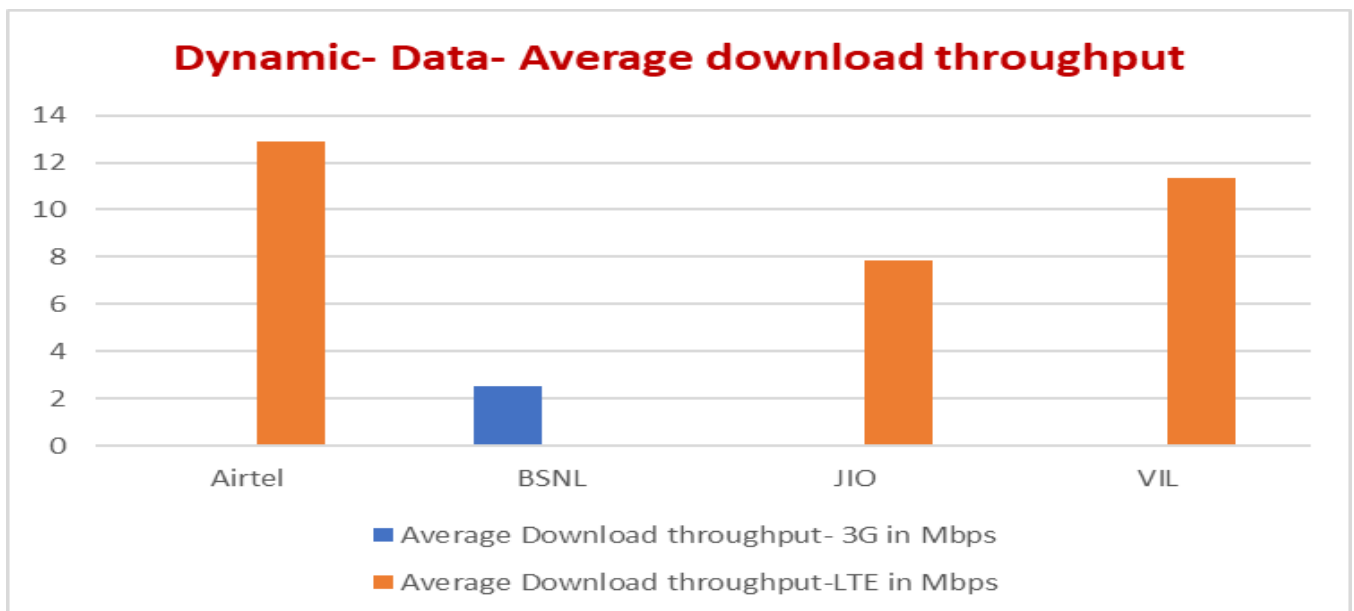
Data Services Dynamic

Key Observations

Dynamic Data -Download Throughput was tested.

Data Download Performance - Dynamic

3G/4G/ Network:



TSP	Airtel	BSNL	JIO	VIL
Average Download throughput- 2G in Kbps	67.79	176	NA	106.22
Average Download throughput- 3G In Mbps	NA	2.54	NA	NA
Average Download throughput-LTE in Mbps	12.88	NA	7.85	11.36

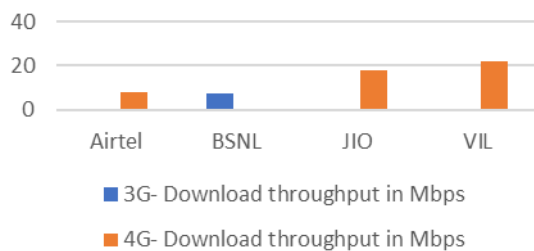
Data Services Static

Key Observations

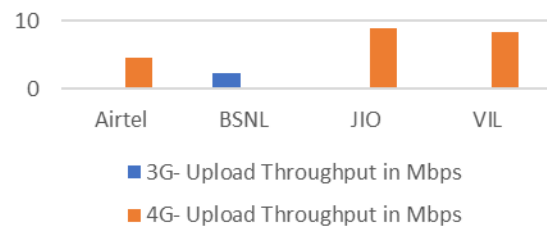
Data was tested at 6 locations .Following services were tested: Data Download/Upload, Latency (www.google.com), and Web browsing (Flipkart, Amazon, PayTm)

3G/4G/ Network:

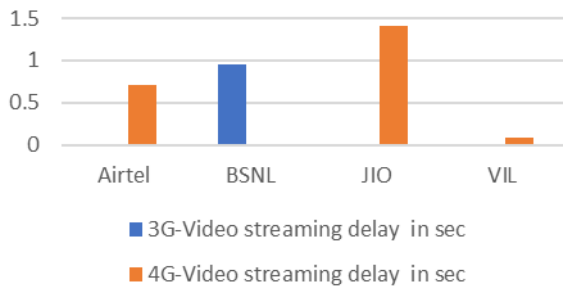
Static - Average download throughput



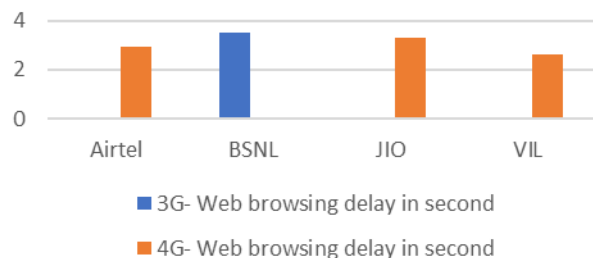
Static - Average Upload throughput



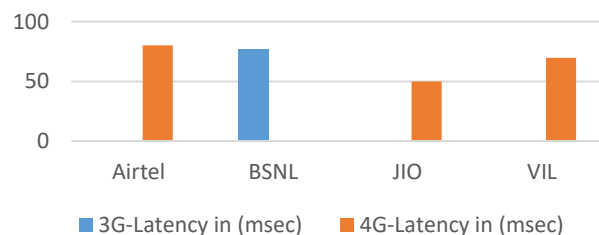
Static- Video streaming delay in sec



Static- Web browsing delay in second



Static -Latency in (msec)



Summary

City Level Summary- Voice

TSP (For 2G)	Airtel	BSNL	JIO	VIL
Call attempts	516	453	NA	482
Block call rate %	0.58	0.0	NA	0.21
CSSR %	99.42	99.55	NA	99.79
Drop call rate %	0	0.44	NA	0.00
Mobility HOSR %	99.65	98.88	NA	98.26
RX Quality %	96.55	98.52	NA	97.69
Average CST Sec	3.91	2.2	NA	2.47

TSP (For 3G)	Airtel	BSNL	JIO	VIL
Call attempts	NA	399	NA	NA
Block call rate %	NA	1.75	NA	NA
CSSR %	NA	97.74	NA	NA
Drop call rate %	NA	0.51	NA	NA
Mobility HOSR %	NA	98.32	NA	NA
RX Quality %	NA	98.22	NA	NA
Average CST (Sec)	NA	2.1	NA	NA

TSP (For Volte)	Airtel	BSNL	JIO	VIL
Call attempts	541	NA	526	529
Block call rate %	0	NA	0	0.38
CSSR %	100	NA	98.32	99.62
Drop call rate %	0	NA	0	0.00
Mobility HOSR %	99.74	NA	99.37	99.75
RX Quality %	77.92	NA	88.2	96.23
Average CST(Sec)	0.64	NA	1.5	1.16

Summary

City Level Summary- Data Services -Static

TSP (For 2G)	Airtel	BSNL	JIO	VIL
Download throughput in Kbps	39.08	283	NA	132.33
Upload Throughput in Kbps	35.01	191	NA	77.31
Web browsing delay in second	56.43	11	NA	50.99
Latency in (msec)	398	170	NA	208.5

TSP (For 3G)	Airtel	BSNL	JIO	VIL
Download throughput in Mbps	NA	7.37	NA	NA
Upload Throughput in Mbps	NA	2.31	NA	NA
Video streaming delay in sec	NA	0.96	NA	NA
Web browsing delay in second	NA	3.5	NA	NA
Latency in (msec)	NA	77	NA	NA

TSP (For LTE)	Airtel	BSNL	JIO	VIL
Download throughput in Mbps	7.68	NA	18.08	22.02
Upload Throughput in Mbps	4.6	NA	8.96	8.25
Video streaming delay in sec	0.71	NA	1.41	0.08
Web browsing delay in second	2.94	NA	3.31	2.63
Latency in (msec)	80.21	NA	50	69.66

1. Hotspot Location- Nanakheda Bus Stand

	2G			
	Airtel	BSNL	JIO	VIL
Download throughput in Kbps	38.86	280	NA	127.9
Upload Throughput in Kbps	31.10	245	NA	91.4
Web browsing delay in second	60.26	12	NA	50.8
Latency in (msec)	335	180	NA	218

	3G			
	Airtel	BSNL	JIO	VIL
Download throughput in Mbps	NA	8.75	NA	NA
Upload Throughput in Mbps	NA	2.24	NA	NA
Video streaming delay in sec	NA	1.1	NA	NA
Web browsing delay in second	NA	3	NA	NA
Latency in (msec)	NA	72	NA	NA

	LTE			
	Airtel	BSNL	JIO	VIL
Download throughput in Mbps	5.55	NA	24.33	21.28
Upload Throughput in Mbps	1.87	NA	8.48	7.06
Video streaming delay in sec	0.70	NA	1.2	0.04
Web browsing delay in second	2.12	NA	3.61	4.4
Latency in (msec)	79.9	NA	49	62

2. Hotspot Location- Engineering college

	2G			
	Airtel	BSNL	JIO	VIL
Download throughput in Kbps	33.32	284	NA	82.9
Upload Throughput in Kbps	41.16	369	NA	86.2
Web browsing delay in second	60.28	12	NA	49.9
Latency in (msec)	648	170	NA	181

	3G			
	Airtel	BSNL	JIO	VIL
Download throughput in Mbps	NA	9.54	NA	NA
Upload Throughput in Mbps	NA	2.20	NA	NA
Video streaming delay in sec	NA	0.8	NA	NA
Web browsing delay in second	NA	3	NA	NA
Latency in (msec)	NA	NA	NA	NA

	LTE			
	Airtel	BSNL	JIO	VIL
Download throughput in Mbps	7.77	NA	17.46	32.7
Upload Throughput in Mbps	2.70	NA	3.23	11.1
Video streaming delay in sec	0.97	NA	0.94	0.2
Web browsing delay in second	5.62	NA	3.47	3.2
Latency in (msec)	108	NA	36	71

3. Hotspot Location-Harshidhi mata mandir

	2G			
	Airtel	BSNL	JIO	VIL
Download throughput in Kbps	26.97	279	NA	144.8
Upload Throughput in Kbps	18.40	219	NA	70.1
Web browsing delay in second	60.23	11	NA	54.9
Latency in (msec)	302	180	NA	211

	3G			
	Airtel	BSNL	JIO	VIL
Download throughput in Mbps	NA	7.96	NA	NA
Upload Throughput in Mbps	NA	2.23	NA	NA
Video streaming delay in sec	NA	1.0	NA	NA
Web browsing delay in second	NA	5	NA	NA
Latency in (msec)	NA	77	NA	NA

	LTE			
	Airtel	BSNL	JIO	VIL
Download throughput in Mbps	10.73	NA	27.97	9.38
Upload Throughput in Mbps	4.28	NA	12.55	2.5
Video streaming delay in sec	0.85	NA	1.28	0.3
Web browsing delay in second	2.17	NA	3.26	0.10
Latency in (msec)	85.45	NA	60	78

4. Hotspot Location-Kal bhairav mandir

	2G			
	Airtel	BSNL	JIO	VIL
Download throughput in Kbps	32.27	289	NA	153.9
Upload Throughput in Kbps	26.24	179	NA	84.4
Web browsing delay in second	60.35	9	NA	52.1
Latency in (msec)	245	155	NA	173

	3G			
	Airtel	BSNL	JIO	VIL
Download throughput in Mbps	NA	9.0	NA	NA
Upload Throughput in Mbps	NA	2.36	NA	NA
Video streaming delay in sec	NA	0.9	NA	NA
Web browsing delay in second	NA	4	NA	NA
Latency in (msec)	NA	80	NA	NA

	LTE			
	Airtel	BSNL	JIO	VIL
Download throughput in Mbps	11.48	NA	23.54	22.79
Upload Throughput in Mbps	4.37	NA	20.09	8.94
Video streaming delay in sec	0.25	NA	1.05	0.05
Web browsing delay in second	2.56	NA	2.8	2.12
Latency in (msec)	77.86	NA	51	64

5. Hotspot Location-Mahakaleshwar mandir

	2G			
	Airtel	BSNL	JIO	VIL
Download throughput in Kbps	45.43	284	NA	140.3
Upload Throughput in Kbps	45.57	209	NA	76.6
Web browsing delay in second	60.46	12	NA	44
Latency in (msec)	457	170	NA	230

	3G			
	Airtel	BSNL	JIO	VIL
Download throughput in Mbps	NA	5.79	NA	NA
Upload Throughput in Mbps	NA	2.36	NA	NA
Video streaming delay in sec	NA	1.1	NA	NA
Web browsing delay in second	NA	3	NA	NA
Latency in (msec)	NA	71	NA	NA

	LTE			
	Airtel	BSNL	JIO	VIL
Download throughput in Mbps	7.24	NA	6.59	24.28
Upload Throughput in Mbps	7.48	NA	3.75	8.9
Video streaming delay in sec	0.78	NA	2.37	0.04
Web browsing delay in second	2.60	NA	4.4	3.4
Latency in (msec)	75.3	NA	50	64

6. Hotspot Location-Railway sation

	2G			
	Airtel	BSNL	JIO	VIL
Download throughput in Kbps	57.64	284	NA	144.2
Upload Throughput in Kbps	47.62	136	NA	55.2
Web browsing delay in second	37.05	10	NA	54.28
Latency in (msec)	401	166	NA	238

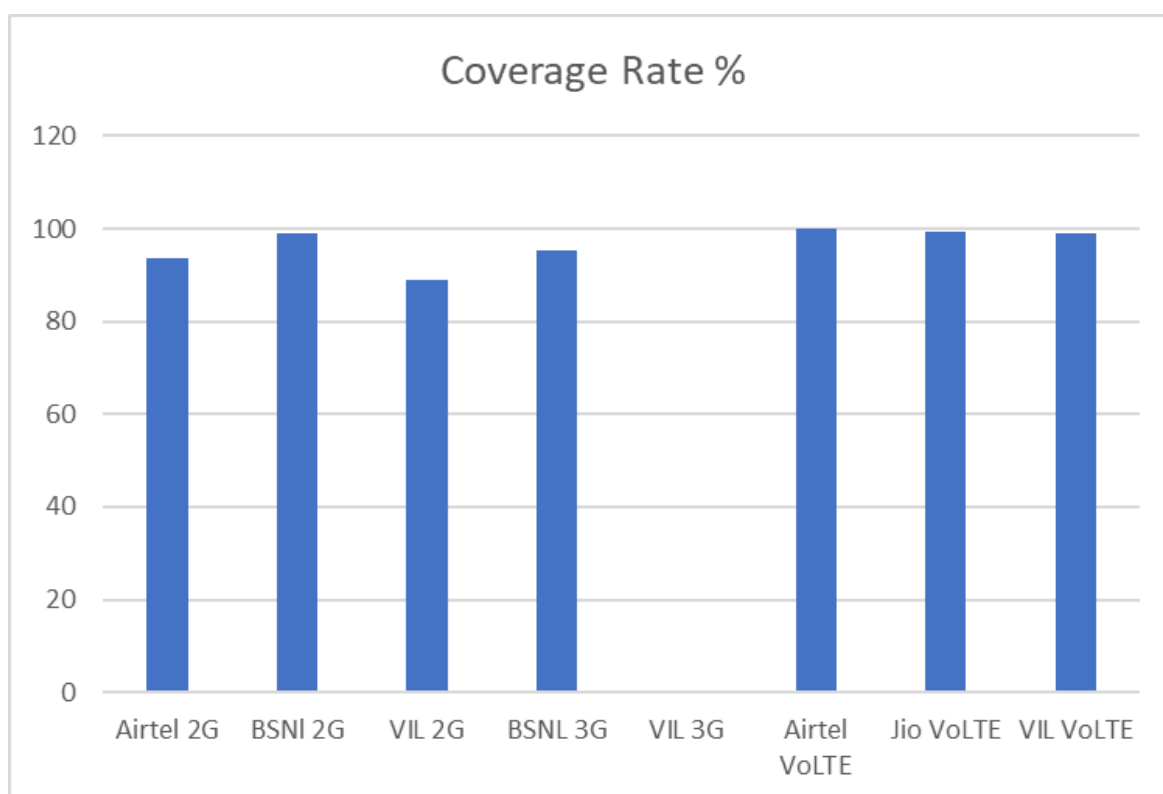
	3G			
	Airtel	BSNL	JIO	VIL
Download throughput in Mbps	NA	3.19	NA	NA
Upload Throughput in Mbps	NA	2.49	NA	NA
Video streaming delay in sec	NA	1.0	NA	NA
Web browsing delay in second	NA	3	NA	NA
Latency in (msec)	NA	88	NA	NA

	LTE			
	Airtel	BSNL	JIO	VIL
Download throughput in Mbps	3,31	NA	8.58	21.7
Upload Throughput in Mbps	6.91	NA	5.63	10.3
Video streaming delay in sec	0.75	NA	1.60	0.04
Web browsing delay in second	2.61	NA	2.29	2.6
Latency in (msec)	54.8	NA	56	79

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 -110dBm. The details are as follows.

TSP	Coverage Rate %
Airtel 2G	93.60
BSNI 2G	99.03
VIL 2G	88.8
BSNL 3G	95.21
VIL 3G	NA
Airtel VoLTE	99.96
Jio VoLTE	99.43
VIL VoLTE	99.01



Coverage Details

TSP- Airtel

Technology	Coverage %
2G	93.60



2G			
Overall RxLevel	# Samples	% PDF	Legends
[Max, >=-75]	3739381	65.05	
[-75, >=-85)	1640994	28.55	
[-85, >=-95)	365313	6.35	
[-95, >=Min)	2849	0.05	
Total	5748537	100	

Coverage Details

TSP-BSNL

Technology	Coverage %
2G	100 %



2G

Overall RxLevel	# Samples	% PDF	Legends
[Max, >=-75]	838766	83.16%	
[-75, >=-85)	160137	15.88%	
[-85, >=-95)	9700	0.96%	
[-95, >=Min)	43	0.00%	
Total	1008646	100.00%	

Coverage Details

TSP- VIL

Technology	Coverage %
2G	88.8%



RxLevSub (dBm) - .Server		
[Min, -95]	(150)	(0.6%)
[-95, -85]	(2659)	(10.61%)
[-85, -75]	(7769)	(31%)
[-75, Max]	(14486)	(57.8%)





2G			
Overall RxLevel	# Samples	% PDF	Legends
[Max, >=-75]	14486	57.8%	
[-75, >=-85)	7769	31%	
[-85, >=-95)	2659	10.61%	
[-95, >=Min)	150	0.6%	
Total	25064	100%	

Coverage Details

TSP- BSNL

Technology	Coverage %
3G	100 %



3G			
Overall RSCP	# Samples	% PDF	Legends
[Max, >=-70]	360118	26.86%	
[-70, >=-80)	495663	36.97%	
[-80, >=-90)	420877	31.39%	
[-90, >=Min)	64230	4.79%	
Total	1340888	100.00%	

Coverage Details

TSP- Airtel

Technology	Coverage %
VoLTE	99.96



VoLTE			
Overall RSRP	# Samples	% PDF	Legends
[Max, >=-80]	6129221	58.15	
[-80, >=-90)	3321457	31.51	
[-90, >=-110)	1085927	10.30	
[-110, >=Min)	4517	0.04	
Total			

Coverage Details

TSP Jio

Technology	Coverage %
VoLTE	99.43%

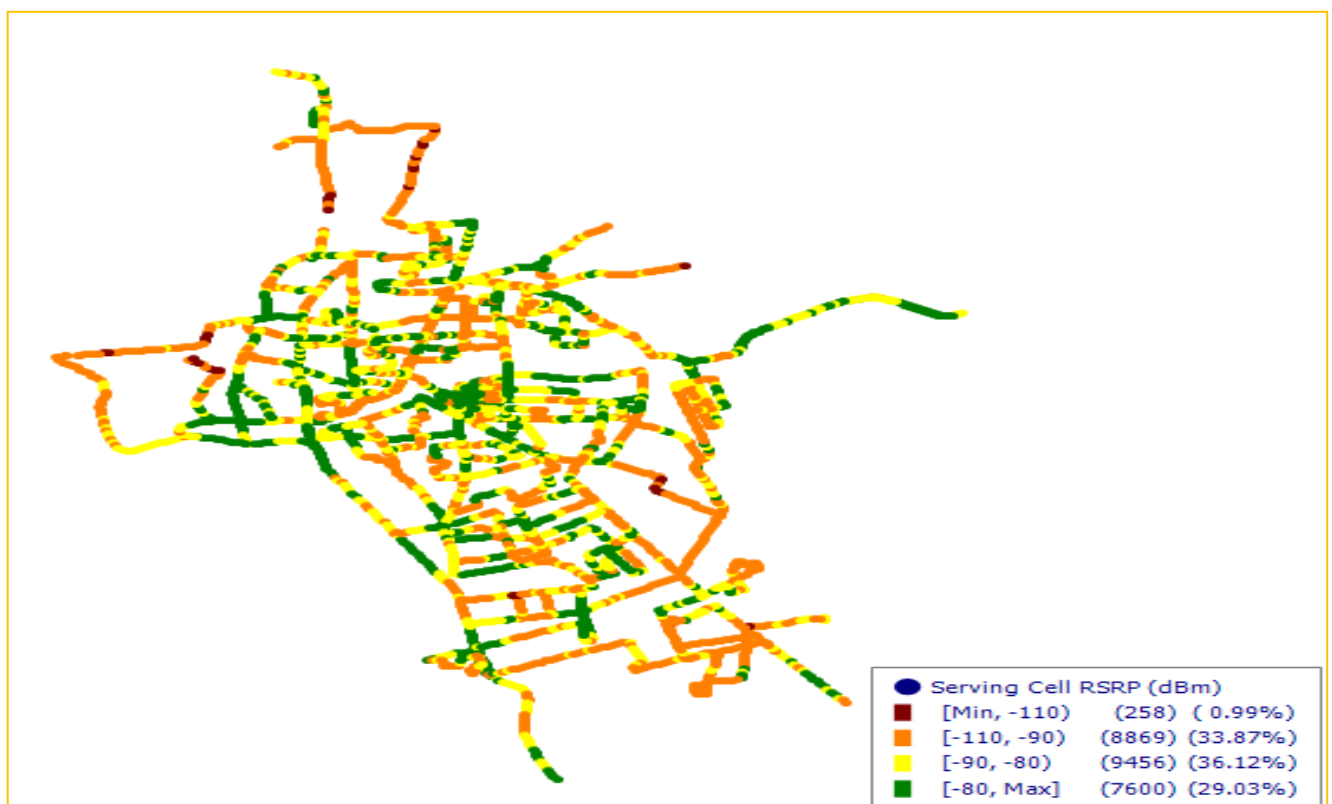


VoLTE			
Overall RSRP	# Samples	% PDF	Legends
[Max, >=-80]	25583	48.19%	
[-80, >=-90)	16222	30.56%	
[-90, >=-110)	10981	20.68%	
[-110, >=Min)	204	0.57	
Total	53090	100%	

Coverage Details

TSP- VIL

Technology	Coverage %
VoLTE	99.01%

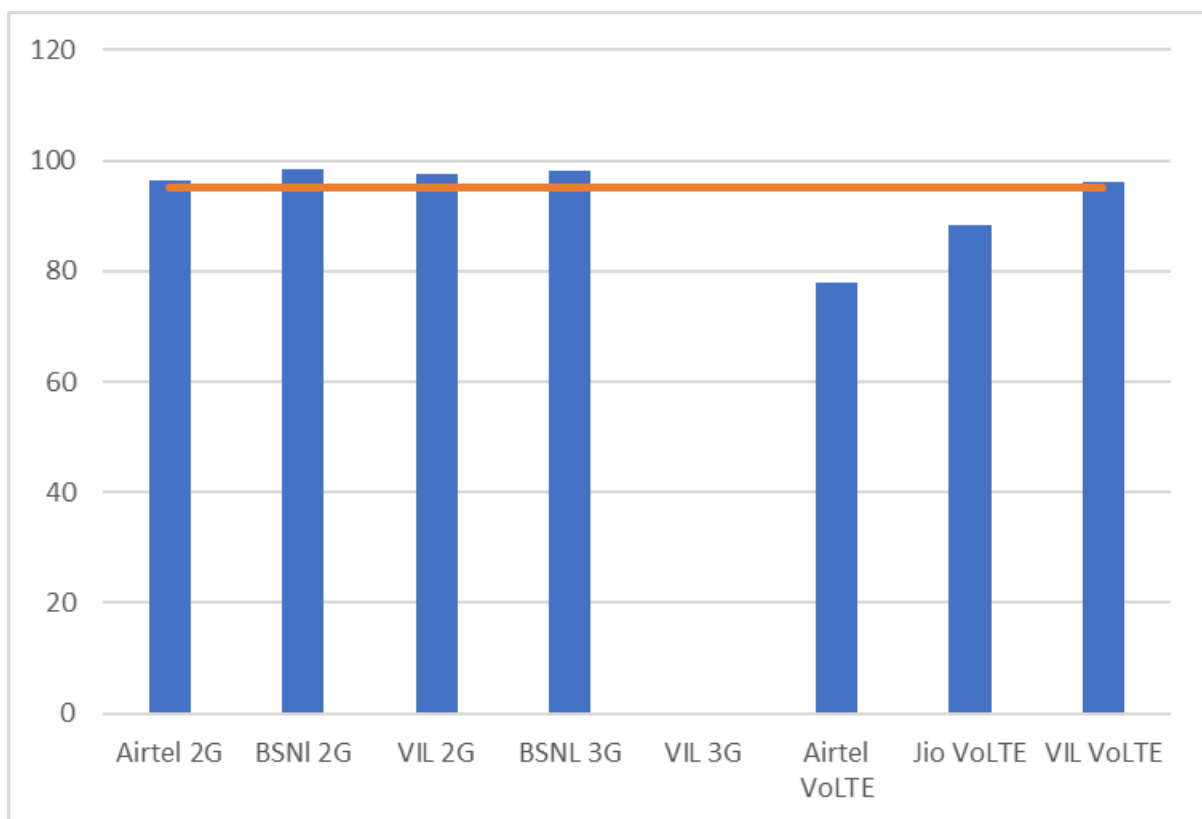


VoLTE			
Overall RSRP	# Samples	% PDF	Legends
[Max, >=-80]	7600	29.03%	
[-80, >=-90)	9456	36.12%	
[-90, >=-110)	8869	33.87%	
[-110, >=Min)	258	0.99%	
Total	26183	100%	

Quality Details

For measuring voice quality, as per the QoS norms, RxQual ≤ 5 for GSM TSPs, EcNo ≥ -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 $\geq 95\%$.

TSP	Rx Quality %
Airtel 2G	96.55
BSNI 2G	98.52
VIL 2G	97.69
BSNL 3G	98.22
VIL 3G	NA
Airtel VoLTE	77.92
Jio VoLTE	88.2
VIL VoLTE	96.23



Quality Details

For measuring voice quality, as per the QoS norms, RxQual ≤ 5 for GSM TSPs, EcNo ≥ -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 $\geq 95\%$.

TSP- Airtel

Technology	Rx Quality %
2G	96.55



Overall Rx Quality	# Samples	% PDF	Legends
(Min, ≤ 2)	4305813	74.90	
(2, ≤ 3)	340348	5.92	
(3, ≤ 4)	345499	6.01	
(4, ≤ 5)	558812	9.72	
(5, $\leq \text{Max}$)	198065	3.45	
Total	5748537	100	

Quality Details

For measuring voice quality, as per the QoS norms, RxQual ≤ 5 for GSM TSPs, EcNo ≥ -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 $\geq 95\%$.

TSP-BSNL

Technology	Rx Quality %
2G	98.52 %



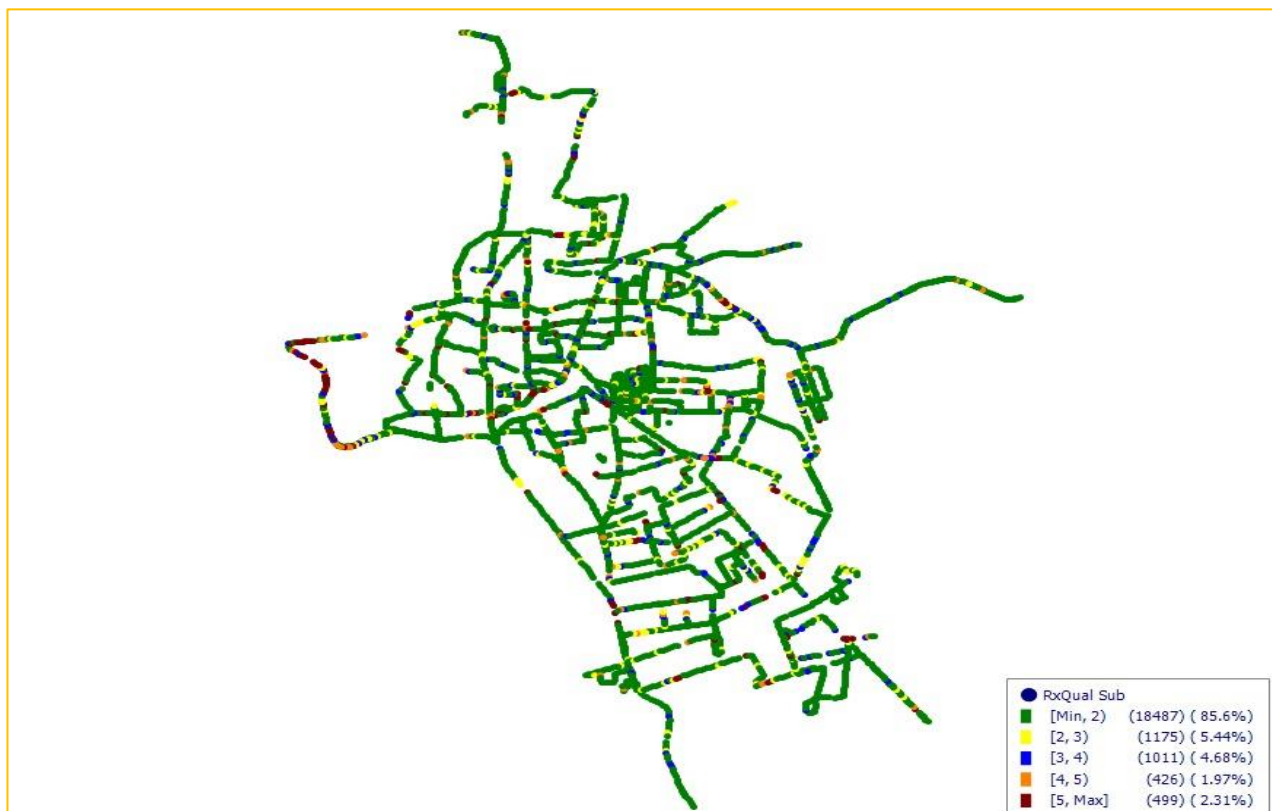
Overall Rx Quality	# Samples	% PDF	Legends
(Min, ≤ 2)	7170757	95.46%	
(2, ≤ 3)	72473	0.96%	
(3, ≤ 4)	78407	1.04%	
(4, ≤ 5)	78708	1.05%	
(5, $\leq \text{Max}$)	111343	1.48%	
Total	7511688	100.00%	

Quality Details

For measuring voice quality, as per the QoS norms, RxQual ≤ 5 for GSM TSPs, EcNo ≥ -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 $\geq 95\%$.

TSP- VIL

Technology	Rx Quality %
2G	97.69%



Overall Rx Quality	# Samples	% PDF	Legends
(Min, ≤ 2)	18487	85.6%	
(2, ≤ 3)	1175	5.44%	
(3, ≤ 4)	1011	4.68%	
(4, ≤ 5)	426	1.97%	
(5, $\leq \text{Max}$)	499	2.31%	
Total	21598	100%	

Quality Details

For measuring voice quality, as per the QoS norms, RxQual ≤ 5 for GSM TSPs, EcNo ≥ -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 $\geq 95\%$.

TSP-BSNL

Technology	Rx Quality %
3G	98.22 %



Overall Ec/No	# Samples	% PDF	Legends
(Max, ≤ -6)	6240218	83.07%	
(-6, ≤ -9)	195677	2.60%	
(-9, ≤ -11)	497601	6.62%	
(-11, ≤ -14)	444240	5.91%	
(-14, \leq Min)	133952	1.78%	
Total	7511688	100%	

Quality Details

For measuring voice quality, as per the QoS norms, RxQual ≤ 5 for GSM TSPs, EcNo ≥ -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 $\geq 95\%$.

TSP- Airtel

Technology	Rx Quality %
VoLTE	77.92



Overall SINR	# Samples	% PDF	Legends
(Min, ≤ 0)	2322167	22.08	
(0, ≤ 5)	5043109	47.95	
(5, ≤ 10)	1582105	15.04	
(10, ≤ 15)	912833	8.68	
(15, $\leq \text{Max}$)	658286	6.26	
Total	10518500	100	

Quality Details

For measuring voice quality, as per the QoS norms, RxQual ≤ 5 for GSM TSPs, EcNo ≥ -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 $\geq 95\%$.

TSP- Jio

Technology	Rx Quality %
VoLTE	88.2%



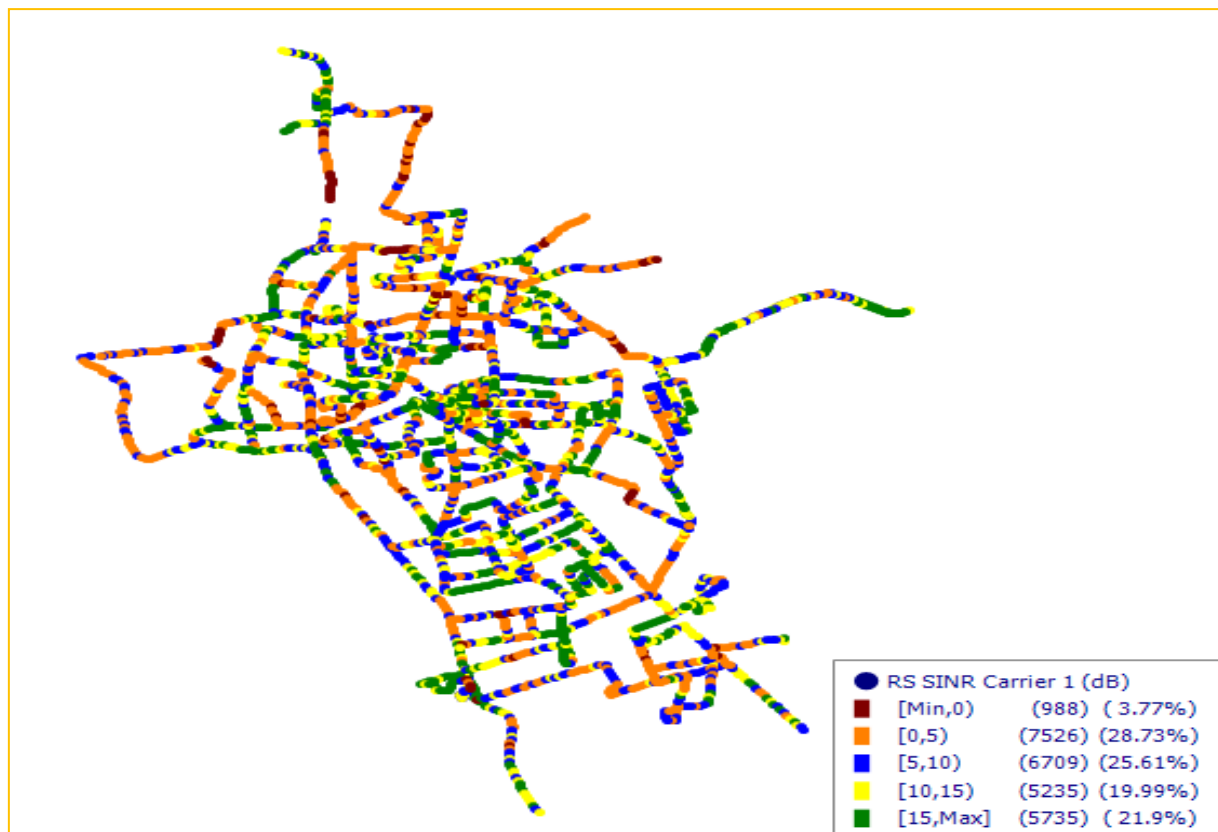
Overall SINR	# Samples	% PDF	Legends
(Min, ≤ 0)	6264	11.8%	
(0, ≤ 5)	11795	22.22%	
(5, ≤ 10)	14092	26.54%	
(10, ≤ 15)	11812	22.25%	
(15, $\leq \text{Max}$)	9127	17.19%	
Total	53090	100%	

Quality Details

For measuring voice quality, as per the QoS norms, RxQual ≤ 5 for GSM TSPs, EcNo ≥ -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 $\geq 95\%$.

TSP- VIL

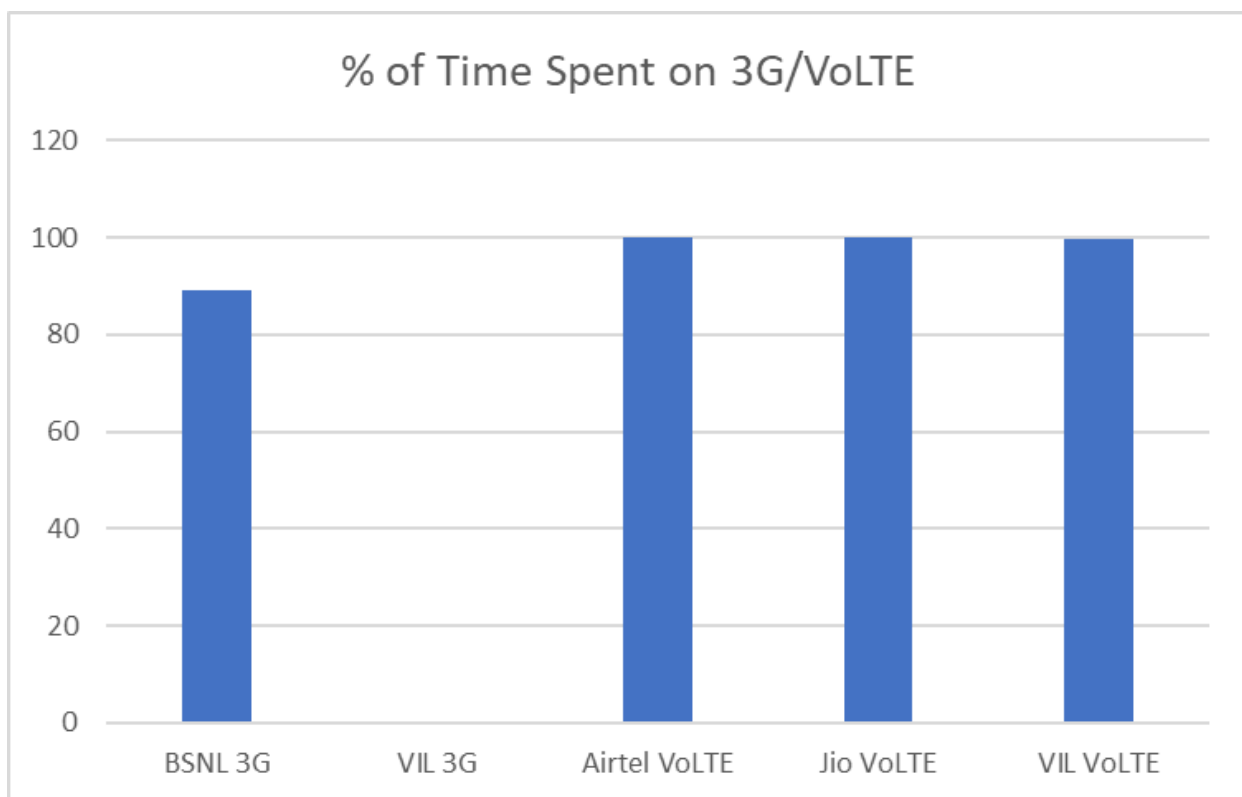
Technology	Rx Quality %
VoLTE	96.23%



Overall SINR	# Samples	% PDF	Legends
(Min, ≤ 0)	988	3.77%	
(0, ≤ 5)	7526	28.73%	
(5, ≤ 10)	6709	25.61%	
(10, ≤ 15)	5235	19.99%	
(15, $\leq \text{Max}$)	5735	21.9%	
Total	26193	100%	

Technology Details

TSP	% of Time Spent on 3G/VoLTE
BSNL 3G	89
VIL 3G	NA
Airtel VoLTE	100
Jio VoLTE	100
VIL VoLTE	99.51



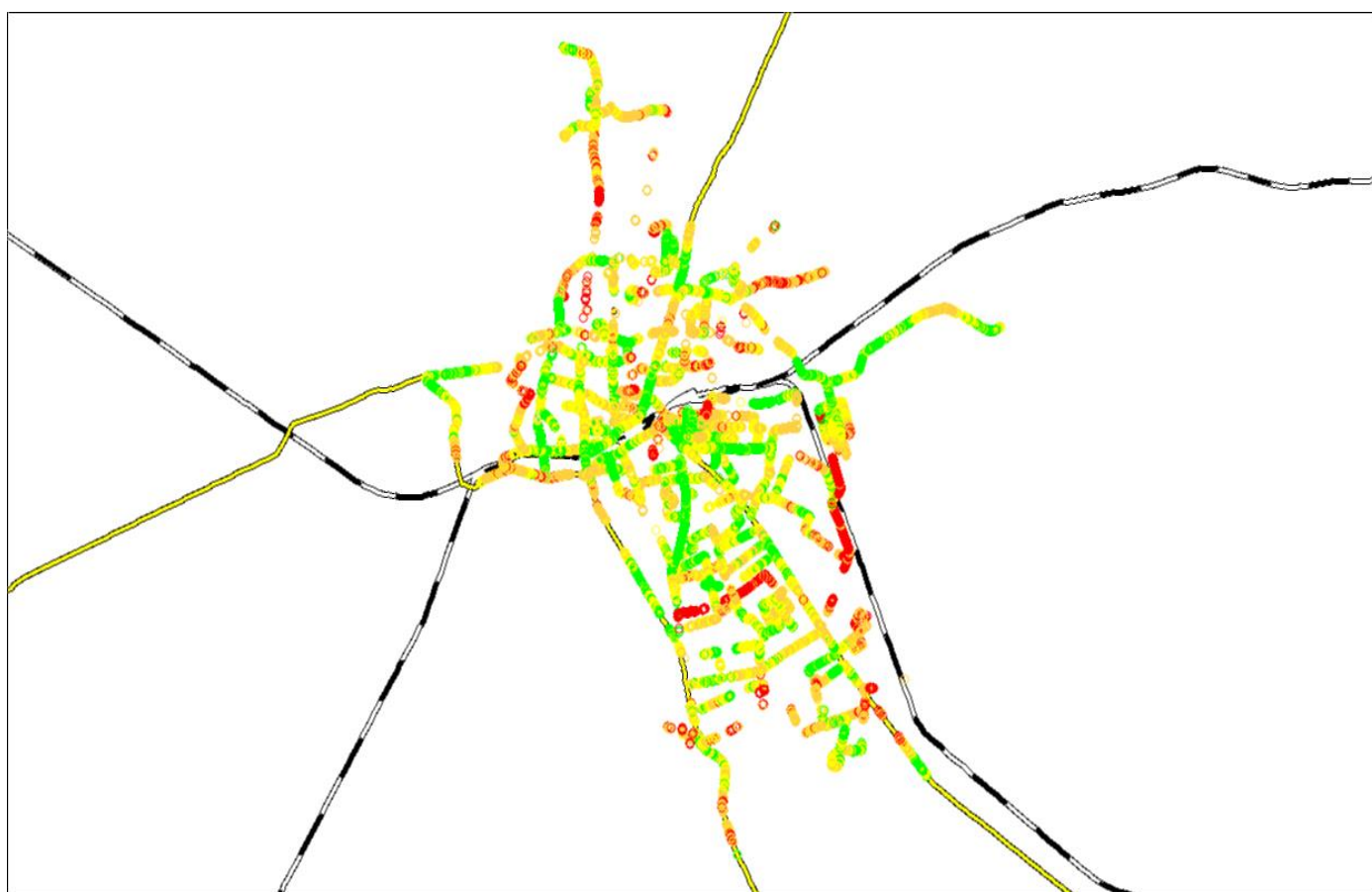
TSP- Airtel

Technology	% of Time Spent on
3G	
VoLTE	100



TSP-BSNL

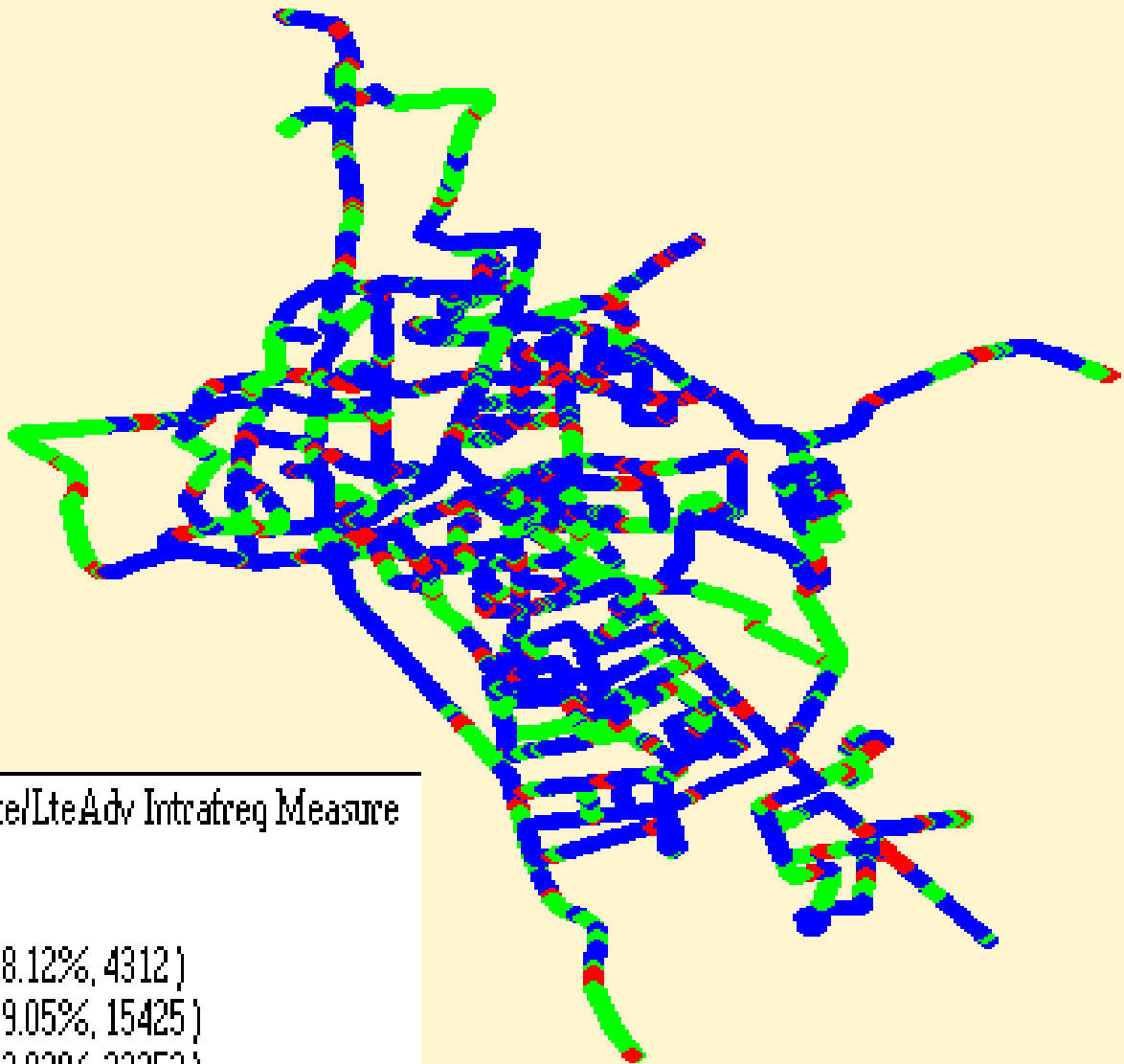
Technology	% of Time Spent on
3G	89.0 %
VoLTE	



Technology Details

TSP- Jio

Technology	% of Time Spent on
3G	
VoLTE	100%



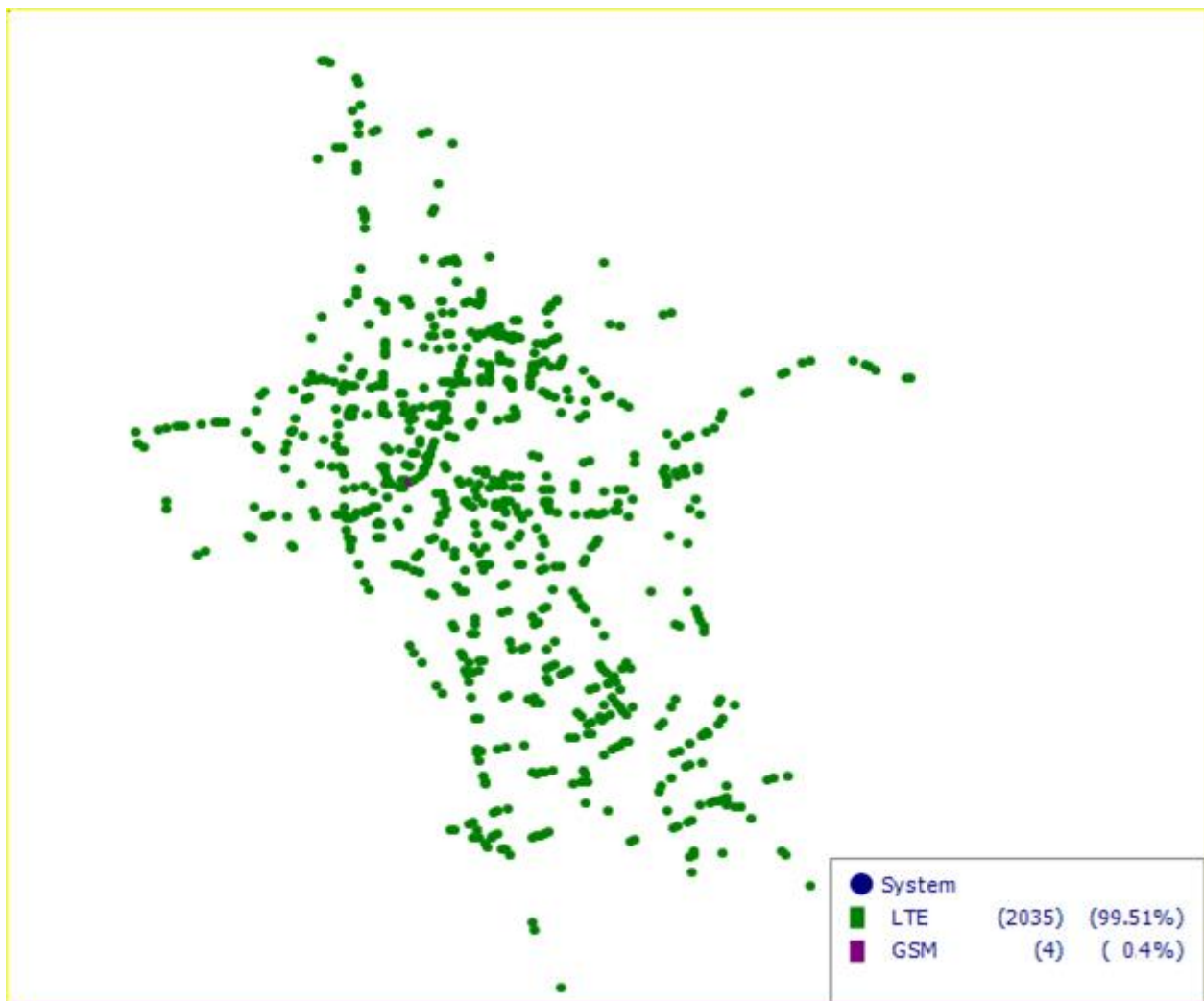
Qualcomm Lte/LteAdv Intrafreq Measure
PCell Band

- Band 40 (8.12%, 4312)
- Band 3 (29.05%, 15425)
- Band 5 (62.82%, 33353)

Technology Details

TSP- VIL

Technology	% of Time Spent on
3G	NA
VoLTE	99.51%

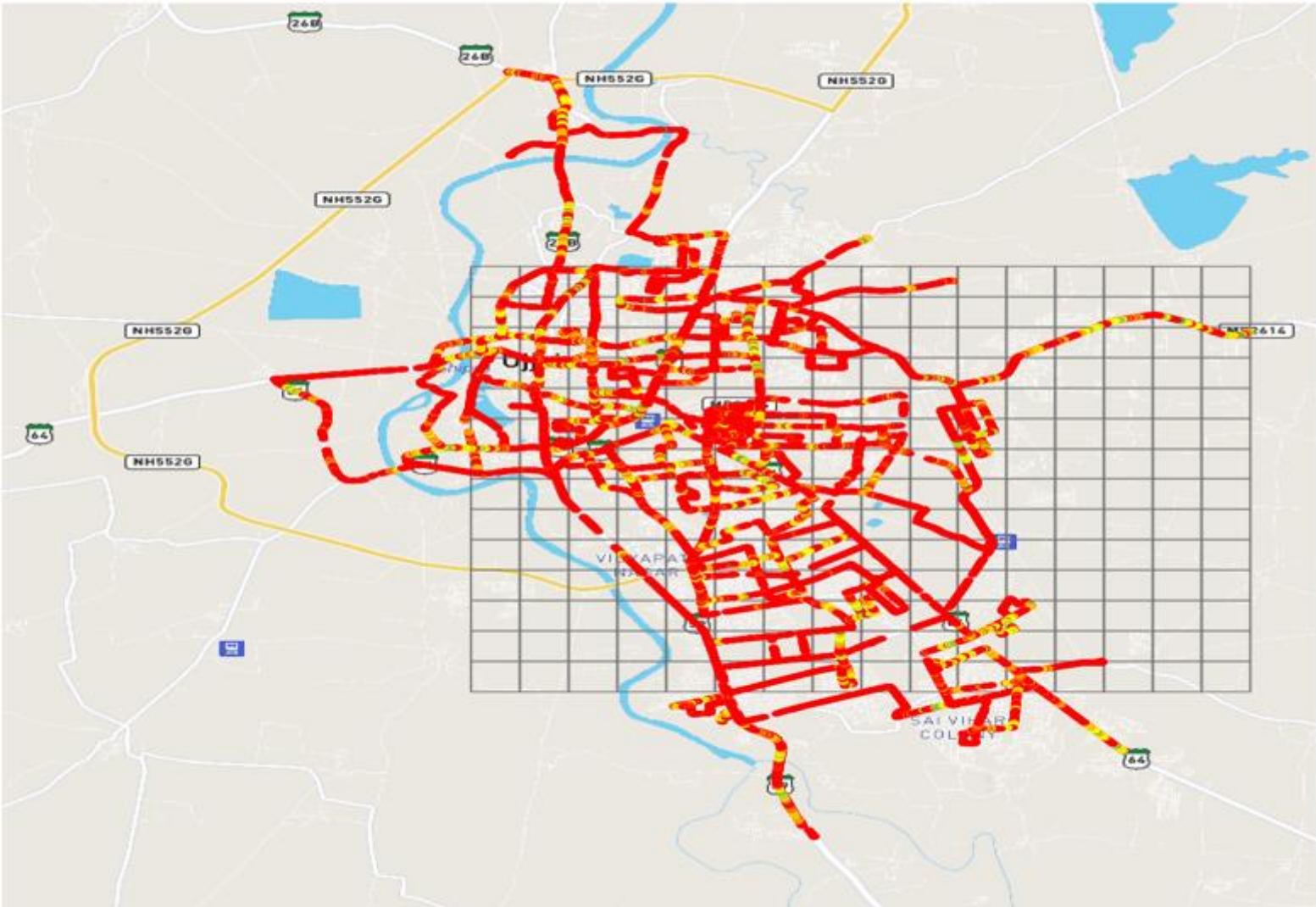


TSP- Airtel

Data Statistics - Dynamic data testing

Data KPIs - Overall	2G
Download Throughput (Kbps)	67.79

Plot: data_gsm_riic_dl_throughput



DL throughput	No of Sample	%	Legends
< 100 Kbps	37236	73.07	
100-150Kbps	6031	11.83	
150-200Kbps	5996	11.77	
>200Kbps	1697	3.33	

TSP-BSNL

Data Statistics - Dynamic data testing

Data KPIs - Overall	2G
Download Throughput (Kbps)	176 Kbps

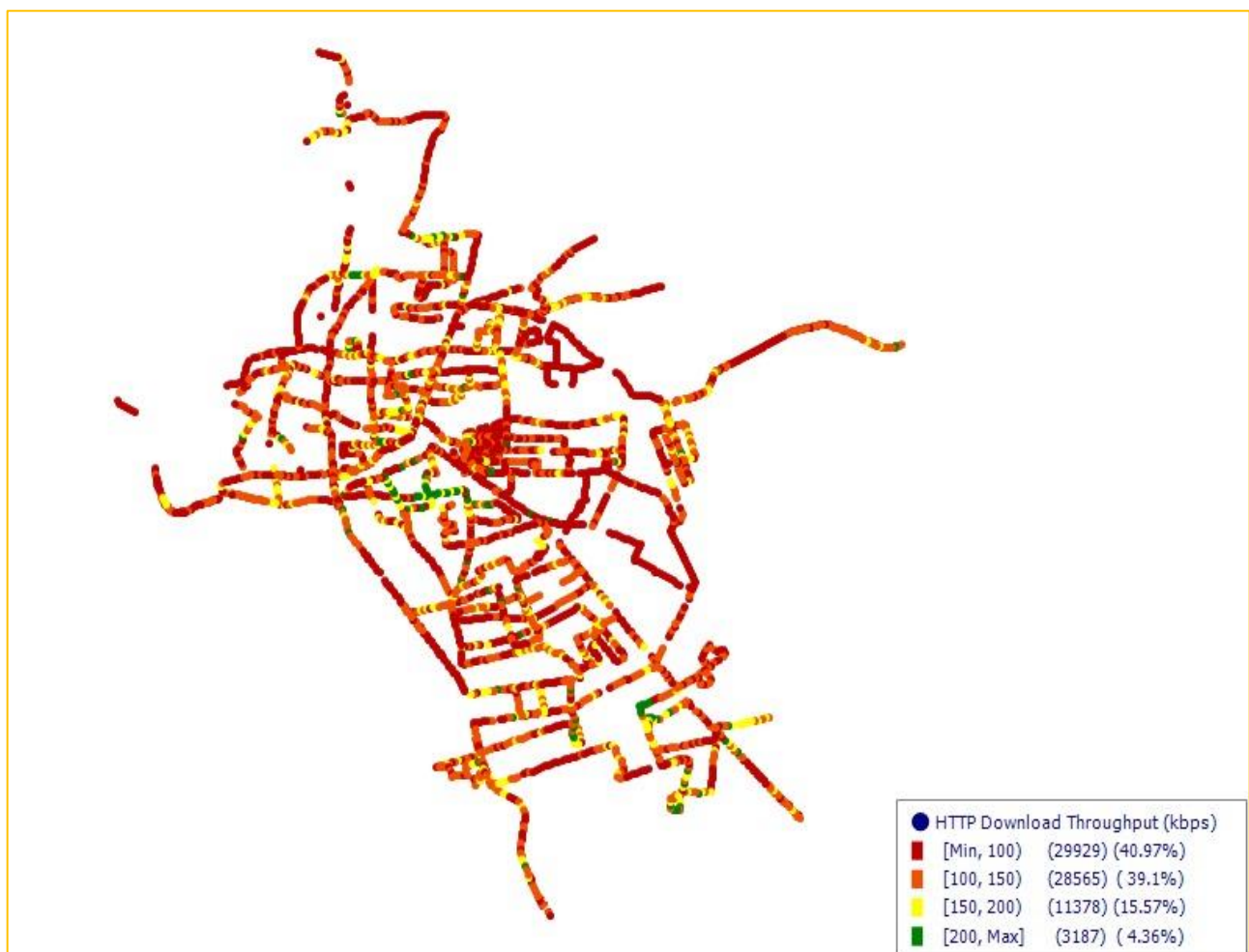


DL throughput	No of Sample	%	Legends
< 100 Kbps	3783177	29.25%	Red
100-150Kbps	2101569	16.25%	Orange
150-200Kbps	1406774	10.88%	Yellow
>200Kbps	5642185	43.62%	Green

TSP- VIL

Data Statistics - Dynamic data testing - 322 Kms

Data KPIs - Overall	2G
Download Throughput (Kbps)	106.22



DL throughput	No of Sample	%	Legends
< 100 Kbps	29929	40.97%	
100-150Kbps	28565	39.1%	
150-200Kbps	11378	15.57%	
>200Kbps	3187	4.36%	

TSP-BSNL

Data Statistics - Dynamic data testing

Data KPIs - Overall	3G
Download Throughput (Mbps)	2.54 Mbps

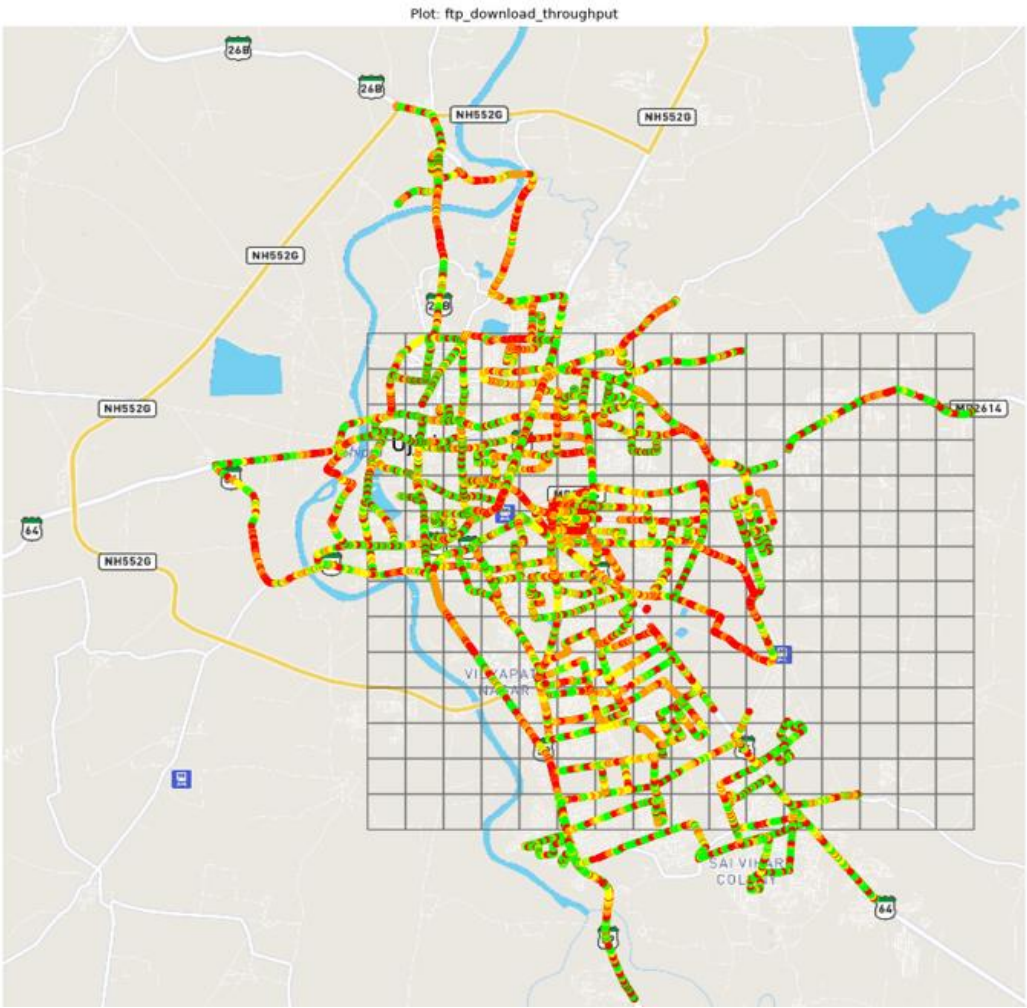


DL throughput	No of Sample	%	Legends
< 1 Mbps	1662957	30.46%	Red
1-5 Mbps	3347285	61.31%	Orange
5-10 Mbps	344726	6.31%	Yellow
>10Mbps	104578	1.92%	Green

TSP- Airtel

Data Statistics - Dynamic data testing

Data KPIs - Overall	LTE
Download Throughput (Mbps)	12.88

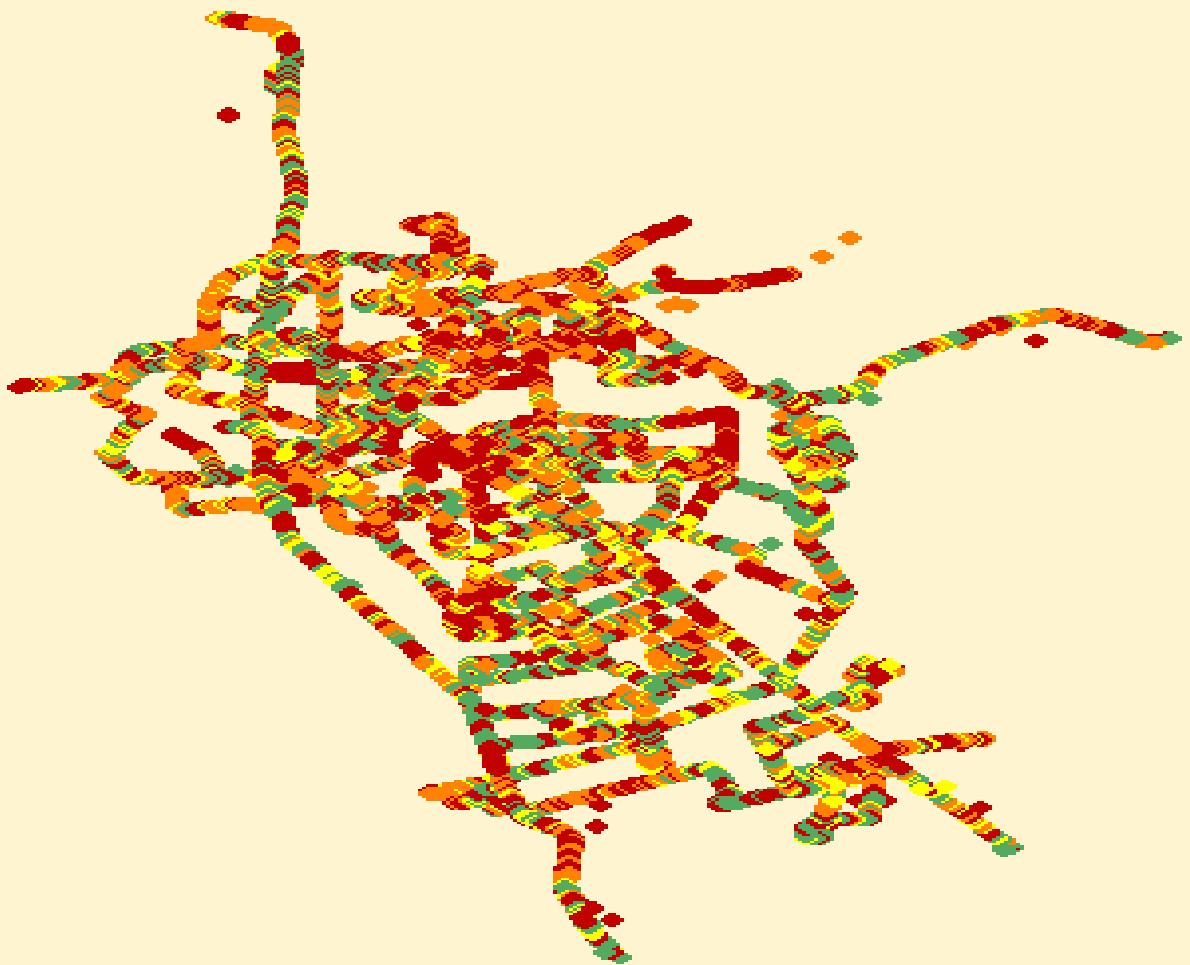


DL throughput	No of Sample	%	Legends
< 2Mbps	8518	18.07	
2-5 Mbps	10739	22.78	
5-10 Mbps	11292	23.96	
>10Mbps	16589	35.19	

TSP-JIO

Data Statistics - Dynamic data testing

Data KPIs - Overall	LTE
Download Throughput (Mbps)	7.85

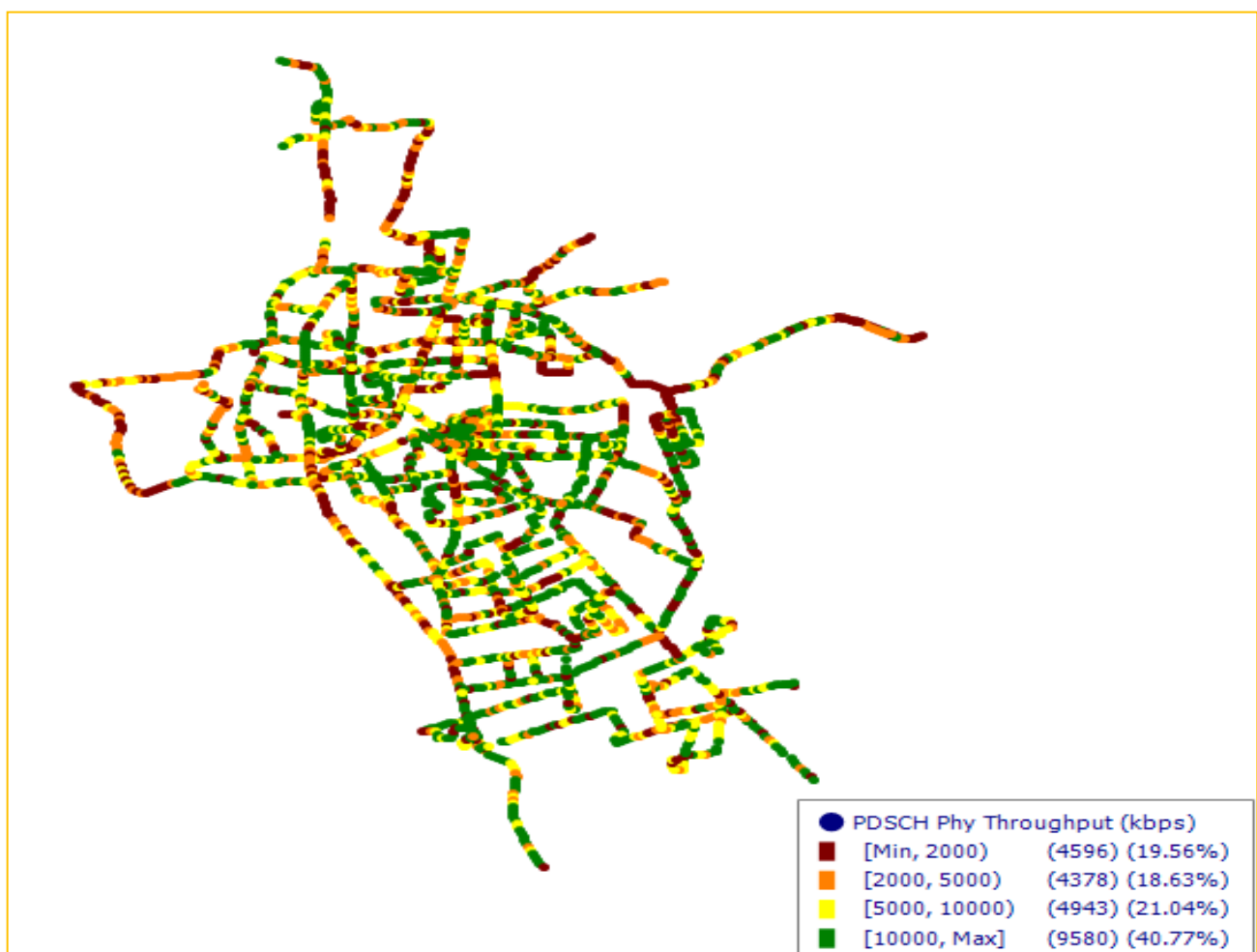


DL throughput	No of Sample	%	Legends
< 2Mbps	17432	33.69%	
2-5 Mbps	14848	28.7%	
5-10 Mbps	7865	15.20%	
>10Mbps	11595	22.41%	

TSP- VIL

Data Statistics - Dynamic data testing - ...322 Kms

Data KPIs - Overall	LTE
Download Throughput (Mbps)	11.36



DL throughput	No of Sample	%	Legends
< 2Mbps	4596	19.56%	
2-5 Mbps	4378	18.63%	
5-10 Mbps	4943	21.04%	
>10Mbps	9580	40.77%	