

Operator Assisted Drive Test Report

Gwalior City and nearby Area 25/06/2024 to 27/06/2024 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 Gwalior City and surrounding areas from 9:00 AM to 8:00 PM from - 25/06/2024 to 27/06/2024. The drive test covered drive route of around 400. KMs.

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

Key Performance Indicators:

KPI	Benchmark	Observations	
Block call rate %	≤3%	All TSPs achieved the benchmark.	
Drop call rate %	≤2%	All TSPs achieved the benchmark.	
CSSR %	≥95 %	All TSPs achieved the benchmark.	
Mobility HOSR %	≥95%	All TSPs achieved the benchmark.	
Good RX Quality %	≥95%	All TSPs achieved the benchmark. Except Rx	
Good KA Quanty 76	≥93%0	Quality of JiO and VI 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,4G & 5G). 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 **120-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)

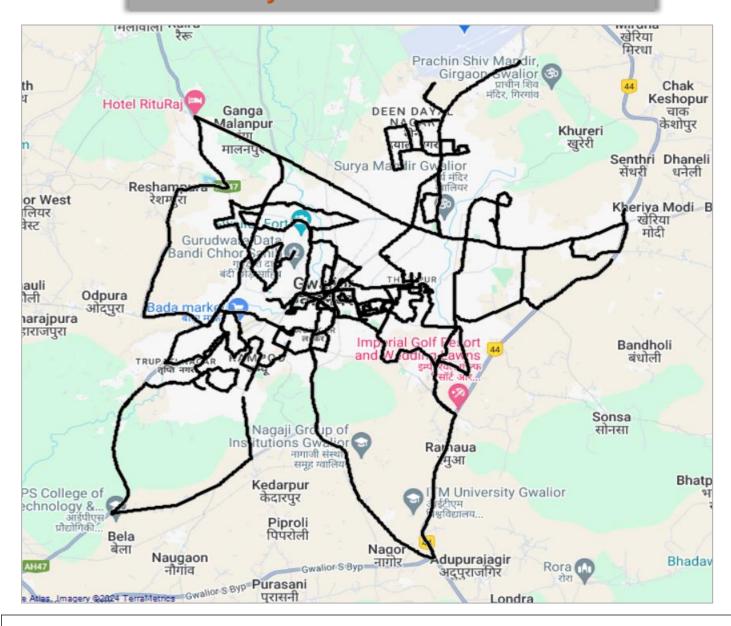
- i. 3G measurement UE in 3G File Size- 20MB
- ii. 4G measurement UE in LTE File Size- 40MB

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

- i. Download- 3G 20 MB, 4G 40MB, 5G -200 MB
- ii. Upload 3G 5 MB, 4G 10MB, 5G 100 MB
- iii. Web browsing 3 links of e-commerce websites https://www.amazon.in, https://www.amazon.in, https://www.amazon.in,
- iv. Video Streaming 130 sec clip
- v. Latency 32 Bytes on <u>www.google.com</u>.

Overview

Voice & Dynamic Data Test Drive Route



List of important area covered during the drive test

Citycenter, Padav, Ravi Nagar, Gandhi Nagar, Tansen Nagar, Kilagate, Sewa Nagar, Char sehar Naka, Punjabi pur

purani chawani, Transport Nagar, Bohadapur, Golpahadiya , Kampoo, Aamkho , Sikandar Kampoo, Police line, Maharaj Bada, Madhoganj, Sarafa bazar , Nai sadak, Laxmi Ganj , Patankar

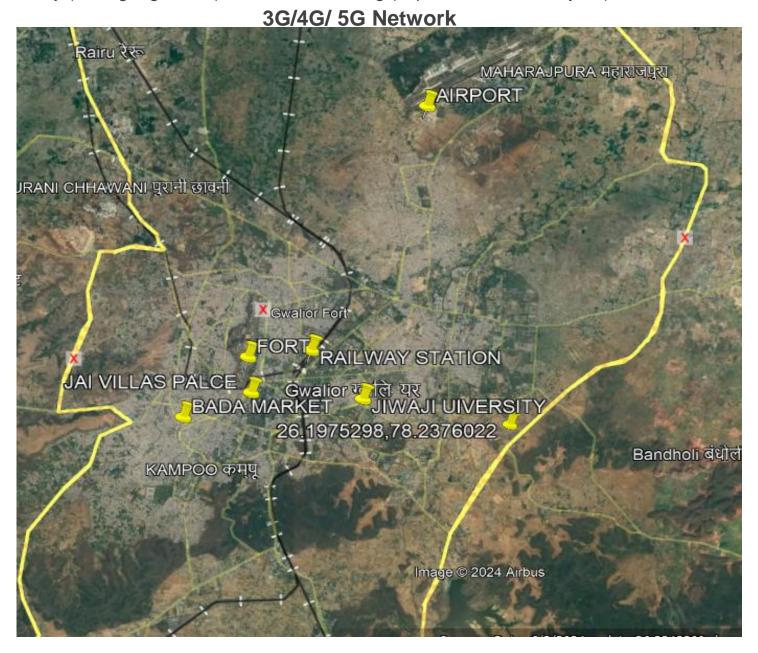
chouraha, Inderganj, Achleshwar temple ,Gwalior Fort ,Naka chandrawani ,Sitholi,Chetakpuri ,Vijay Nagar ,Ag office

Mehalgaon,jiwaji university ,New collectorate ,sirol ,hurawali ,Badagaon ,Gayatri vihar ,Darpan colony ,Sachin Tendulkar marg Thatipur ,Suresh Nagar ,Mela Ground ,Gola ka mandir

Data <u>Services</u> 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)



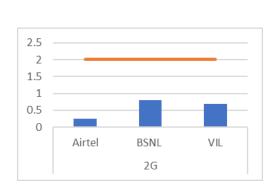
	Hotspot Locations				
1.	Gwalior Fort				
2.	Jai Villas Palace				
3.	Jiwaji University				
4.	Airport				
5.	Bada Market				
6.	Railway Station				

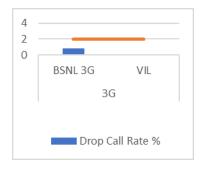
Voice Calls

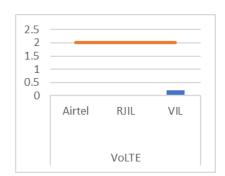
Key Observations

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

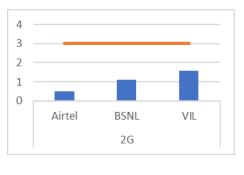
Drop Call Rate (%)

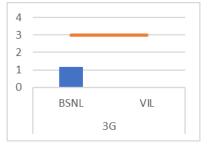


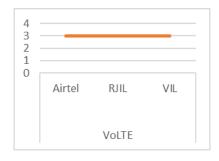




Block Call Rate (%)







Benchmark -

KPI achieved

KPIs	2G			3G		VoLTE		
Kris	Airtel	BSNL	VIL	BSNL	VIL	Airtel	RJIL	VIL
Drop Call Rate %	0.25	0.80	0.68	0.85	NA	0	0	0.21
Block Call Rate %	0.50	1.10	1.58	1.18	NA	0	NA	0.0

- a) All TSPs have met the 2% QOS benchmark of Drop Call Rate (DCR%)
- b) 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 ≥ -85 dBm.

	2G			
TSPs	Airtel	BSNL	VIL	
Coverage %	70.29	82.04	81.12	

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

TSPs	3G
	BSNL
Coverage %	80.43

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

TSPs	VoLTE			
105	Airtel	JIO	VIL	
Coverage %	98.02	99.83	98.49	

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

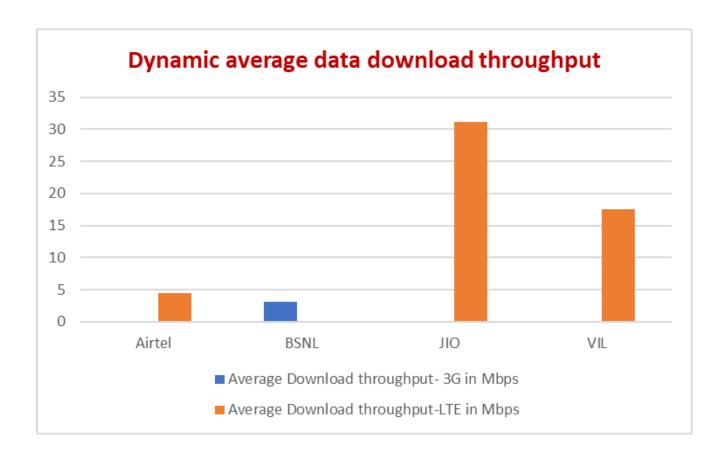
	3G		VolTE		
TSPs	BSNL VIL		Airtel	VIL	JIO
Time Spent on 3G/4G %	98.6	NA	100	97.56	100

Key Observations

Data Services Dynamic

Dynamic Data -Download Throughput was tested.

Data Download Performance - Dynamic 3G/4G/5G Network



TSP	Airtel	BSNL	JIO	VIL
Average Download throughput- 3G In Mbps	NA	3.12	NA	NA
Average Download throughput-LTE in Mbps	4.40	NA	31.11	17.54
Average Download throughput- 5G in Mbps	NA	NA	NA	NA

Data Summary

Summary

City Level Summary- Voice

TSP (For 2G)	Airtel	BSNL	VIL
Call attempts	404	577	451
Block call rate %	0.50	1.10	1.58
CSSR %	99.50	99.4	98.42
Drop call rate %	0.25	0.80	0.68
Mobility HOSR %	97.74	96.6	99.51
RX Quality %	97.12	97.95	96.32
Average CST Sec	2.26	2.4	2.49

TSP (For 3G)	BSNL
Call attempts	537
Block call rate %	1.18
CSSR %	99.1
Drop call rate %	0.85
Mobility HOSR %	95.4
RX Quality %	95.17
Average CST (Sec)	2.04

TSP (For Volte)	Airtel	BSNL	JIO	VIL
Call attempts	419	NA	422	473
Block call rate %	0	NA	NA	0.0
CSSR %	100	NA	98.82	100
Drop call rate %	0	NA	0.00	0.21
Mobility HOSR %	99.87	NA	99.62	98.99
RX Quality %	95.16	NA	94.57	91.14
Average CST(Sec)	0.61	NA	1.40	0.74

Summary

City Level Summary-Data Services -Static

TSP (For 3G)	BSNL
Download throughput in Mbps	5.32
Upload Throughput in Mbps	2.08
Video streaming delay in sec	0.2
Web browsing delay in second	0.09
Latency in (msec)	64

TSP (For LTE)	Airtel	BSNL	JIO	VIL
Download throughput in Mbps	6.88	NA	40.11	51.01
Upload Throughput in Mbps	1.64	NA	10.64	3.88
Video streaming delay in sec	1.26	NA	0.00	1.39
Web browsing delay in second	2.42	NA	1.34	0.30
Latency in (msec)	60.77	NA	61	116.5

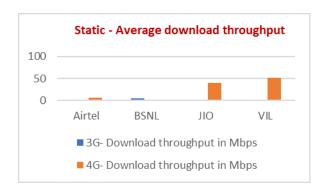
TSP (For 5G)	Airtel	BSNL	JIO	VIL
Download throughput in Mbps	NA	NA	NA	NA
Upload Throughput in Mbps	NA	NA	NA	NA
Video streaming delay in sec	NA	NA	NA	NA
Web browsing delay in second	NA	NA	NA	NA
Latency in (msec)	NA	NA	NA	NA

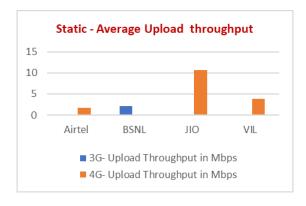
Data Services Static

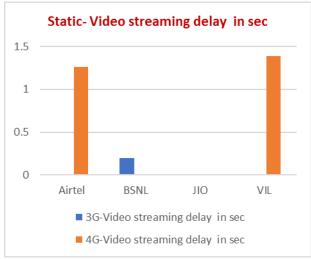
Key Observations

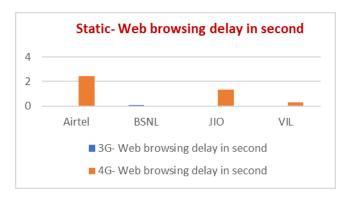
Data was tested at 6 locations .Following services were tested: Data Download/Upload, Latency (www.google.com), and Web browsing (Flipkart, Amazon, PayTm)

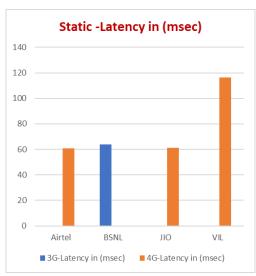
3G/4G/5G Network











1. Hotspot Location- Gwalior Railway Station

	3 G			
	Airtel	BSNL	JIO	VIL
Download throughput in	NA	7.76	NA	NA
Mbps				
Upload Throughput in	NA	2.02	NA	NA
Mbps				
Video streaming delay in	NA	NA	NA	NA
sec				
Web browsing delay in	NA	NA	NA	NA
second				
Latency in (msec)	NA	71.8	NA	NA

	LTE			
	Airtel	BSNL	JIO	VIL
Download throughput in	8.12	NA	34.95	33.29
Mbps	0.12	INA	54.95	
Upload Throughput in	3.13	NA	7.73	1.64
Mbps	3.13	INA	7.75	
Video streaming delay in	1.13	NA NA	0	1.37
sec	1.13	INA	O	
Web browsing delay in	2.27	NA NA	1 25	0.30
second	2.21	INA	1.35	
Latency in (msec)	55.4	NA	57	58

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

2. Hotspot Location-Gwalior Airport

	3 G			
	Airtel	BSNL	JIO	VIL
Download throughput in	NA	5.99	NA	NA
Mbps				
Upload Throughput in	NA	3.29	NA	NA
Mbps				
Video streaming delay in	NA	NA	NA	NA
sec				
Web browsing delay in	NA	NA	NA	NA
second				
Latency in (msec)	NA	71.6	NA	NA

	LTE			
	Airtel	BSNL	JIO	VIL
Download throughput in	9.31	NA	22.57	67.76
Mbps	9.51	INA	22.57	07.70
Upload Throughput in	1.2	NA	6.05	3.41
Mbps	1.2	INA	0.03	3.41
Video streaming delay in	1.32	NA	0	1.38
sec	1.52	IN/A	U	1.50
Web browsing delay in	2.27	NA	1 40	0.29
second	2.21	INA	1.48	0.29
Latency in (msec)	56.3	NA	68	66

	5G			
	Airtel	BSNL	JIO	VIL
Download throughput in	NA	NA	NA	NA
Mbps	INA	INA	INA	INA
Upload Throughput in	NA	NA	NA	NA
Mbps	INA	INA	INA	INA
Video streaming delay in	NA	NA	NA	NA
sec	INA	INA	INA	INA
Web browsing delay in	NA	NA NA	NIA	NA
second	INA	INA	NA	INA
Latency in (msec)	NA	NA	NA	NA

3. Hotspot Location- Jai Vilas Palace

	3G			
	Airtel	BSNL	JIO	VIL
Download throughput in	NA	10.37	NA	NA
Mbps				
Upload Throughput in	NA	4.00	NA	NA
Mbps				
Video streaming delay in	NA	NA	NA	NA
sec				
Web browsing delay in	NA	NA	NA	NA
second				
Latency in (msec)	NA	79.7	NA	NA

	LTE			
	Airtel	BSNL	JIO	VIL
Download throughput in	5.63	NA	59.74	55.06
Mbps	5.65	INA	39.74	55.06
Upload Throughput in	1.8	NA	5.25	3.54
Mbps	1.0	INA	5.25	3.54
Video streaming delay in	1.03	NA	0	1.41
sec	1.05	IN/A	U	1.41
Web browsing delay in	2.76	NA NA	1.22	0.26
second	2.70	INA	1.22	0.20
Latency in (msec)	45.1	NA	54	75

	5G			
	Airtel	BSNL	JIO	VIL
Download throughput in	NA	NA	NA	NA
Mbps	INA	INA	INA	INA
Upload Throughput in	NA	NA	NA	NA
Mbps	INA	INA	INA	INA
Video streaming delay in	NA	NA	NA	NA
sec	INA	INA	INA	INA
Web browsing delay in	NA	NA	NIA	NA
second	INA	INA	NA	INA
Latency in (msec)	NA	NA	NA	NA

4. Hotspot Location-Gwalior Fort

	3 G			
	Airtel	BSNL	JIO	VIL
Download throughput in	NA	10.81	NA	NA
Mbps				
Upload Throughput in	NA	3.99	NA	NA
Mbps				
Video streaming delay in	NA	NA	NA	NA
sec				
Web browsing delay in	NA	NA	NA	NA
second				
Latency in (msec)	NA	65.6	NA	NA

	LTE			
	Airtel	BSNL	JIO	VIL
Download throughput in Mbps	6.31	NA	52.21	10.45
Upload Throughput in Mbps	1.35	NA	27.14	0.50
Video streaming delay in sec	1.23	NA	0	1.45
Web browsing delay in second	2.30	NA	1.24	0.36
Latency in (msec)	70.8	NA	60	382

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

5. Hotspot Location- Jiwaji University

	3G			
	Airtel	BSNL	JIO	VIL
Download throughput in	NA	6.34	NA	NA
Mbps				
Upload Throughput in	NA	2.17	NA	NA
Mbps				
Video streaming delay in	NA	NA	NA	NA
sec				
Web browsing delay in	NA	NA	NA	NA
second				
Latency in (msec)	NA	61.1	NA	NA

	LTE			
	Airtel	BSNL	JIO	VIL
Download throughput in	5.13	NA	51.37	55.73
Mbps	5.15	INA	51.57	55.75
Upload Throughput in	1.1	NA	9.07	6.95
Mbps	1.1	INA	9.07	0.95
Video streaming delay in	1.27	NA	0	1.36
sec	1.21	INA	O	1.50
Web browsing delay in	2.19	NA	1 24	0.22
second	2.19	INA	1.34	0.22
Latency in (msec)	67.4	NA	62	55

	5G			
	Airtel	BSNL	JIO	VIL
Download throughput in	NA	NA	NA	NA
Mbps	INA	INA	INA	INA
Upload Throughput in	NA	NA	NA	NA
Mbps	INA	INA	INA	INA
Video streaming delay in	NA	NA	NA	NA
sec	INA	INA	INA	INA
Web browsing delay in	NA	NA NA	NIA	NA
second	INA	INA	NA	INA
Latency in (msec)	NA	NA	NA	NA

6. Hotspot Location-Bada Market

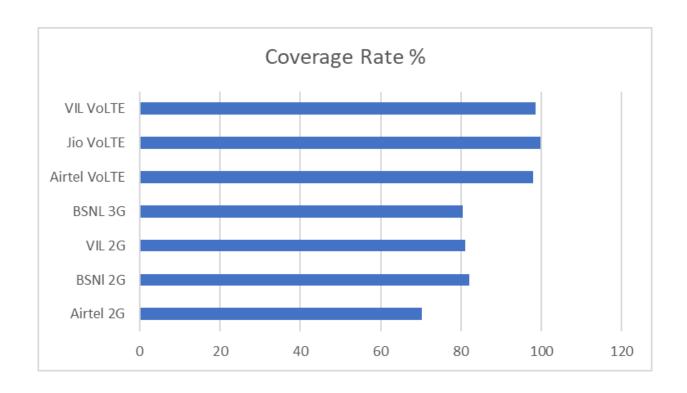
	3G			
	Airtel	BSNL	JIO	VIL
Download throughput in	NA	4.09	NA	NA
Mbps				
Upload Throughput in	NA	0.63	NA	NA
Mbps				
Video streaming delay in	NA	NA	NA	NA
sec				
Web browsing delay in	NA	NA	NA	NA
second				
Latency in (msec)	NA	73.7	NA	NA

	LTE			
	Airtel	BSNL	JIO	VIL
Download throughput in	6.76	NA	19.84	83.80
Mbps	5			
Upload Throughput in	1.23	NA	8.59	7.29
Mbps	1.20	INA	6.33	1.23
Video streaming delay in	1.12	NA	0	1.39
sec	1.12	INA		1.55
Web browsing delay in	2.75	NΙΛ	1.42	0.44
second	2.75	NA	1.42	0.41
Latency in (msec)	69.6	NA	67	63

	5G			
	Airtel	BSNL	JIO	VIL
Download throughput in	NA	NA	NA	NA
Mbps	INA	INA	INA	INA
Upload Throughput in	NA	NA	NA	NA
Mbps	INA	INA	INA	INA
Video streaming delay in	NA	NA	NA	NA
sec	INA	INA	INA	INA
Web browsing delay in	NA	NA	NIA	NA
second	INA	INA	NA	INA
Latency in (msec)	NA	NA	NA	NA

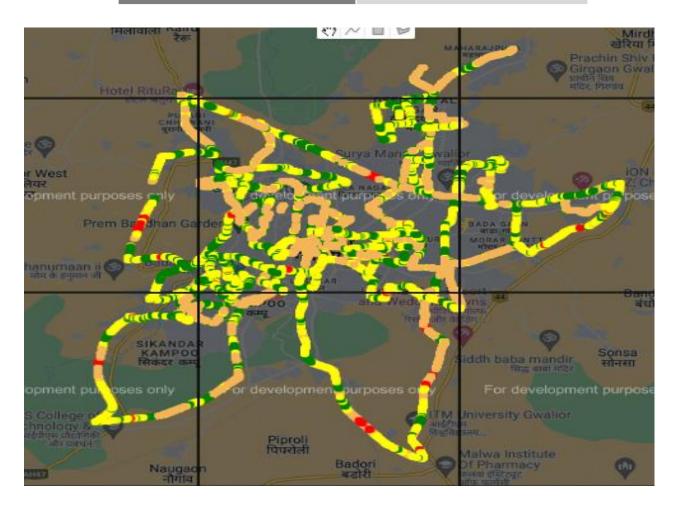
RF Coverage relates to the geographical footprint within the system that has sufficient RF signal strength to provide for a call session. The Coverage rate is calculated on the basis of % of samples in which the Rx level \geq -85 dBm, RSCP is \geq -90 dBm & RSRP \geq -110dBm. The details are as follows.

TSP	Coverage Rate %
Airtel 2G	70.29
BSNI 2G	82.04
VIL 2G	81.12
BSNL 3G	80.43
Airtel VoLTE	98.02
Jio VoLTE	99.83
VIL VoLTE	98.49



TSP- Airtel

Technology	Coverage %
2G	70.29



Color	Range	Count	Per
	[Min to -95]	(203)	(0.73%)
	[-95 to -85)	(8053)	(28.98%)
	[-85 to -75)	(10739)	(38.64%)
	[-75,Max)	(8796)	(31.65%)

TSP BSNL

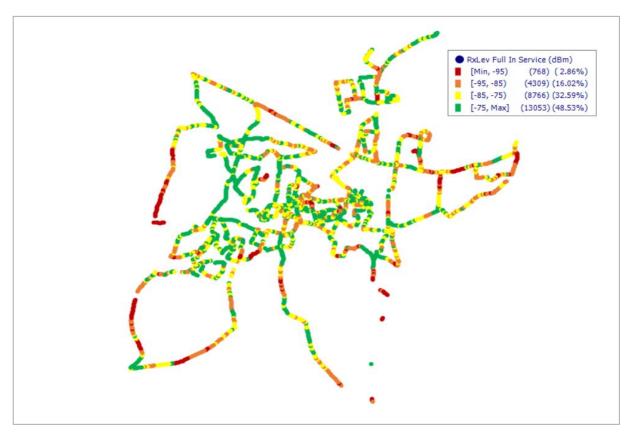
Technology	Coverage %
2G	82.04



2G			
Overall RxLevel	# Samples	% PDF	Legends
[Max, >=-75]	1345781	69.47	
[-75, >=-85)	243608	12.57	
[-85, >=-95)	289427	14.94	
[-95, >=Min)	58530	3.02	
Total	1937346		

TSP-.....VIL 2G

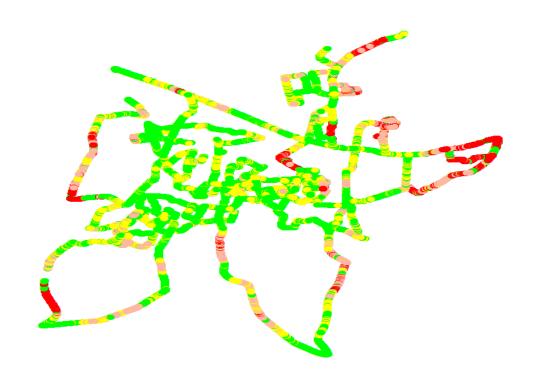
Technology	Coverage %
2G	81.12



	2G				
Overall RxLevel	# Samples	% PDF	Legends		
[Max, >=-75]	13053	48.53%			
[-75, >=-85)	8766	32.59%			
[-85, >=-95)	4309	16.02%			
[-95, >=Min)	768	2.86%			
Total	26896	100%			

TSP-BSNL

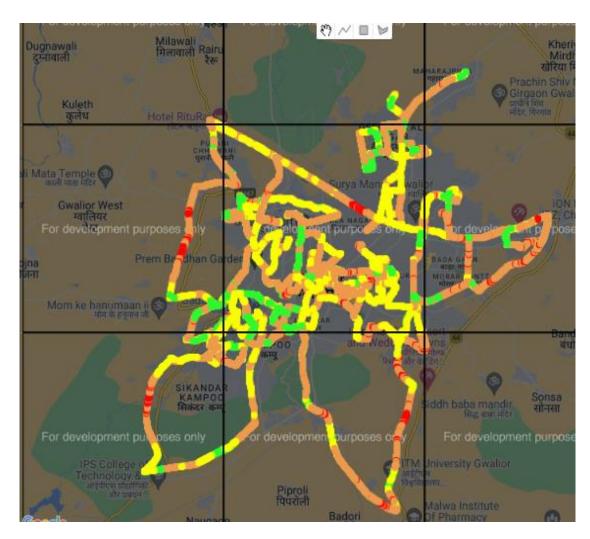
Technology	Coverage %
3G	80.43



	3G		
Overall RSCP	# Samples	% PDF	Legends
[Max, >=-70]	381058	22.93	
[-70, >=-80)	198003	11.91	
[-80, >=-90)	757680	45.59	
[-90, >=Min)	325310	19.57	
Total	1662051		

TSP- Airtel

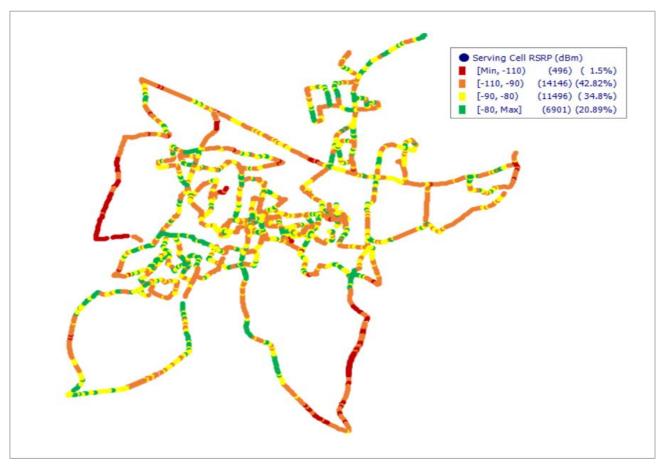
Technology	Coverage %
VoLTE	98.02



Color	Range	Count	Per
	[Min, -110)	(673)	(1.98%)
	[-110, -90)	(18910)	(55.56%)
	[-90, -80]	(10568)	(31.05%)
	[-80, Max)	(3882)	(11.41%)

TSP-...VIL VOLTE....

Technology	Coverage %
VoLTE	98.49



	VoLTE			
Overall RSRP	# Samples	% PDF	Legends	
[Max, >=-80]	6901	20.89%		
[-80, >=-90)	11496	34.80%		
[-90, >=-110)	14146	42.82%		
[-110, >=Min)	496	1.50%		
Total	33039	100%		

TSP- Jio

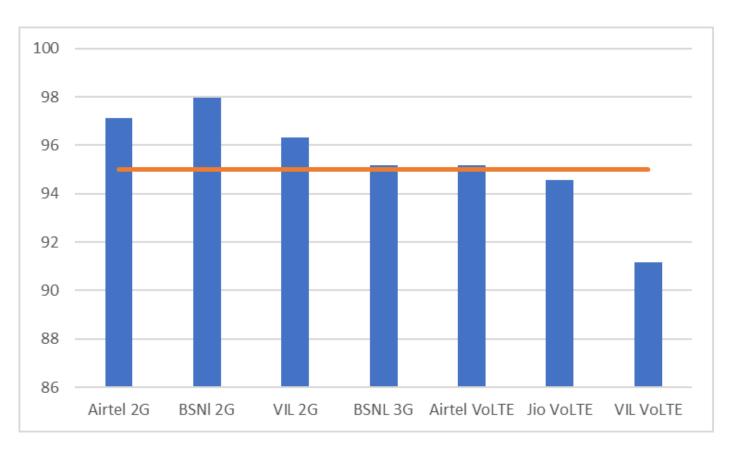
Technology	Coverage %
VoLTE	99.83



	VoLTE			
Overall RSRP	# Samples	% PDF	Legends	
[Max, >=-80]	28564	53.2		
[-80, >=-90)	16496	30.7		
[-90, >=-110)	8515	15.9		
[-110, >=Min)	90	0.17		
Total	53665	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 VoLTE is considered to be good, where as quality beyond this benchmark is considered to be bad. The benchmark should usually be \geq 95%.

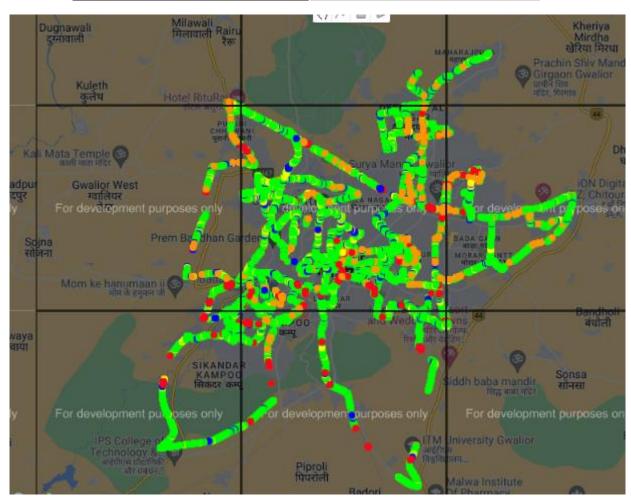
TSP	Rx Quality %
Airtel 2G	97.12
BSNI 2G	97.95
VIL 2G	96.32
BSNL 3G	95.17
Airtel VoLTE	95.16
Jio VoLTE	94.57
VIL VoLTE	91.14



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 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





Color	Range	Count	Per
	[Min, 2)	(19517)	(81.38%)
	[2,3]	(1768)	(7.37%)
	[3,4]	(1392)	(5.8%)
	[4,5]	(617)	(2.57%)
	[5,Max]	(688)	(2.87%)

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 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	97.95

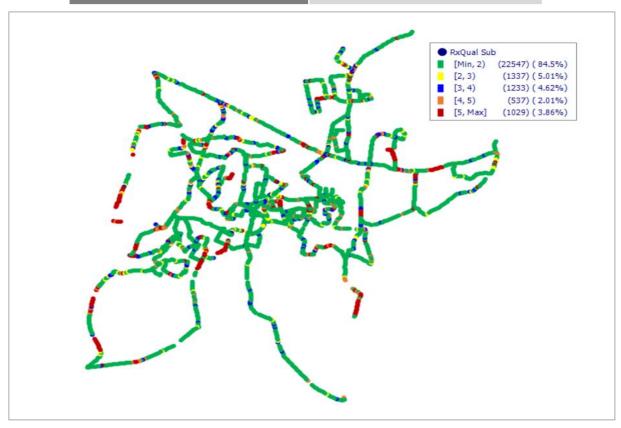


Overall Rx Quality	# Samples	% PDF	Legends
(Min, <=2)	1835363	94.74	
(2, <=3)	24036	1.24	
(3 , <=4)	19470	1.00	
(4 , <=5)	18699	0.97	
(5 , <=Max)	39778	2.05	
Total	1937346		

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 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 2G.....

Technology	Rx Quality %
2G	96.32

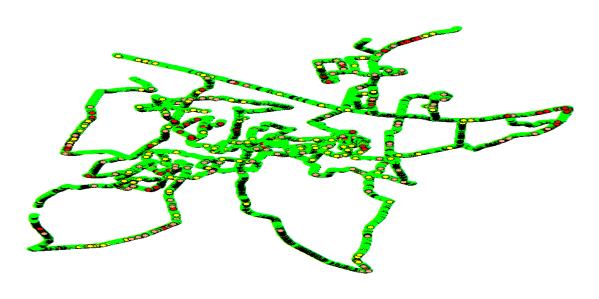


2G				
Overall Rx Quality	# Samples	% PDF	Legends	
(Min, <=2)	22547	84.50%		
(2, <=3)	1337	5.01%		
(3 , <=4)	1233	4.62%		
(4 , <=5)	537	2.01%		
(5 , <=Max)	1029	3.86%		
Total	26683	100%		

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 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

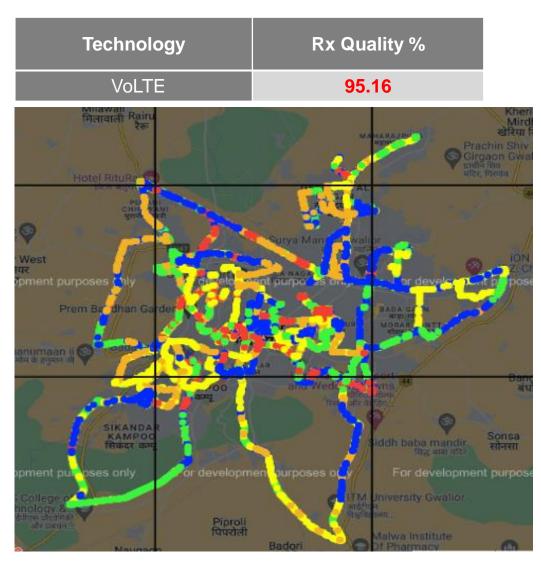
Technology	Rx Quality %
3G	95.17



Overall Ec/No	# Samples	% PDF	Legends
(Max, <=-6)	90288	16.72	
(-6, <=-9)	134049	24.82	
(-9, <=-11)	137129	25.39	
(-11, <=-14)	152477	28.23	
(-14, <= Min)	26093	4.83	
Total	540036		

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 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

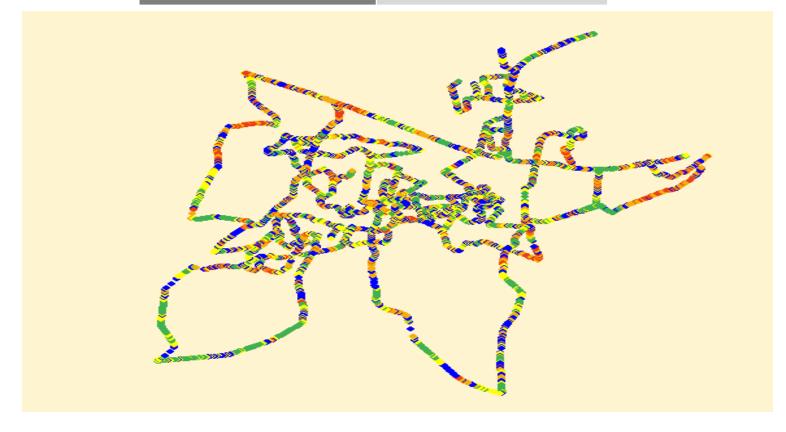


Color	Range	Count	Per
	(Min,0)	(1640)	(4.84%)
	(0,5)	(7647)	(22.56%)
	(5, 10)	(11350)	(33.48%)
	(10,15)	(8116)	(23.94%)
	(15,Max)	(5146)	(15.18%)

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 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	94.57%

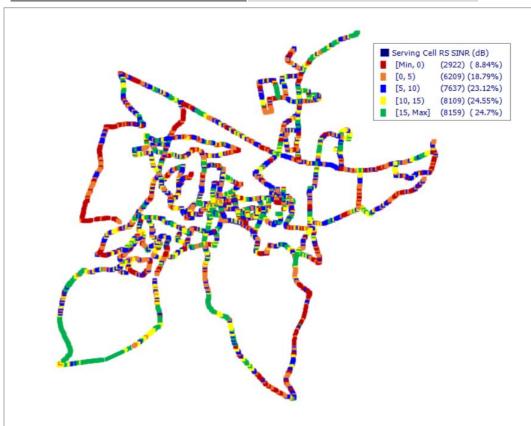


Overall SINR	# Samples	% PDF	Legends
(Min, <=0)	2916	5.43	
(0, <=5)	11129	20.74	
(5, <=10)	16190	30.17	
(10, <=15)	13199	24.60	
(15, <=Max)	10231	19.06	
Total	53665	100	

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 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 VOLTE....

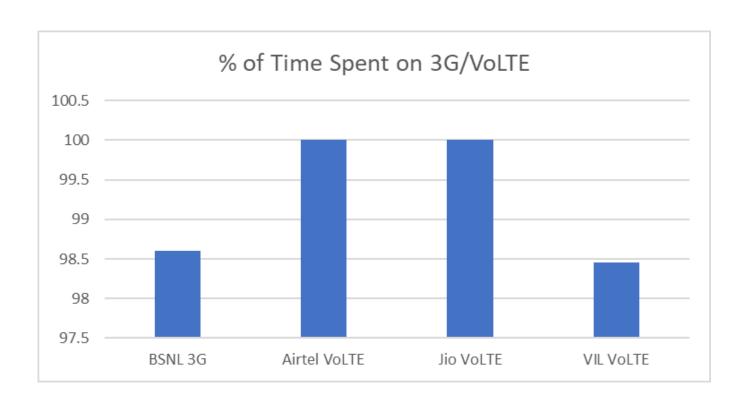




	VoLTE				
Overall SINR	# Samples	% PDF	Legends		
(Min, <=0)	2922	8.84%			
(0, <=5)	6209	18.79%			
(5, <=10)	7637	23.12%			
(10, <=15)	8109	24.55%			
(15, <=Max)	8159	24.70%			
Total	33036	100%			

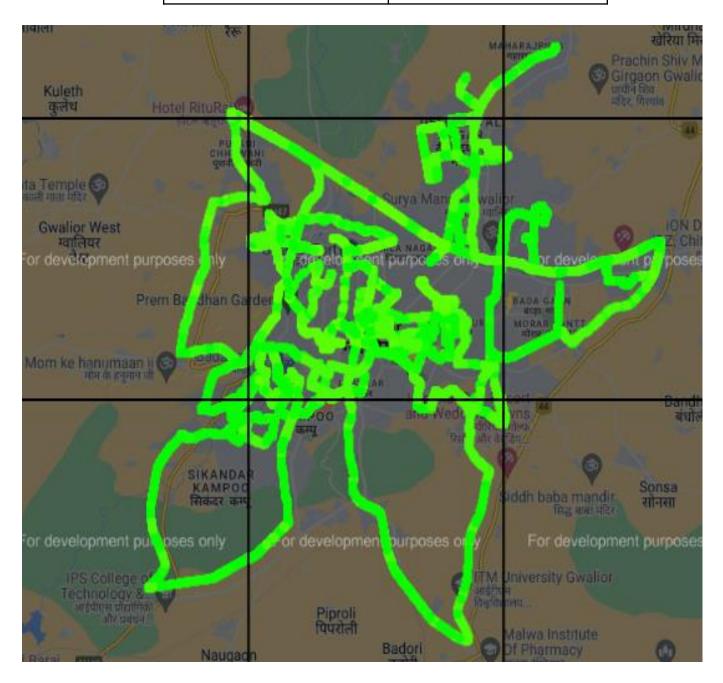
32

TSP	% of Time Spent on 3G/VoLTE
BSNL 3G	98.6
Airtel VoLTE	100
Jio VoLTE	100
VIL VoLTE	98.45



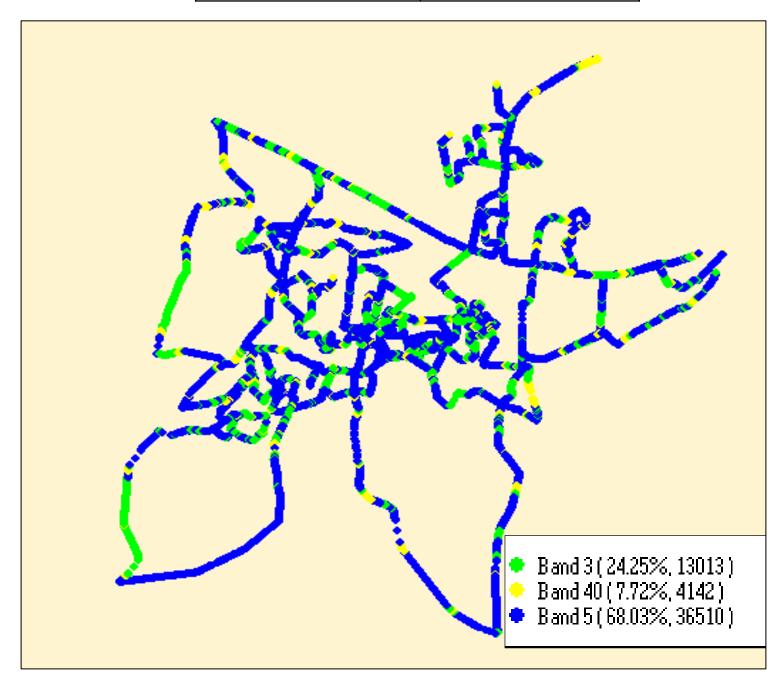
TSP- Airtel

Technology	% of Time Spent or	
3G		
VoLTE	100	



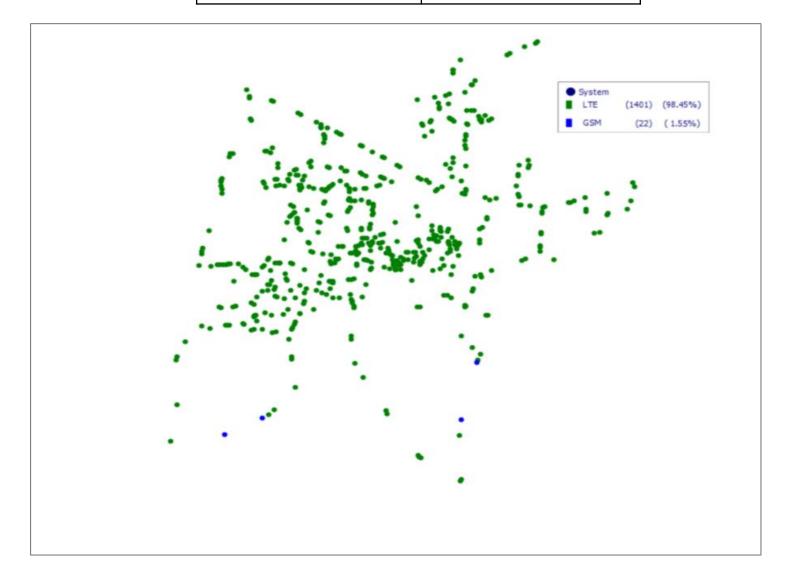
TSP-Jio

Technology	% of Time Spent on	
3G		
VoLTE	100%	



TSP-....VIL VOLTE..

Technology	% of Time Spent on
Non Volte	1.55
VoLTE	98.45



TSP-BSNL

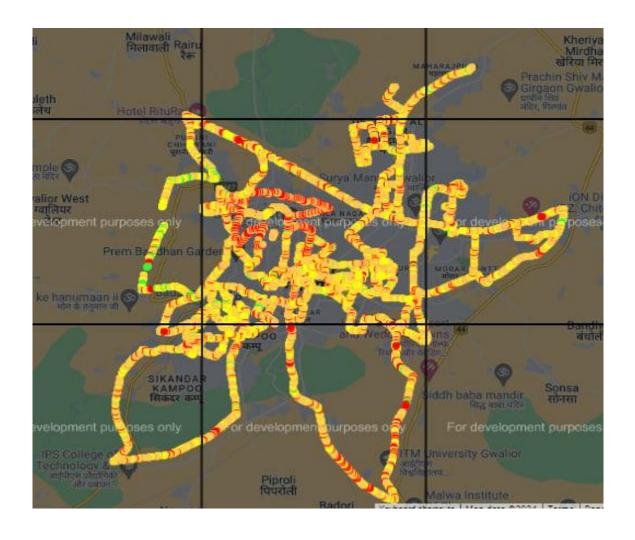
Data KPIs - Overall	3G	
Download Throughput (Mbps)	3.12	



DL throughput	No of Sample	%	Legends
< 1 Mbps	15026	9.54	
1-5 Mbps	90159	58.80	
5-10 Mbps	45079	31.66	
>10Mbps	0	0	

TSP- Airtel

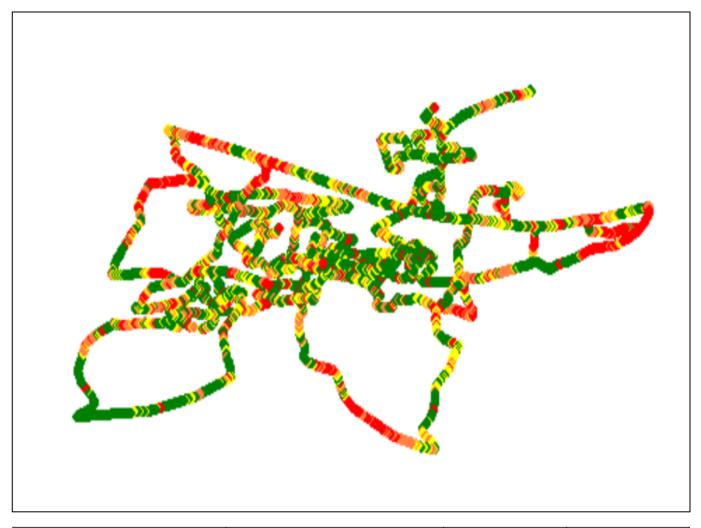
Data KPIs - Overall	LTE
Download Throughput (Mbps)	4.40



Color	Ronge	Count	Per
	(Min, 2000)	(4068)	(11.69%)
	(2000,6000)	(19700)	(56.62%)
	(6000, 10000)	(10540)	(30.29%)
	[10000, Max]	(486)	[1.4%]

TSP-Jio

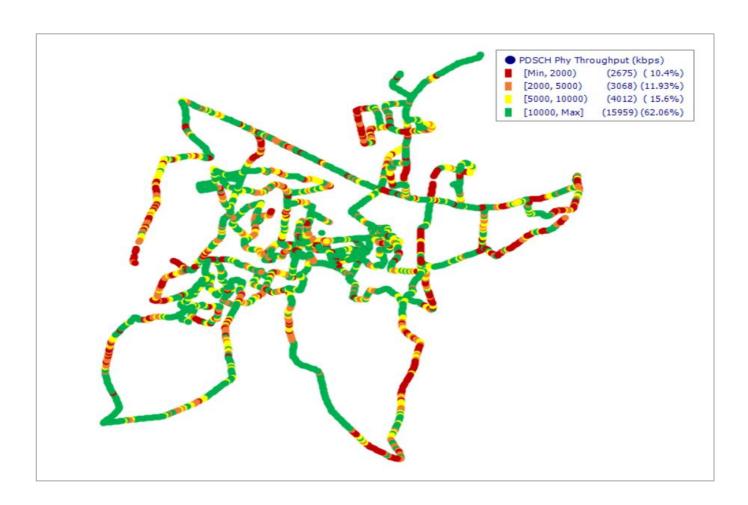
Data KPIs - Overall	LTE	
Download Throughput (Mbps)	31.11	



DL throughput	No of Sample	%	Legends
< 2Mbps	6621	12.07%	
2-5 Mbps	8088	14.75%	
5-10 Mbps	11041	20.13%	
>10Mbps	29094	53.05%	

TSP-...VIL LTE

Data KPIs - Overall	LTE
Download Throughput (Mbps)	17.54



DL throughput	No of Sample	%	Legends
< 2Mbps	2675	10.4%	
2-5 Mbps	3068	11.93%	
5-10 Mbps	4012	15.6%	
>10Mbps	15959	62.06%	