



Operator Assisted Drive Test Report

Mandsaur City and nearby Area

12/12/2023 to 14/12/2023

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 Mandsaur City and surrounding areas from 9:00 AM to 8:00 PM from -12/12/2023 to 14/12/2023. The drive test covered drive route of around 317 KMs.

TSP	Network tested
Airtel	2G & VoLTE
BSNL	2G & 3G
JIO	VoLTE
VIL	2G, 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 %	$\geq 95\%$	None of the TSP achieved the benchmark 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)

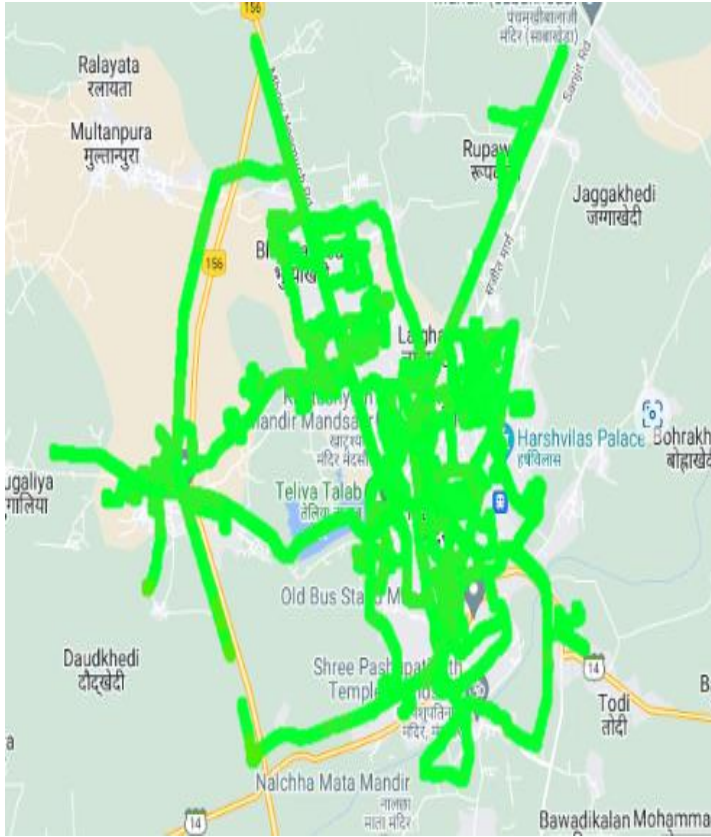
- i. 3G – measurement – UE in 3G File Size- 20MB
- ii. 4G – measurement – UE in LTE File Size- 40MB
- iii. 5G – measurement – UE in 5G File Size- 200MB

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

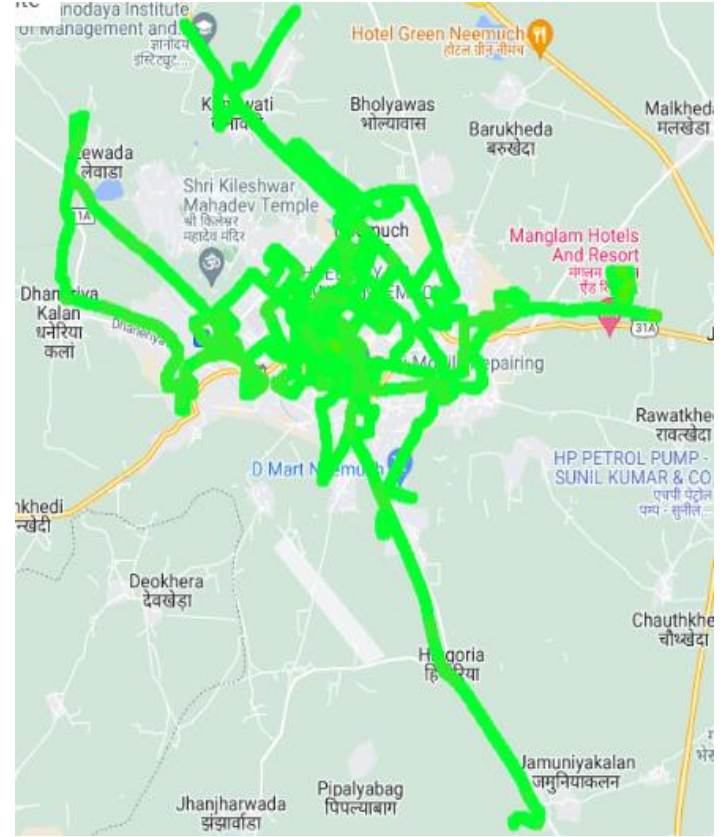
- i. Download- 3G - 20 MB, 4G - 40MB, 5G -200 MB
- ii. Upload - 3G - 5 MB, 4G - 10MB, 5G – 100 MB
- iii. Web browsing - 3 links of e-commerce websites <https://www.amazon.in>, <https://www.flipkart.com>, <https://paytm.com>.
- iv. Video Streaming – 130 sec clip
- v. Latency – 32 Bytes on www.google.com.

Overview

Voice & Dynamic Data Test Drive Route



Mandsaur



Neemuch

List of important area covered during the drive test

Mandsaur Railway station

Shri Pahupatinath Mandir

Bus stand Mandsaur

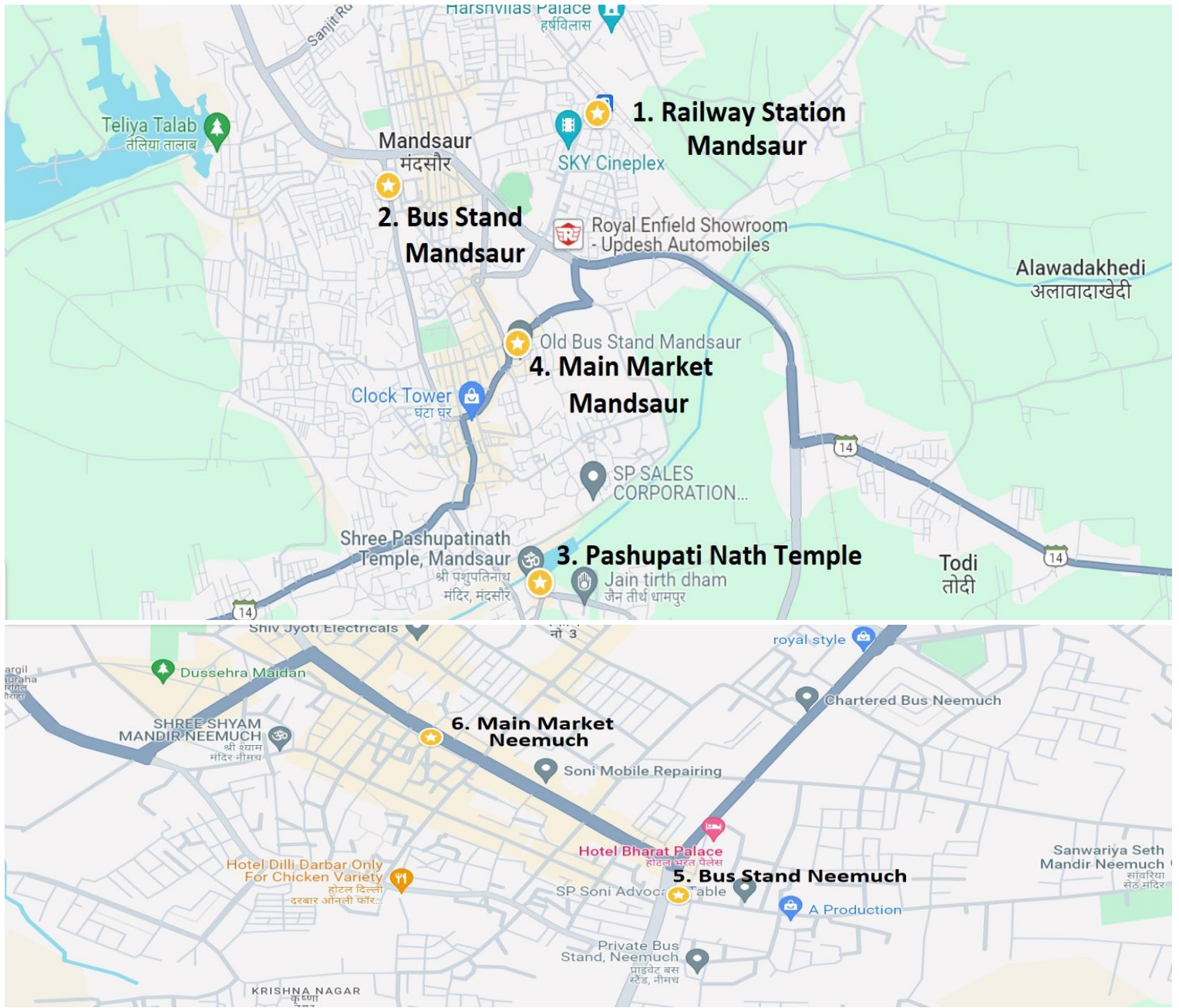
Main Market Mandsaur

Bus stand Neemuch

Main Market Neemuch

Overview

Data Service Test- Static Locations



Hotspot Locations

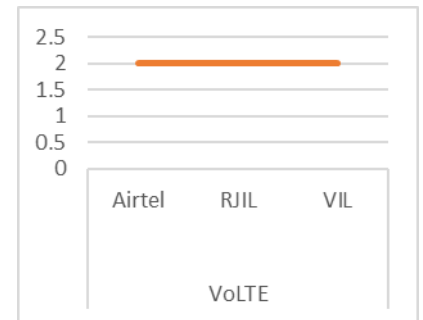
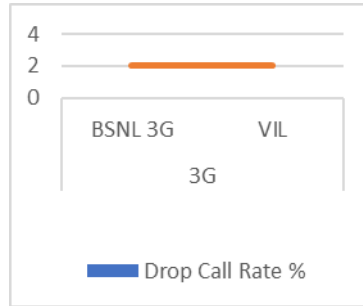
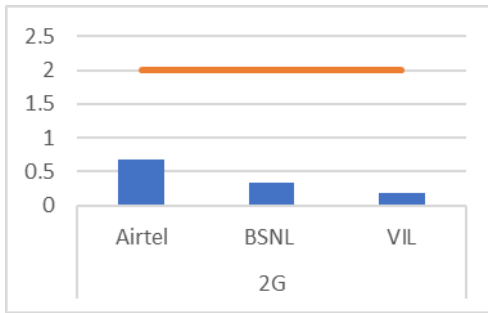
1. Railway Station Mandsaur.
2. Main Bus Stand.
3. Pashupati Nath Temple.
4. Main Market Mandsaur (Old Bus Stand).
5. Bus Stand Neemuch.
6. Main Market Neemuch.

Voice Calls

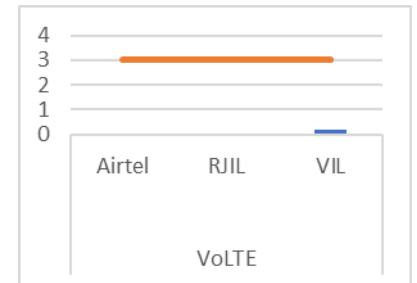
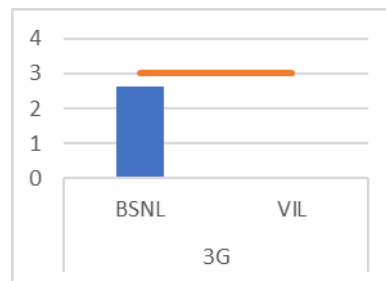
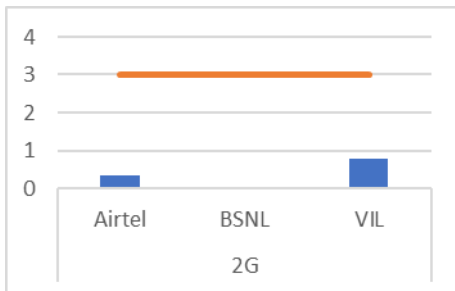
Key Observations

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 %	0.68	0.33	0.19	0	NA	0	0	0
Block Call Rate %	0.34	0.0	0.78	2.61	NA	0	NA	0.2

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 \geq -85 dBm.

TSPs	2G		
	Airtel	BSNL	VIL
Coverage %	69.34	94.37	78.42

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

TSPs	3G
	BSNL
Coverage %	85.54

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

TSPs	VoLTE		
	Airtel	JIO	VIL
Coverage %	99.67	99.15	99.31

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

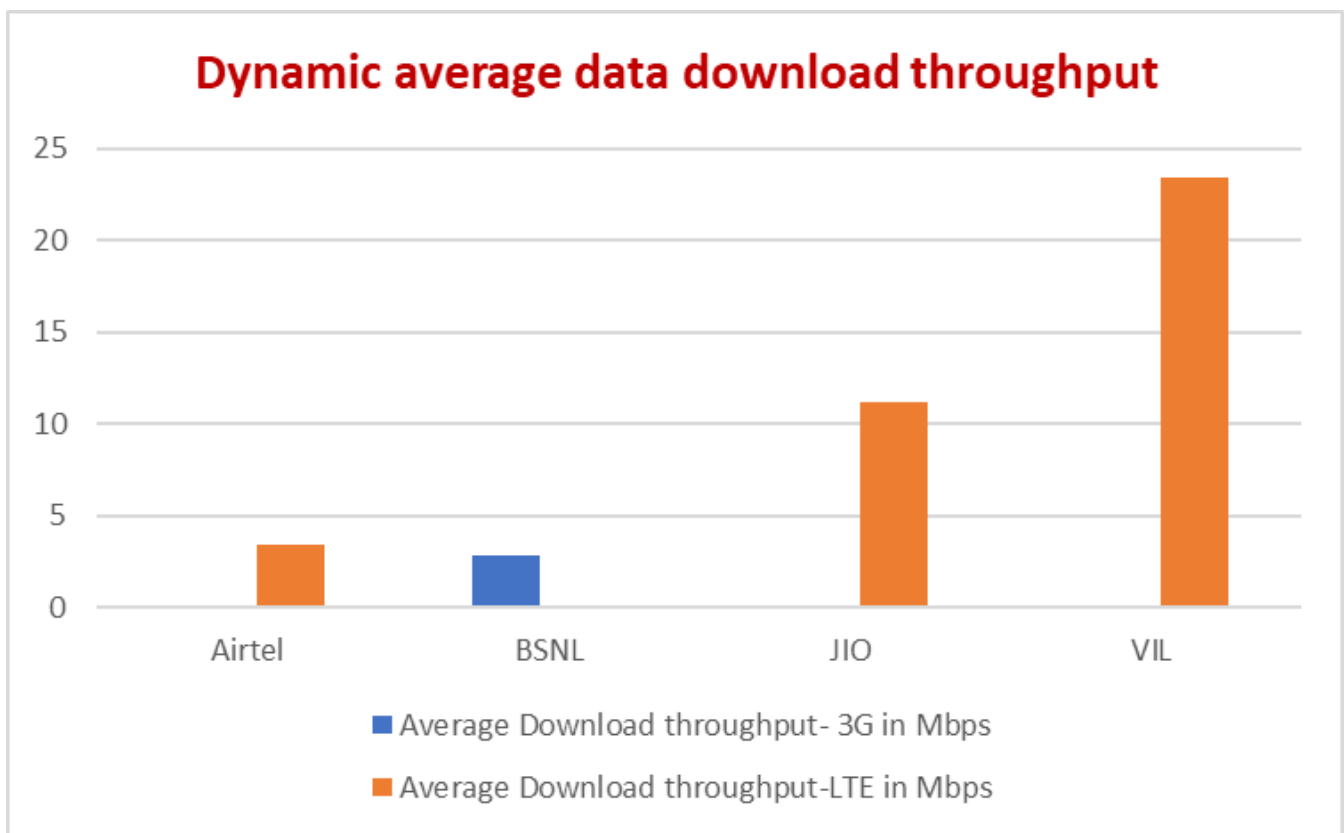
TSPs	3G		VoLTE		
	BSNL	VIL	Airtel	VIL	JIO
Time Spent on 3G/4G %	99.5	NA	100	91.3	100

Data Services Dynamic

Key Observations

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	2.81	NA	NA
Average Download throughput-LTE in Mbps	3.4	NA	11.19	23.40
Average Download throughput-5G in Mbps	NA	NA	NA	NA

Summary

City Level Summary- Voice

TSP (For 2G)	Airtel	BSNL	VIL
Call attempts	592	616	510
Block call rate %	0.68	0.00	0.78
CSSR %	99.32	99.84	99.22
Drop call rate %	0.34	0.33	0.19
Mobility HOSR %	99.02	99.64	99.22
RX Quality %	98.28	98.59	99.32
Average CST Sec	3.03	2.1	2.37

TSP (For 3G)	BSNL
Call attempts	613
Block call rate %	2.61
CSSR %	97.39
Drop call rate %	0.00
Mobility HOSR %	99.75
RX Quality %	95.70
Average CST (Sec)	2.2

TSP (For Volte)	Airtel	BSNL	JIO	VIL
Call attempts	614	NA	419	476
Block call rate %	0	NA	NA	0.21
CSSR %	100	NA	100	99.79
Drop call rate %	0	NA	0	0
Mobility HOSR %	99.72	NA	98.61	99.56
RX Quality %	92.27	NA	85.67	91.90
Average CST(Sec)	0.79	NA	1.87	1.09

Summary

City Level Summary- Data Services -Static

TSP (For 3G)	BSNL
Download throughput in Mbps	5.706
Upload Throughput in Mbps	1.58
Video streaming delay in sec	1.5
Web browsing delay in second	4.4035
Latency in (msec)	73.5

TSP (For LTE)	Airtel	BSNL	JIO	VIL
Download throughput in Mbps	10.26	NA	11.03	25.28
Upload Throughput in Mbps	6.12	NA	11.11	14.68
Video streaming delay in sec	0.66	NA	NA	0.88
Web browsing delay in second	2.67	NA	3.10	0.48
Latency in (msec)	49.18	NA	54	58

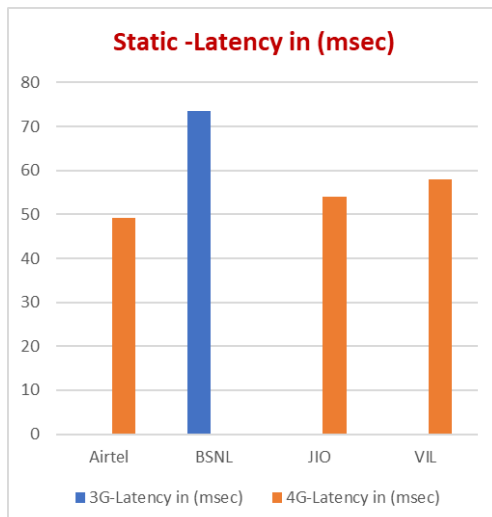
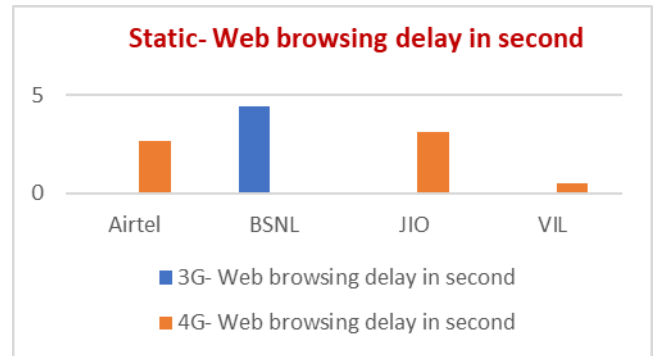
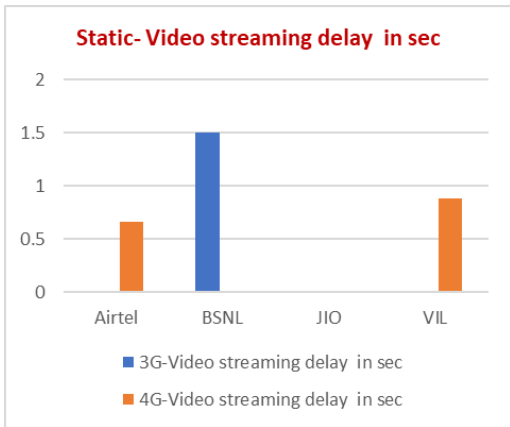
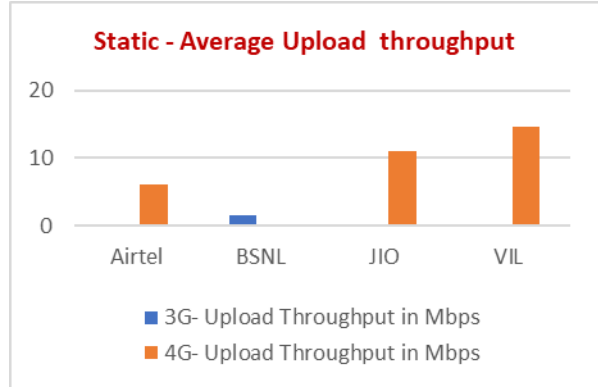
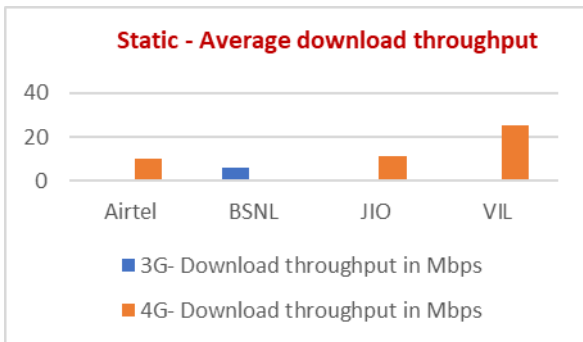
TSP (For 5G)	Airtel	BSNL	JIO	VIL
Download throughput in Mbps	NA	NA	NA	NA
Upload Throughput in Mbps	NA	NA	NA	NA
Video streaming delay in sec	NA	NA	NA	NA
Web browsing delay in second	NA	NA	NA	NA
Latency in (msec)	NA	NA	NA	NA

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- Mandsaur Railway station

	3G			
	Airtel	BSNL	JIO	VIL
Download throughput in Mbps	NA	5.23	NA	NA
Upload Throughput in Mbps	NA	1.39	NA	NA
Video streaming delay in sec	NA	1.7	NA	NA
Web browsing delay in second	NA	5.625	NA	NA
Latency in (msec)	NA	70	NA	NA

	LTE			
	Airtel	BSNL	JIO	VIL
Download throughput in Mbps	9.62	NA	10.63	28.22
Upload Throughput in Mbps	3.12	NA	10.18	22.00
Video streaming delay in sec	0.55	NA	NA	0.91
Web browsing delay in second	2.58	NA	4.02	0.53
Latency in (msec)	47.4	NA	56	65

	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

2. Hotspot Location-Shri Pashupatinath Mandir

	3G			
	Airtel	BSNL	JIO	VIL
Download throughput in Mbps	NA	3.99	NA	NA
Upload Throughput in Mbps	NA	1.69	NA	NA
Video streaming delay in sec	NA	1.9	NA	NA
Web browsing delay in second	NA	4.892	NA	NA
Latency in (msec)	NA	76	NA	NA

	LTE			
	Airtel	BSNL	JIO	VIL
Download throughput in Mbps	11.31	NA	8.48	25.21
Upload Throughput in Mbps	8.2	NA	13.12	11.94
Video streaming delay in sec	0.53	NA	NA	0.84
Web browsing delay in second	1.54	NA	2.52	0.41
Latency in (msec)	44.3	NA	53	53

	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

3. Hotspot Location- Bus stand Mandsaour

	3G			
	Airtel	BSNL	JIO	VIL
Download throughput in Mbps	NA	7.898	NA	NA
Upload Throughput in Mbps	NA	1.67	NA	NA
Video streaming delay in sec	NA	1.5	NA	NA
Web browsing delay in second	NA	5.795	NA	NA
Latency in (msec)	NA	72	NA	NA

	LTE			
	Airtel	BSNL	JIO	VIL
Download throughput in Mbps	13.48	NA	6.85	34.24
Upload Throughput in Mbps	2.3	NA	7.10	8.16
Video streaming delay in sec	0.67	NA	NA	0.88
Web browsing delay in second	1.56	NA	3.02	0.42
Latency in (msec)	37.1	NA	53	55

	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

4. Hotspot Location-Main Market Mandsaour

	3G			
	Airtel	BSNL	JIO	VIL
Download throughput in Mbps	NA	5.17	NA	NA
Upload Throughput in Mbps	NA	1.59	NA	NA
Video streaming delay in sec	NA	1.2	NA	NA
Web browsing delay in second	NA	4.872	NA	NA
Latency in (msec)	NA	73	NA	NA

	LTE			
	Airtel	BSNL	JIO	VIL
Download throughput in Mbps	7.4	NA	13.62	18.85
Upload Throughput in Mbps	5.98	NA	14.14	18.75
Video streaming delay in sec	0.77	NA	NA	0.88
Web browsing delay in second	1.59	NA	2.92	0.53
Latency in (msec)	70.1	NA	54	57

	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

5. Hotspot Location- Bus stand Neemuch

	3G			
	Airtel	BSNL	JIO	VIL
Download throughput in Mbps	NA	7.85	NA	NA
Upload Throughput in Mbps	NA	1.71	NA	NA
Video streaming delay in sec	NA	1.1	NA	NA
Web browsing delay in second	NA	2.272	NA	NA
Latency in (msec)	NA	71	NA	NA

	LTE			
	Airtel	BSNL	JIO	VIL
Download throughput in Mbps	11.1	NA	16.62	26.85
Upload Throughput in Mbps	9.68	NA	12.42	18.18
Video streaming delay in sec	0.67	NA	NA	0.79
Web browsing delay in second	3.6	NA	2.95	0.529
Latency in (msec)	38.4	NA	57	59

	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

6. Hotspot Location-Main Market Neemuch

	3G			
	Airtel	BSNL	JIO	VIL
Download throughput in Mbps	NA	8.67	NA	NA
Upload Throughput in Mbps	NA	1.47	NA	NA
Video streaming delay in sec	NA	1.9	NA	NA
Web browsing delay in second	NA	2.965	NA	NA
Latency in (msec)	NA	79	NA	NA

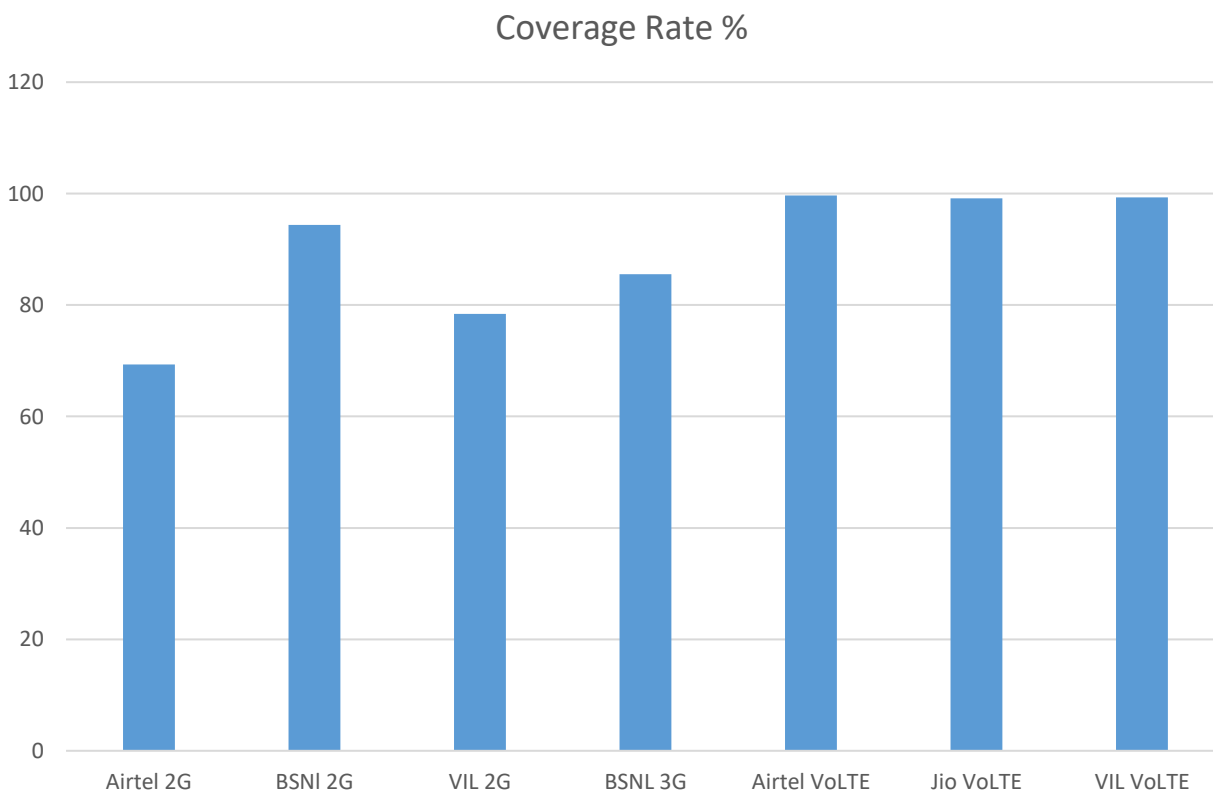
	LTE			
	Airtel	BSNL	JIO	VIL
Download throughput in Mbps	8.65	NA	9.99	18.34
Upload Throughput in Mbps	7.45	NA	9.68	13.64
Video streaming delay in sec	0.82	NA	NA	1.0
Web browsing delay in second	5.11	NA	3.19	0.523
Latency in (msec)	57.1	NA	52	59

	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

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.

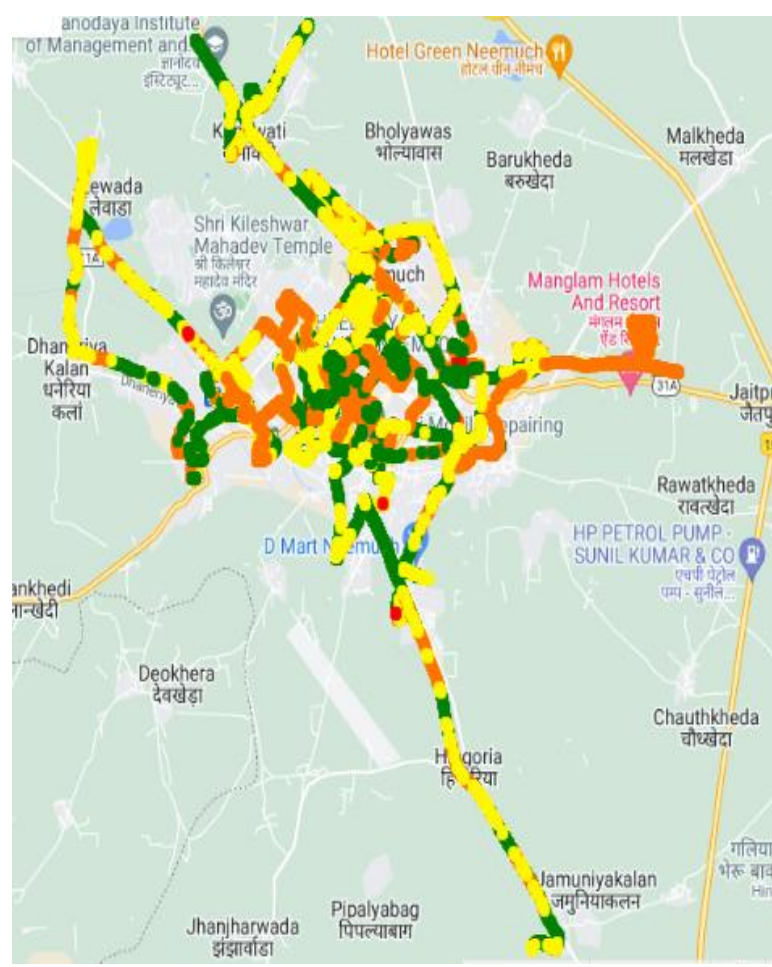
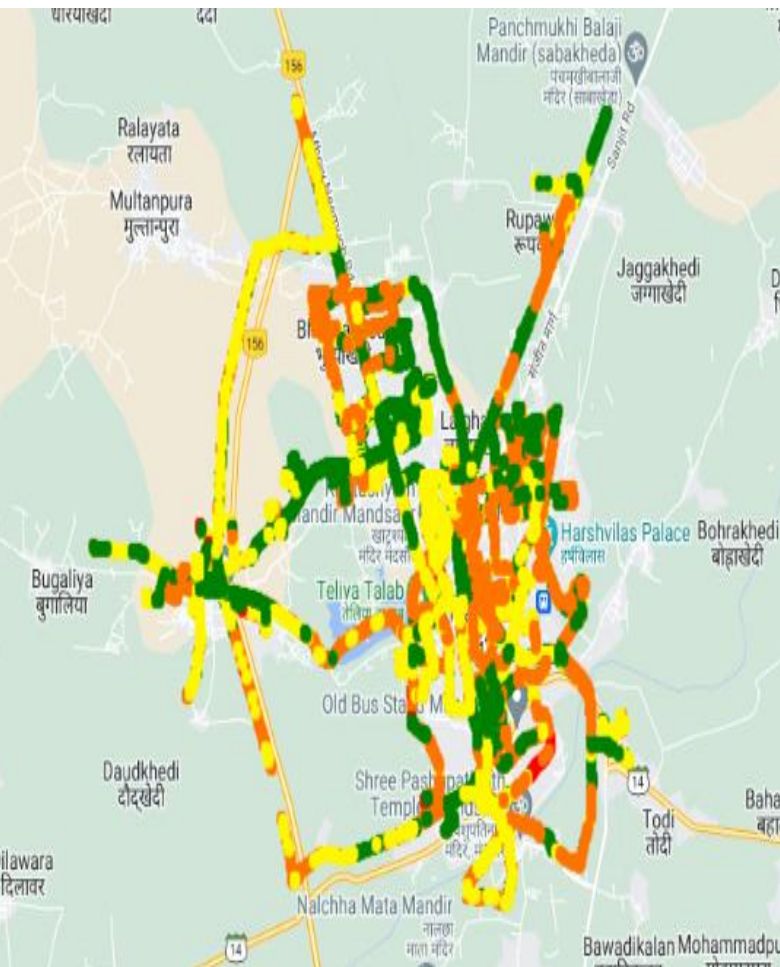
TSP	Coverage Rate %
Airtel 2G	69.34
BSNI 2G	94.37
VIL 2G	78.42
BSNL 3G	85.54
Airtel VoLTE	99.67
Jio VoLTE	99.15
VIL VoLTE	99.31



Coverage Details

TSP- Airtel

Technology	Coverage %
2G	69.34



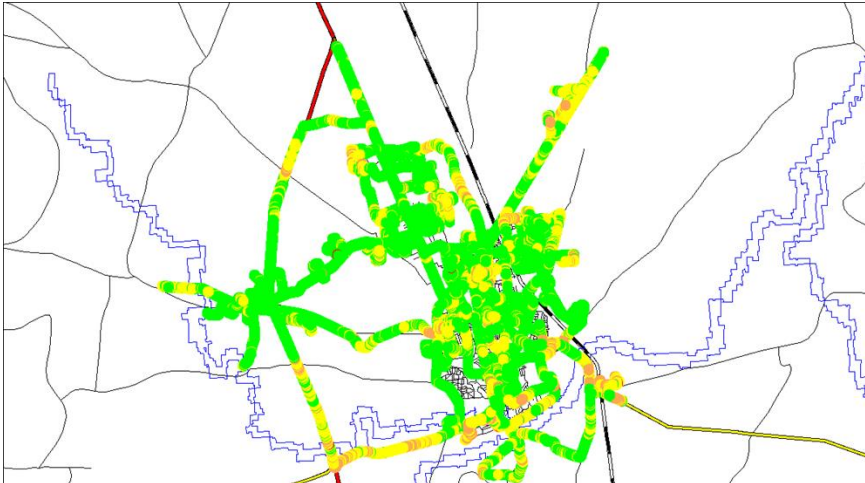
Color	Range	Count	Per
Red	[Min to -95]	(118)	(0.26%)
Orange	[-95 to -85]	(13604)	(30.39%)
Yellow	[-85 to -75]	(14870)	(33.22%)
Green	[-75, Max]	(16166)	(36.12%)

Coverage Details

TSP- BSNL

Technology	Coverage %
2G	94.37 %

Mandsaur City



Neemuch City

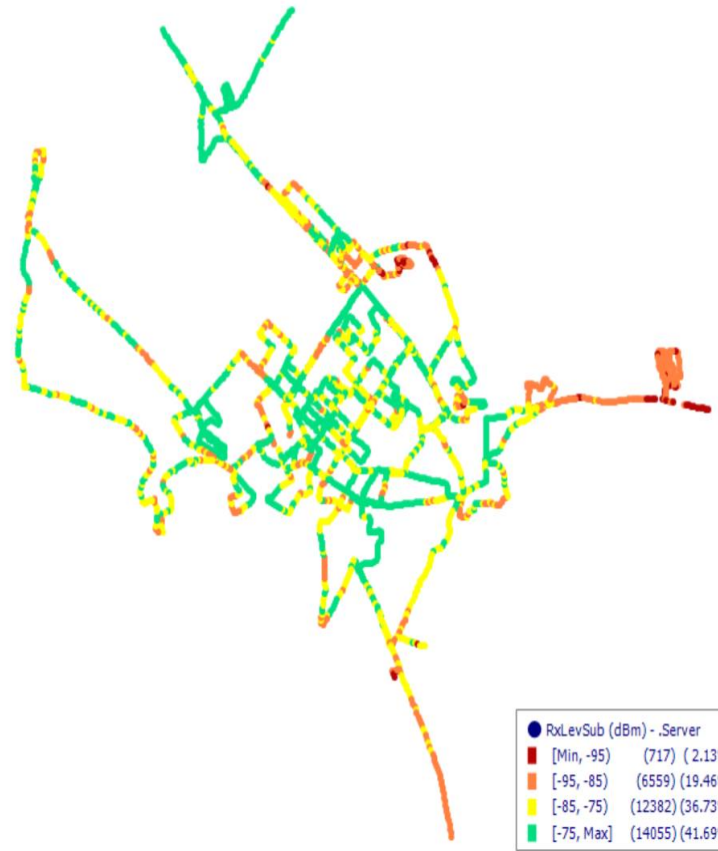
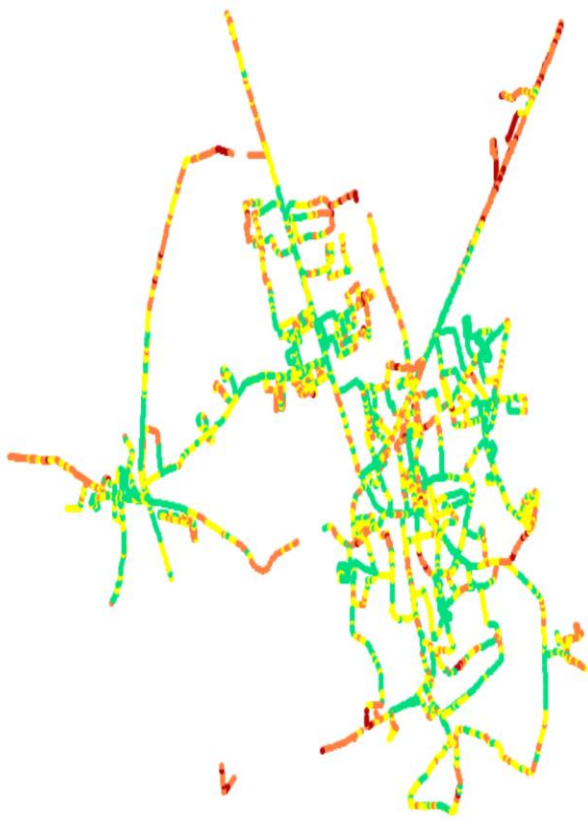


2G			
Overall RxLevel	# Samples	% PDF	Legends
[Max, >=-75]	3683490	69.01	
[-75, >=-85)	1353669	25.36	
[-85, >=-95)	283522	5.31	
[-95, >=Min)	17151	0.32	
Total	533783		

Coverage Details

TSP –VIL 2G

Technology	Coverage %
2G	78.42%

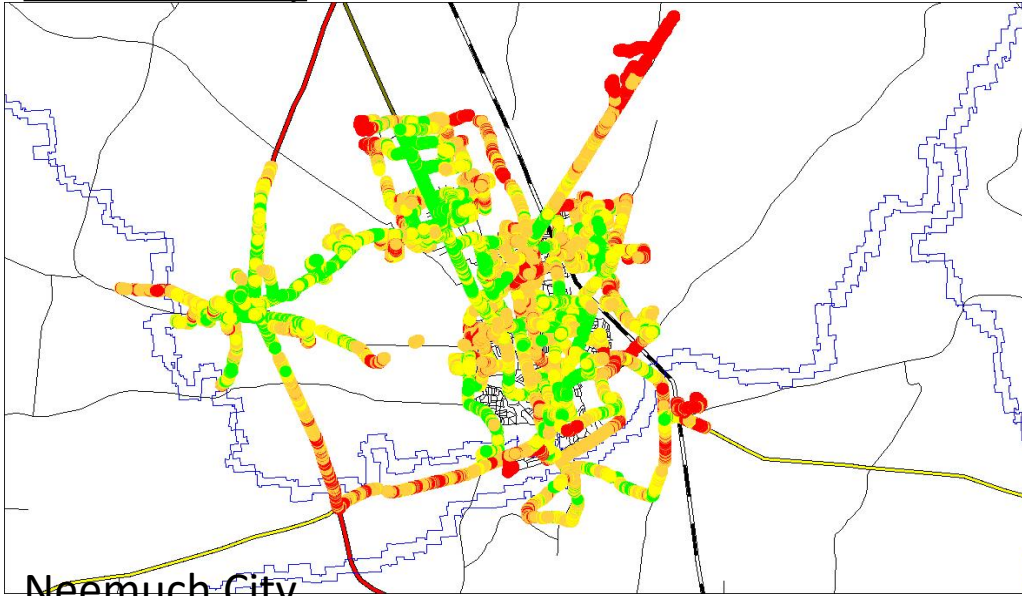


2G			
Overall RxLevel	# Samples	% PDF	Legends
[Max, >=-75]	14055	41.69%	
[-75, >=-85)	12382	36.73%	
[-85, >=-95)	6559	19.46%	
[-95, >=Min)	717	2.13%	
Total	33713	100%	

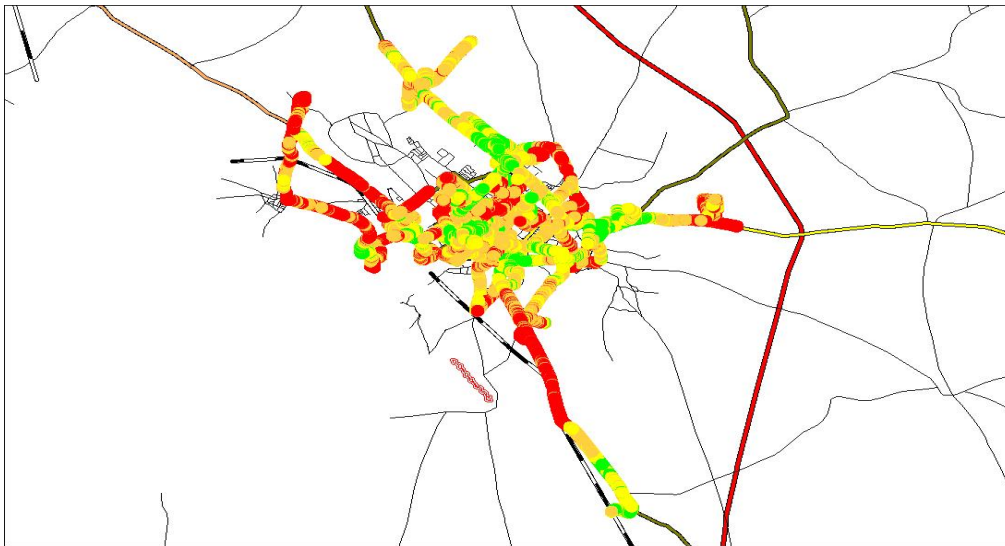
TSP- BSNL





Technology	Coverage %
3G	85.54 %

Mandsaur City



Neemuch City

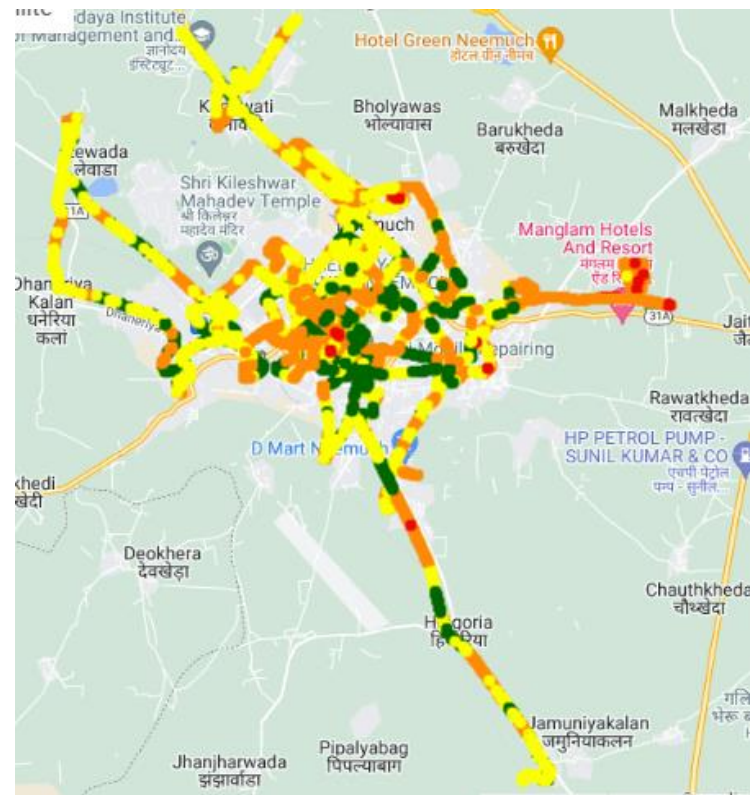
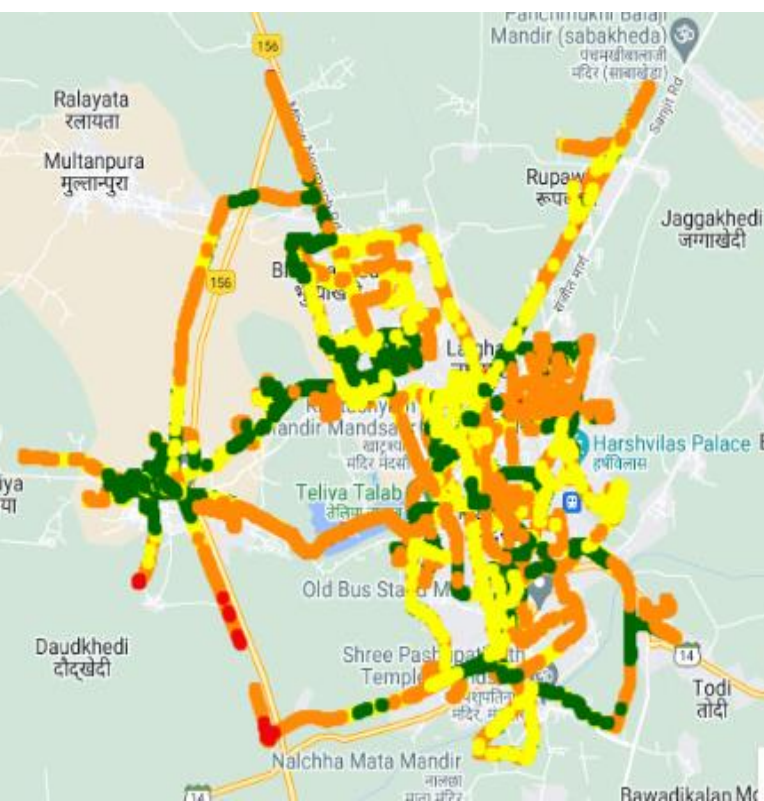


3G		% PDF	Legends
Overall RSCP	# Samples		
[Max, >=-70]	421807	21.11	
[-70, >=-80)	634522	31.75	
[-80, >=-90)	653011	32.68	
[-90, >=Min)	288918	14.46	
Total	199825		
	8		

Coverage Details

TSP- Airtel.

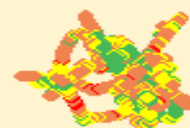
Technology	Coverage %
VoLTE	99.67



Color	Range	Count	Per
Red	[Min, -110]	(141)	(0.33%)
Orange	[-110, -90]	(14270)	(33.12%)
Yellow	[-90, -80]	(16654)	(38.65%)
Green	[-80, Max]	(12024)	(27.91%)

TSP-JIO

Technology	Coverage %
VoLTE	99.15%

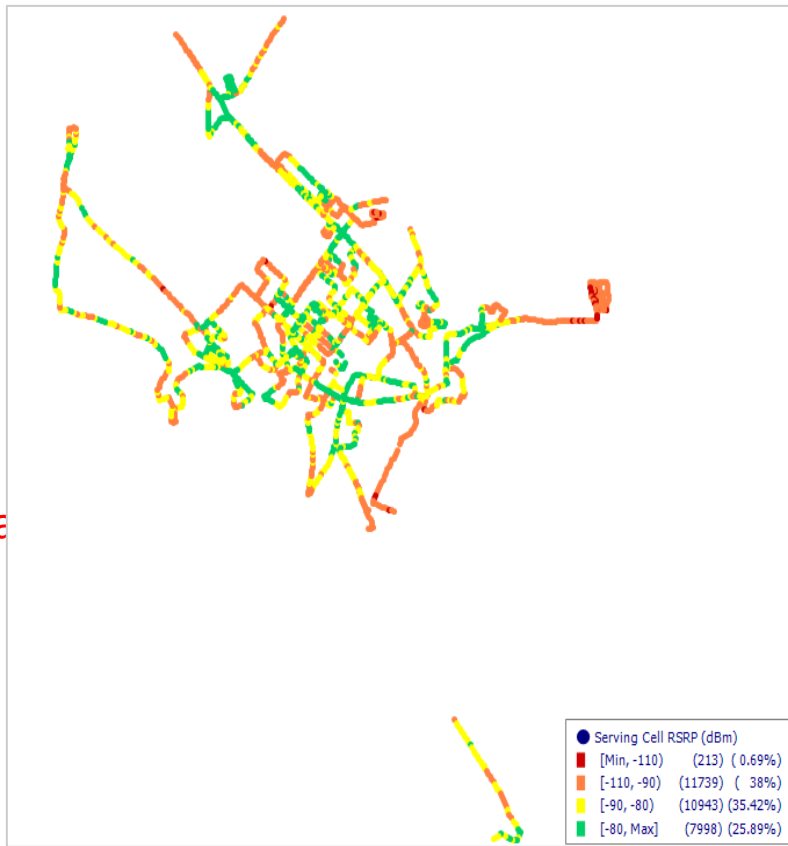
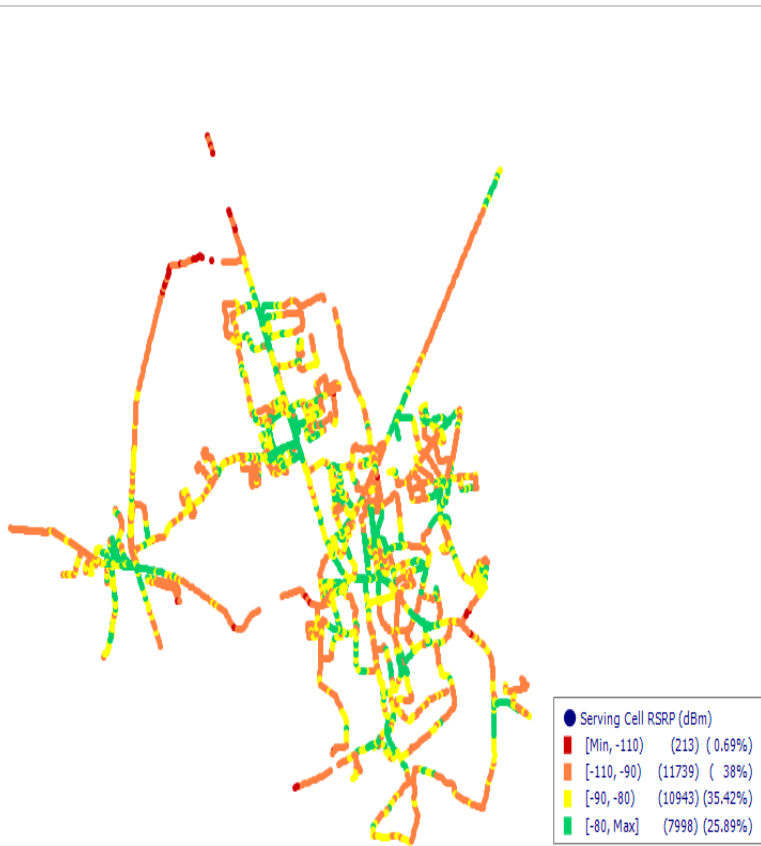


VoLTE			
Overall RSRP	# Samples	% PDF	Legends
[Max, >=-80]	17194	32.38%	
[-80, >=-90)	17503	32.96%	
[-90, >=-110)	17960	33.82%	
[-110, >=Min)	451	0.85%	
Total	53108		

Coverage Details

TSP-VIL

Technology	Coverage %
VoLTE	99.31%

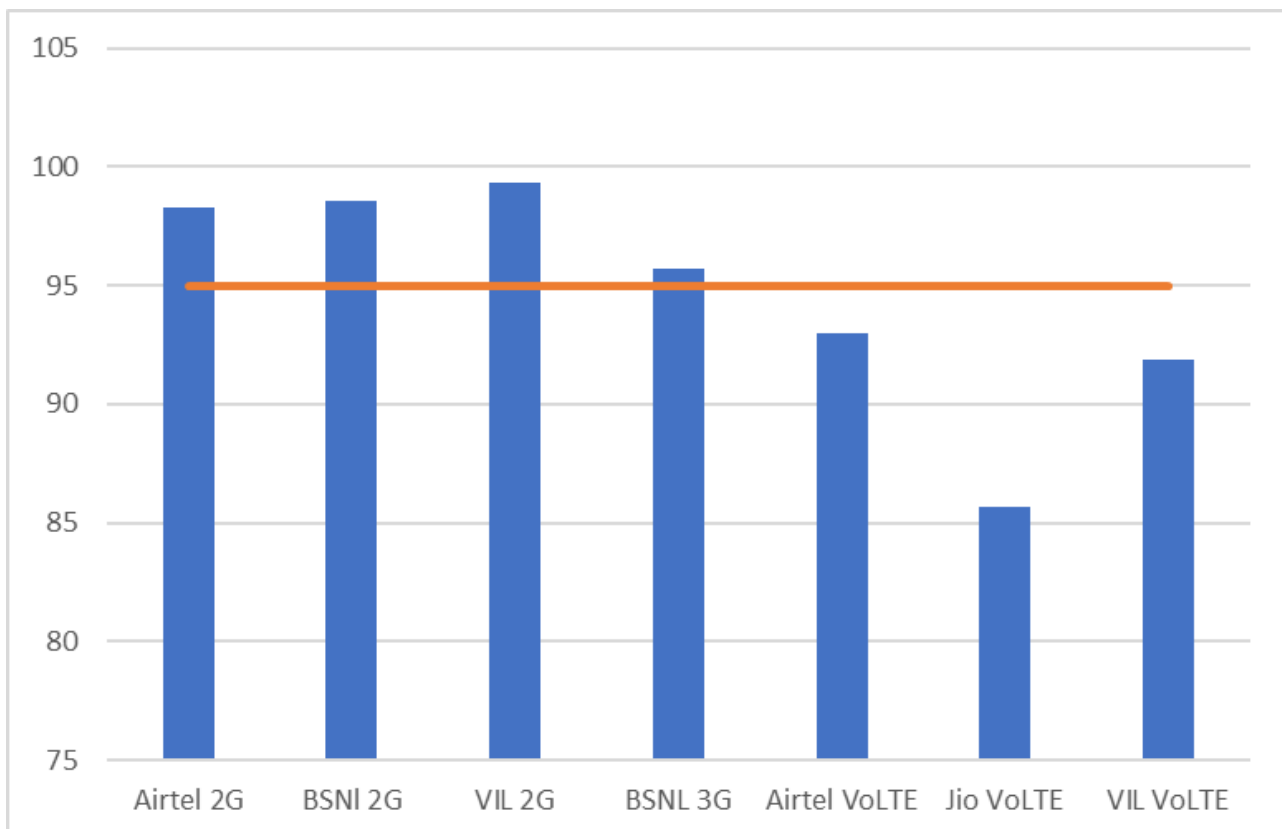


VoLTE			
Overall RSRP	# Samples	% PDF	Legends
[Max, >=-80]	7998	25.89%	
[-80, >=-90)	10943	35.42%	
[-90, >=-110)	11739	38.00%	
[-110, >=Min)	213	0.69%	
Total	30893	100%	

Quality Details

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	98.28
BSNI 2G	98.59
VIL 2G	99.32
BSNL 3G	95.70
Airtel VoLTE	92.97
Jio VoLTE	85.67
VIL VoLTE	91.90

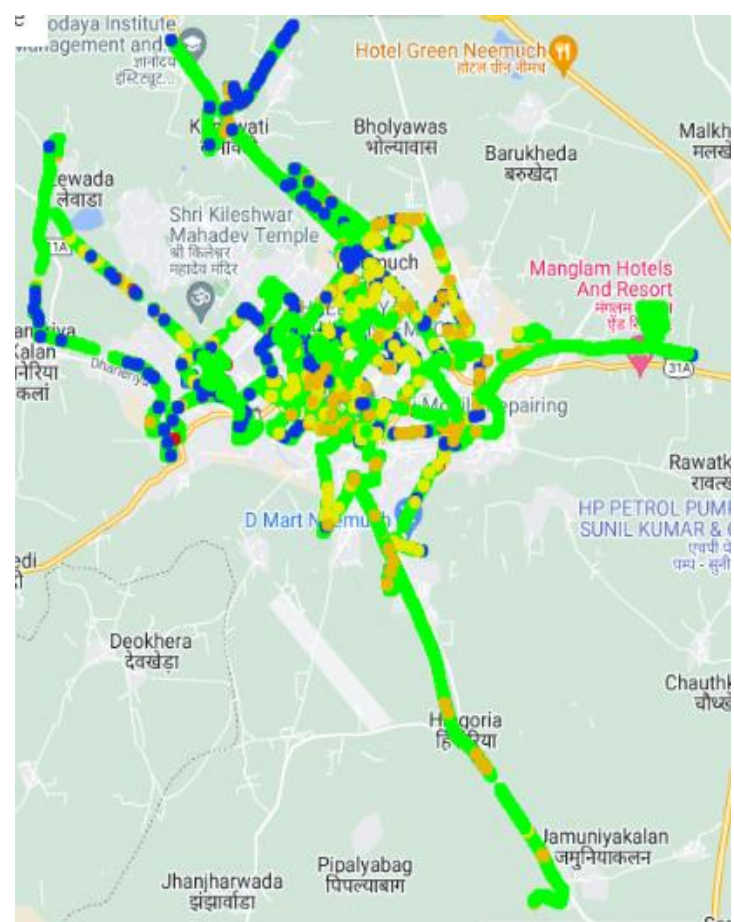
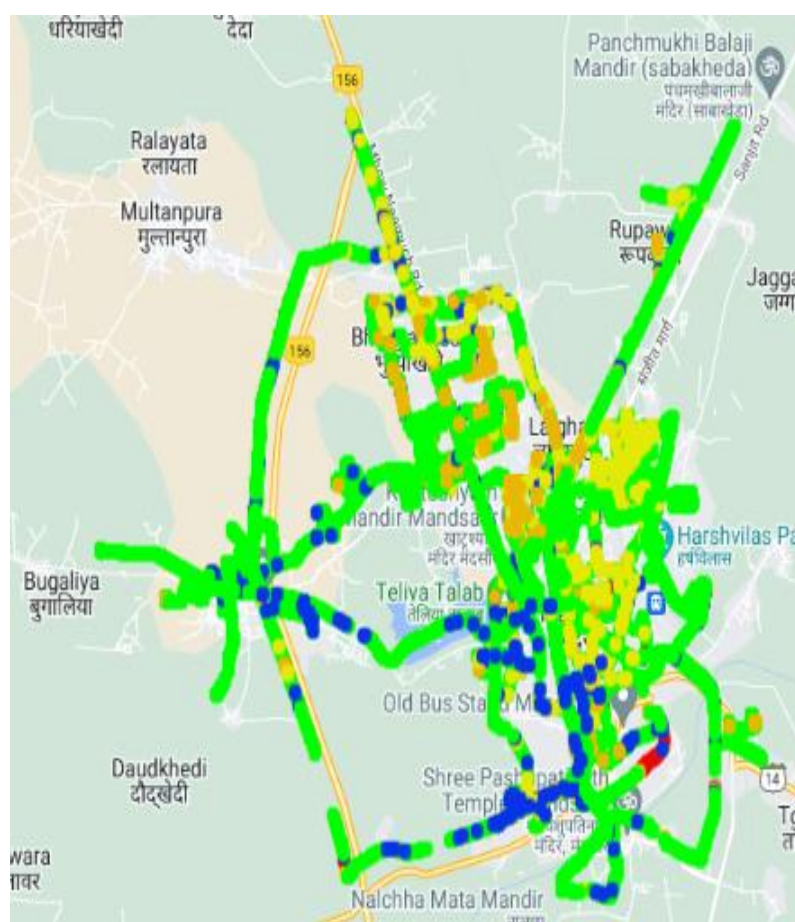


Quality Details

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	98.28



Color	Range	Count	Per
Green	[Min, 2]	(31862)	(81.16%)
Yellow	[2, 3]	(3514)	(8.95%)
Blue	[3, 4]	(2230)	(5.68%)
Orange	[4, 5]	(979)	(2.49%)
Red	[5, Max]	(672)	(1.71%)

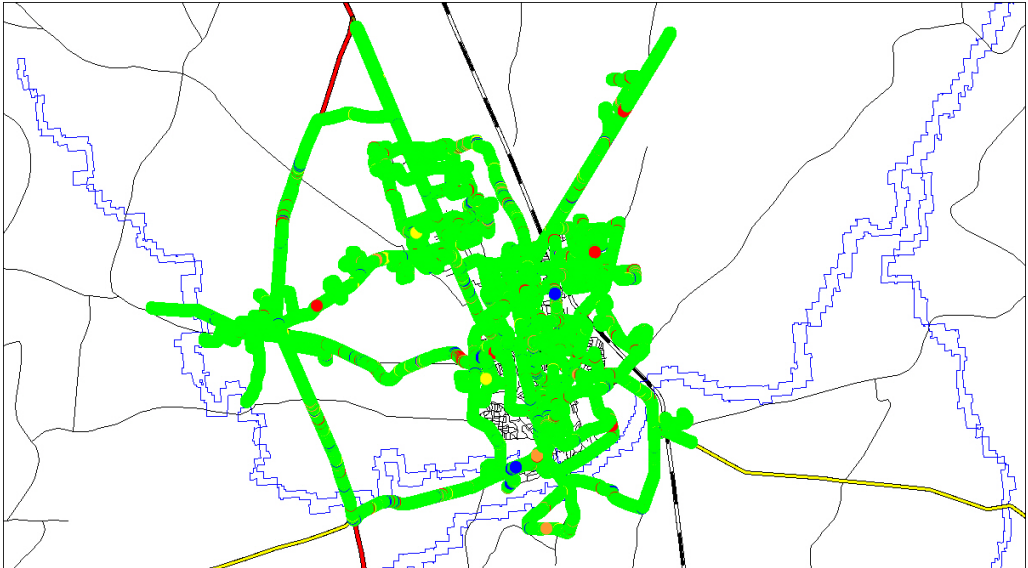
Quality Details

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	98.59 %

Mandsaur City



Neemuch City



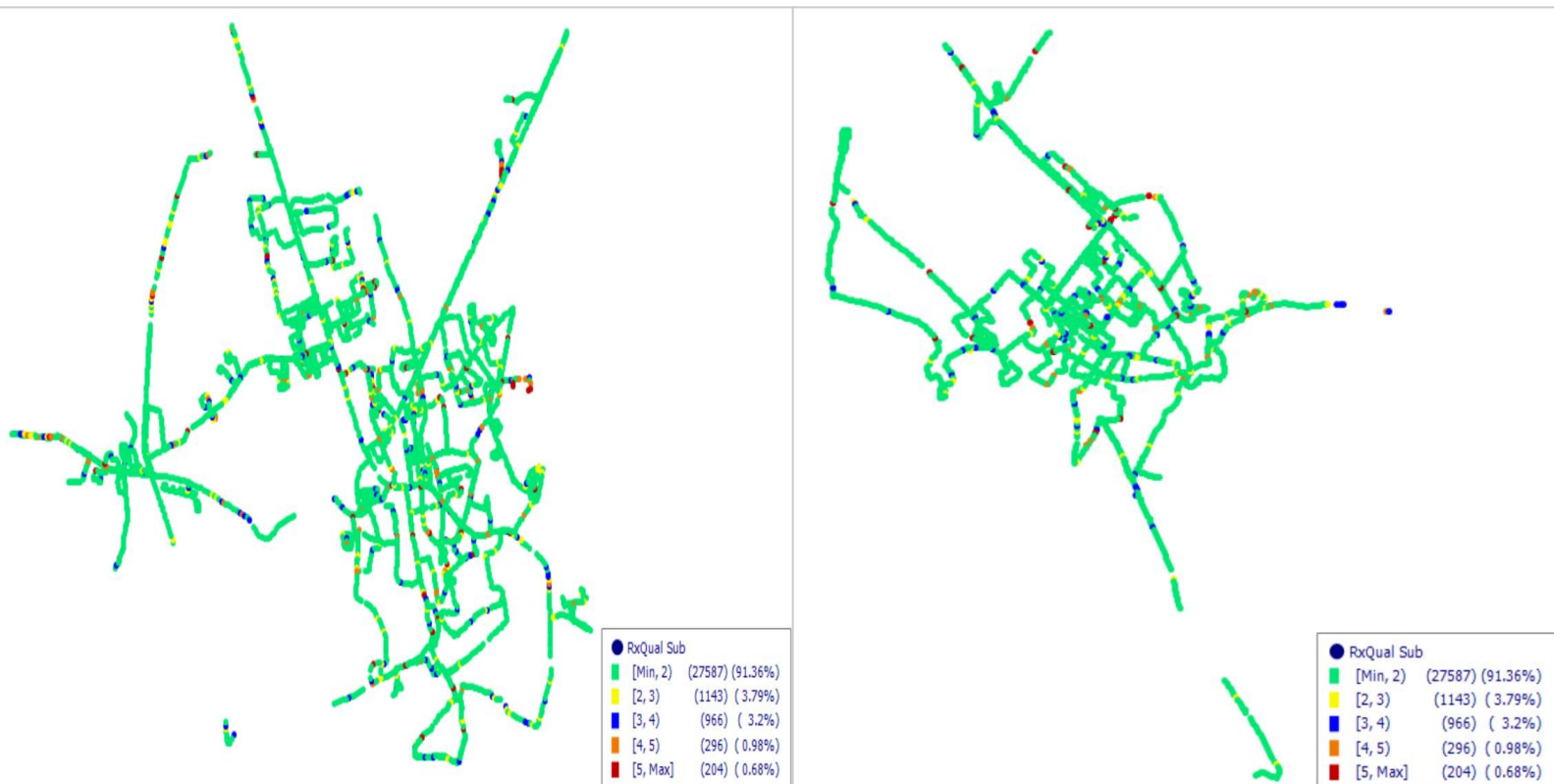
Overall Rx Quality	# Samples	% PDF	Legends
(Min, ≤ 2)	7675412	95.94	
(2, ≤ 3)	69550	0.87	
(3, ≤ 4)	71368	0.89	
(4, ≤ 5)	71386	0.89	
(5, \leq Max)	112662	1.41	
Total	8000378		

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 2G

Technology	Rx Quality %
2G	99.32%



Overall Rx Quality	# Samples	% PDF	Legends
(Min, ≤ 2)	27587	91.36%	
(2, ≤ 3)	1143	3.79%	
(3, ≤ 4)	966	3.2%	
(4, ≤ 5)	296	0.98%	
(5, $\leq \text{Max}$)	204	0.68%	
Total	30196	100%	

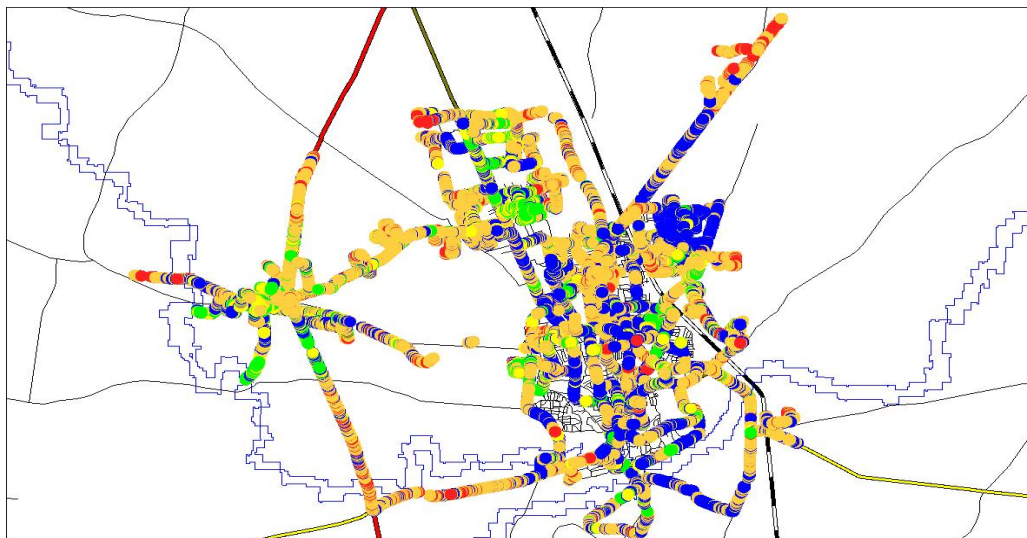
Quality Details

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 $\geq 95\%$.

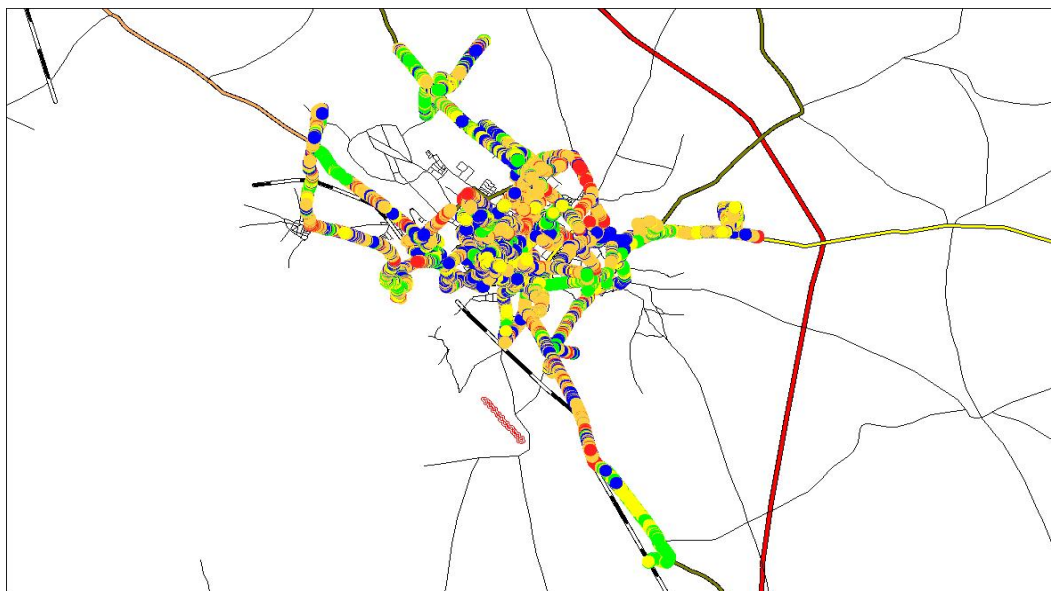
TSP- BSNL

Technology	Rx Quality %
3G	95.70%

Mandsaur City



Neemuch City



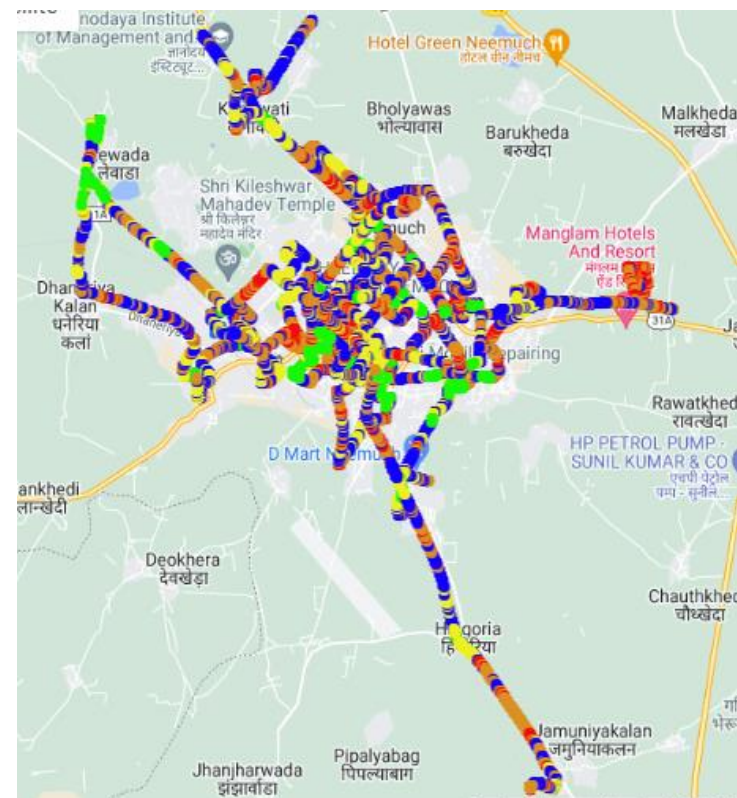
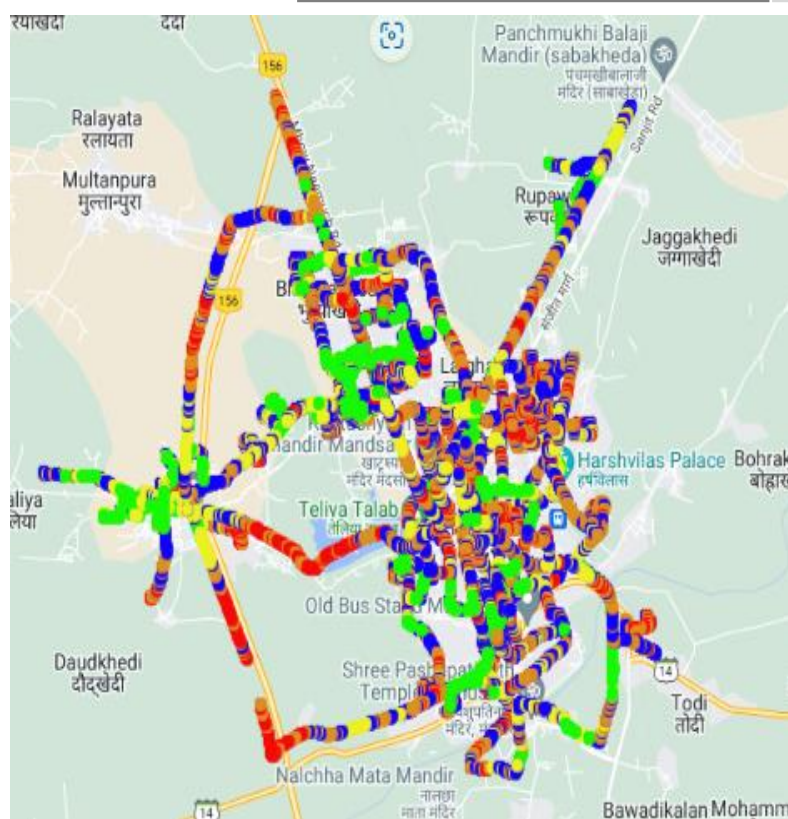
Overall Ec/No	# Samples	% PDF	Legends
(Max, ≤ -6)	203838	10.19	
(-6, ≤ -9)	329165	16.46	
(-9, ≤ -11)	538139	26.92	
(-11, ≤ -14)	842184	42.12	
(-14, \leq Min)	86074	4.30	
Total	1920866		

Quality Details

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

Technology	Rx Quality %
VoLTE	92.27



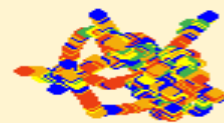
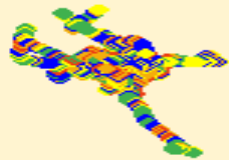
Color	Range	Count	Per
Red	(Min, 0)	(3330)	(7.73%)
Orange	(0, 5)	(11046)	(25.65%)
Blue	(5, 10)	(14429)	(33.5%)
Yellow	(10, 15)	(8245)	(19.14%)
Green	(15, Max)	(6019)	(13.98%)

Quality Details

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	85.67%



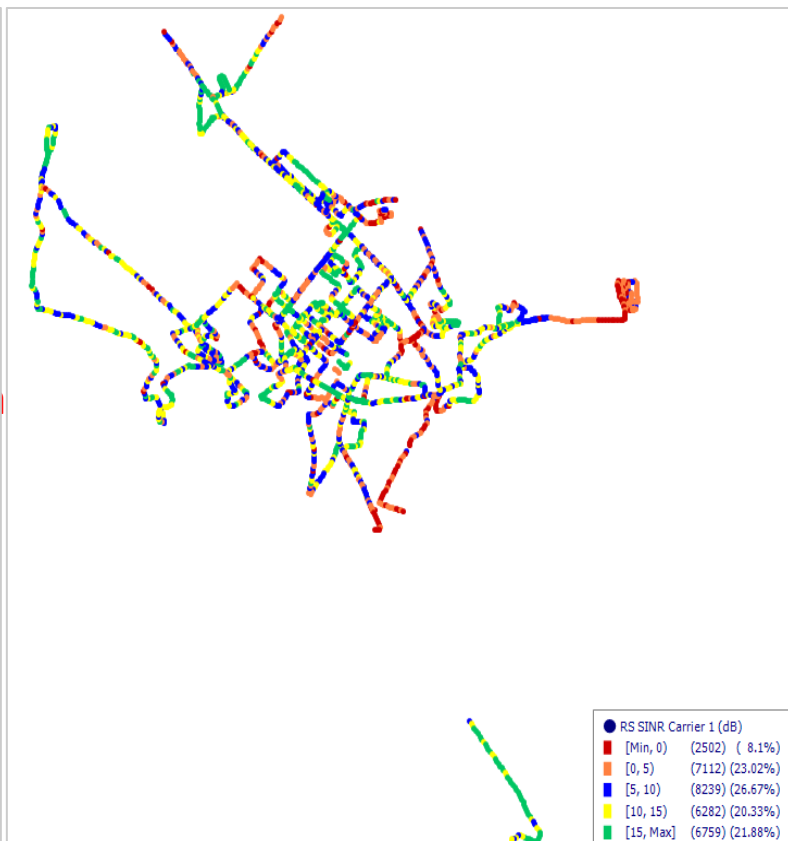
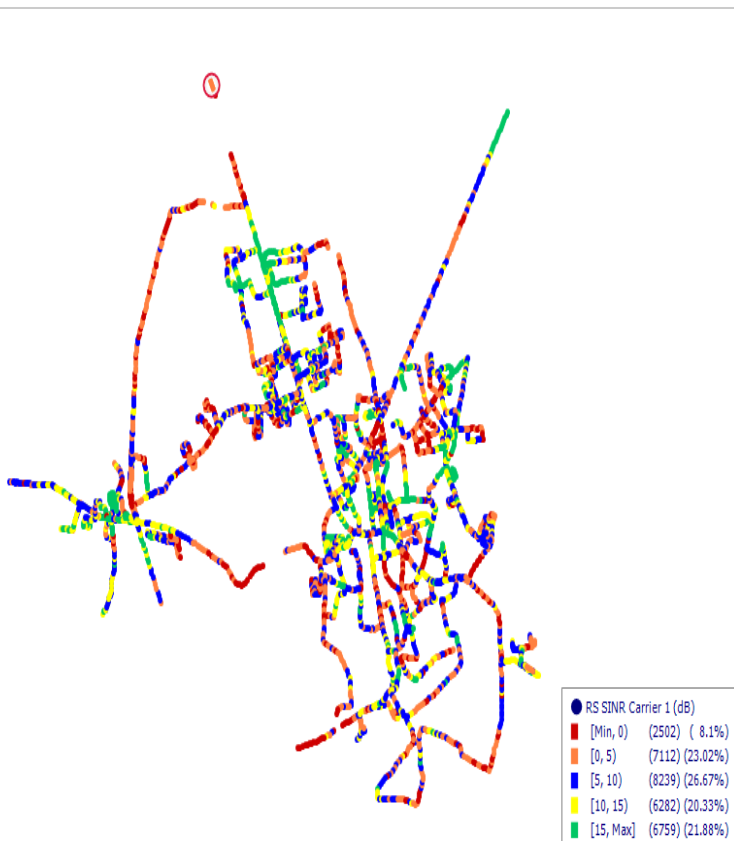
Overall SINR	# Samples	% PDF	Legends
(Min, ≤ 0)	7610	14.33%	
(0, ≤ 5)	11955	22.51%	
(5, ≤ 10)	13838	26.06%	
(10, ≤ 15)	10278	19.35%	
(15, $\leq \text{Max}$)	9427	17.75%	
Total	53108		

Quality Details

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

Technology	Rx Quality %
VoLTE	91.90%

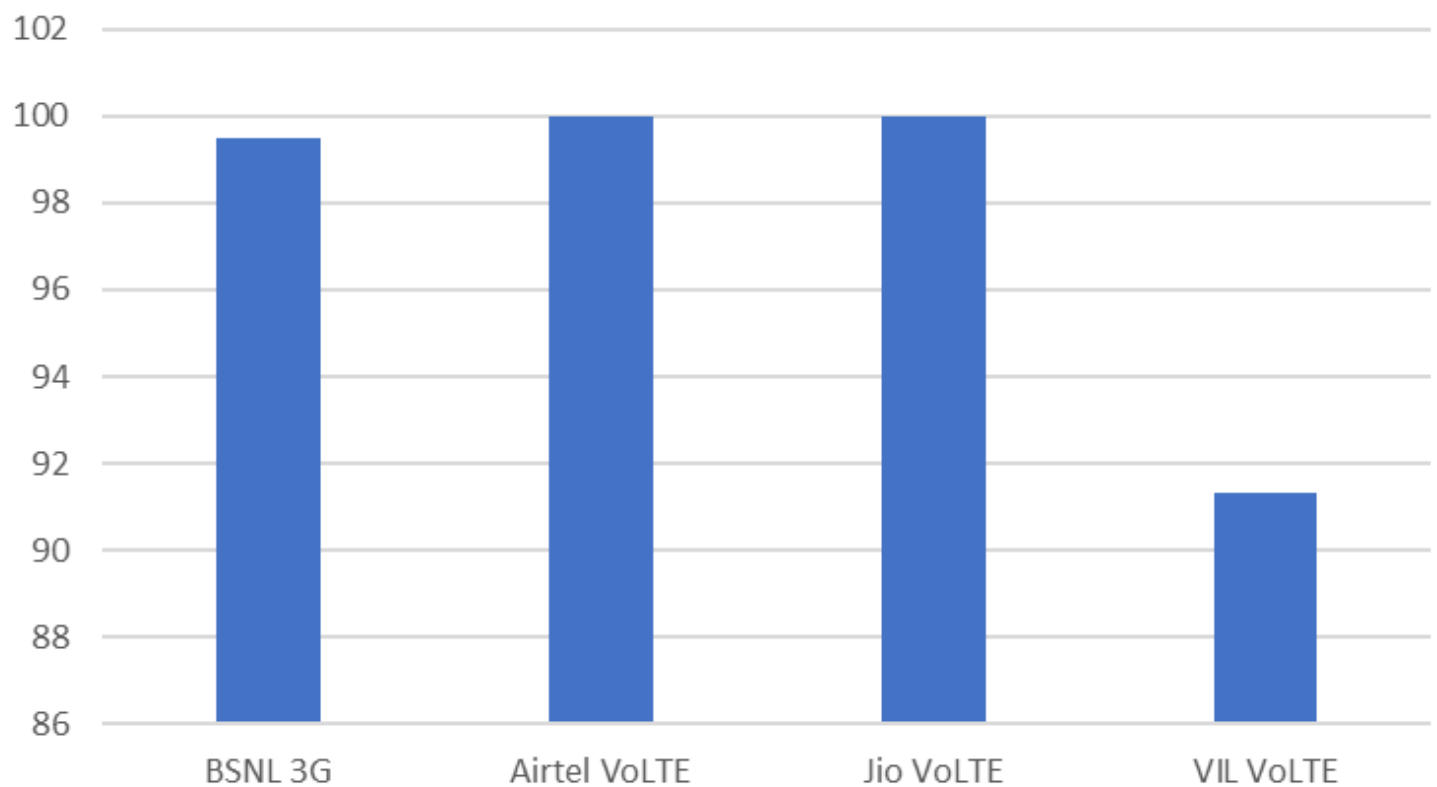


Overall SINR	# Samples	% PDF	Legends
(Min, ≤ 0)	2502	8.1%	
(0, ≤ 5)	7112	23.02%	
(5, ≤ 10)	8239	26.67%	
(10, ≤ 15)	6282	20.33%	
(15, $\leq \text{Max}$)	6759	21.88%	
Total	30894	100%	

Technology Details

TSP	% of Time Spent on 3G/VoLTE
BSNL 3G	99.5
Airtel VoLTE	100
Jio VoLTE	100
VIL VoLTE	91.3

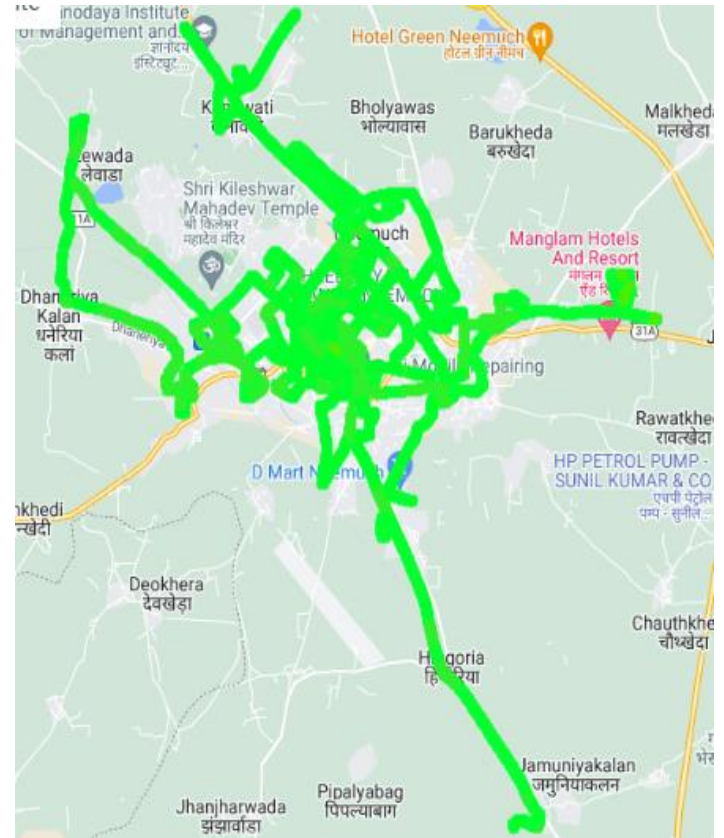
% of Time Spent on 3G/VoLTE



Technology Details

TSP- Airtel

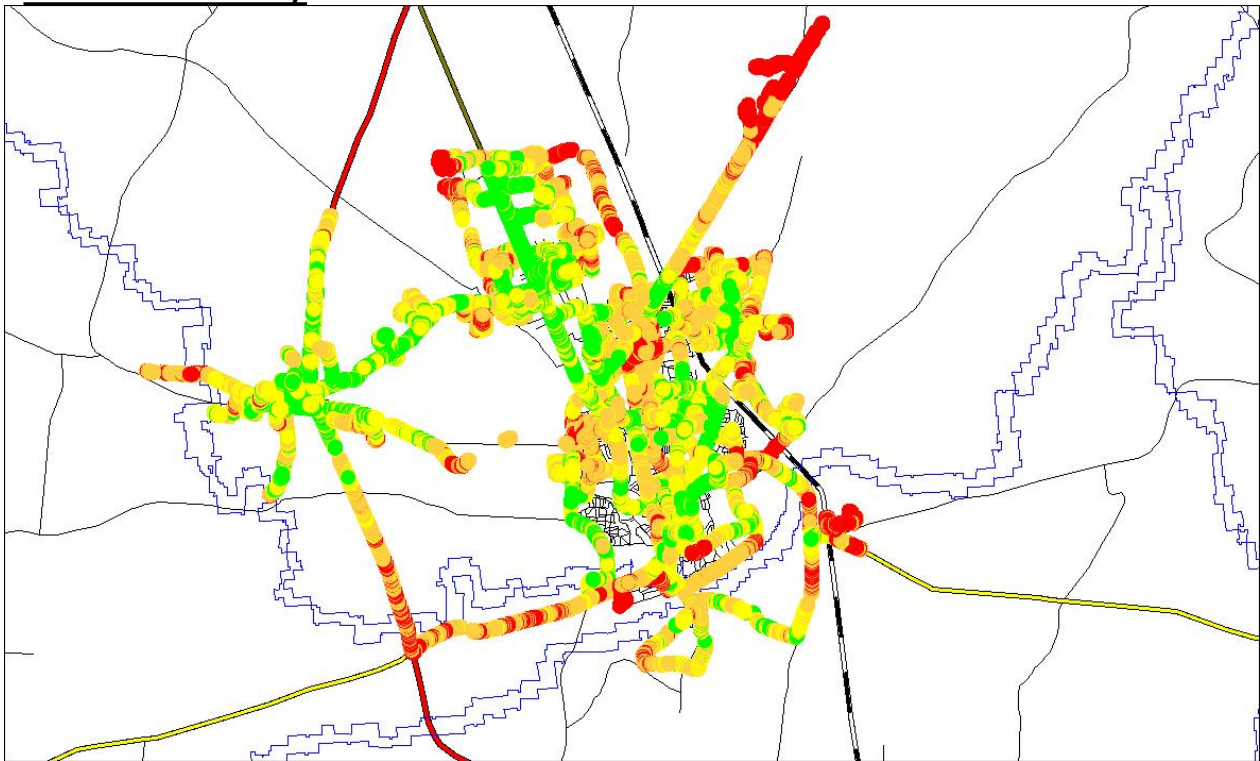
Technology	% of Time Spent on
3G	
VoLTE	100



TSP- BSNL

Technology	% of Time Spent on
3G	99.5%
VoLTE	NA

Mandsaur City

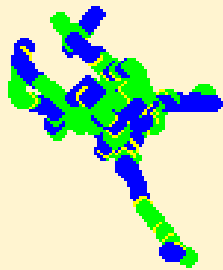


Neemuch City



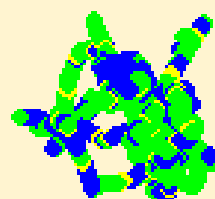
TSP-JIO

Technology	% of Time Spent on
3G	
VoLTE	100%



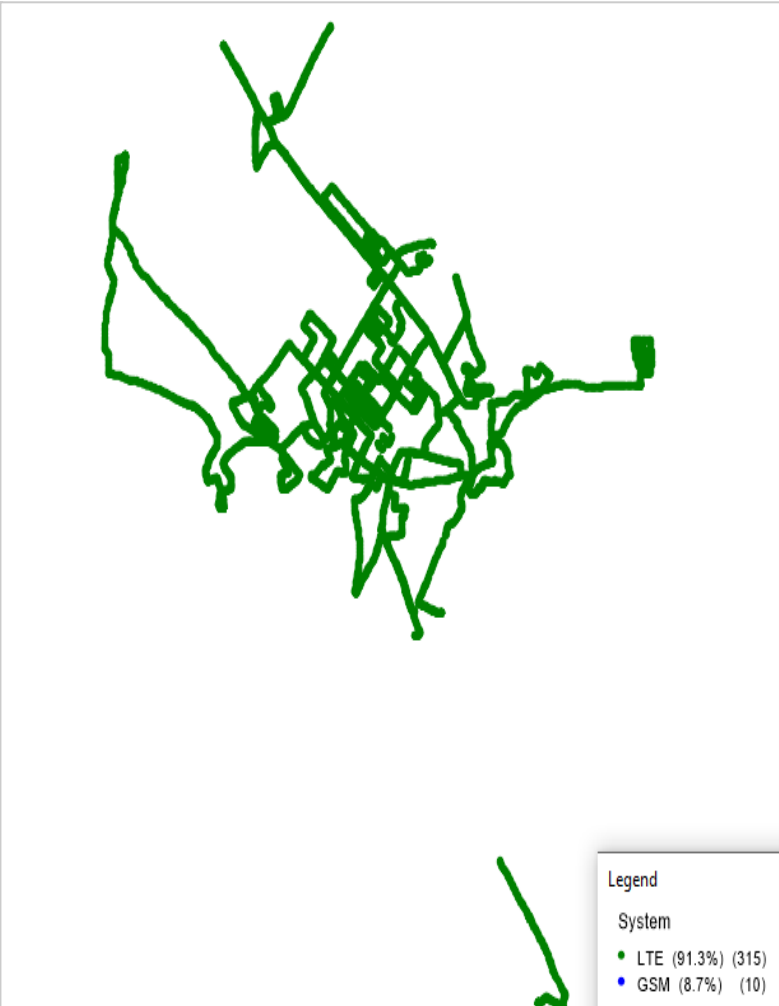
Qualcomm Lte/LteAdv Intrafreq Measure
PCell Band

- Band 3 (59.93%, 31829)
- Band 40 (6.86%, 3642)
- Band 5 (33.21%, 17637)



TSP-VIL Volte

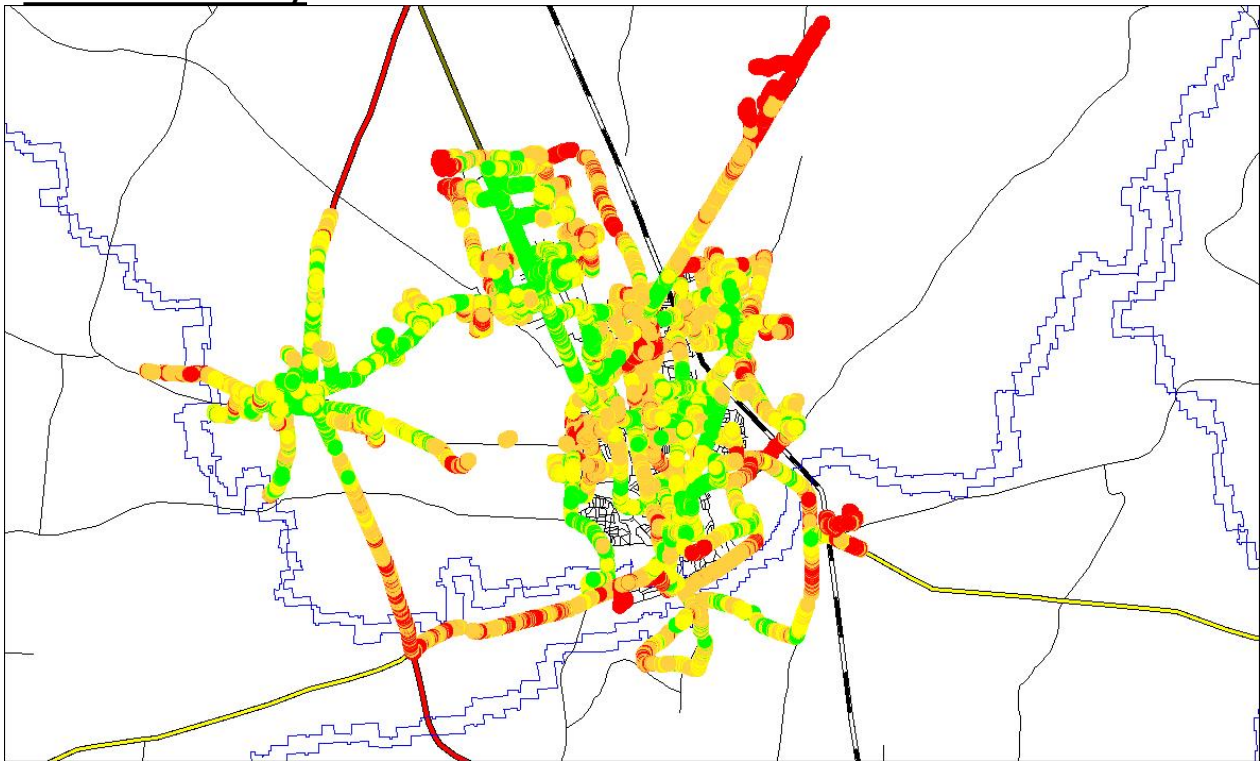
Technology	% of Time Spent on
3G	
VoLTE	91.3%



TSP- BSNL

Technology	% of Time Spent on
3G	99.5%
VoLTE	NA

Mandsaur City



Neemuch City

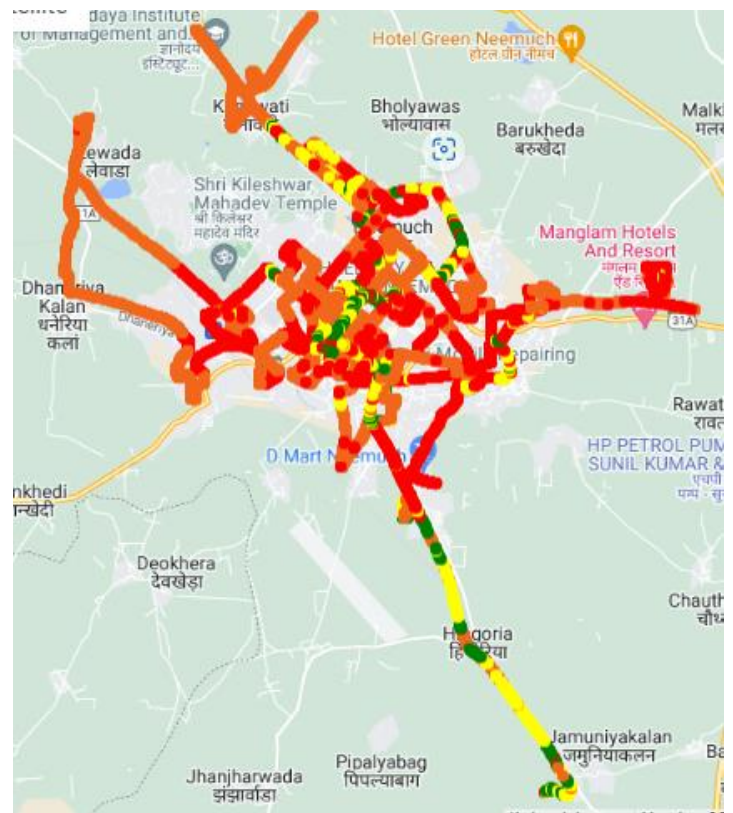
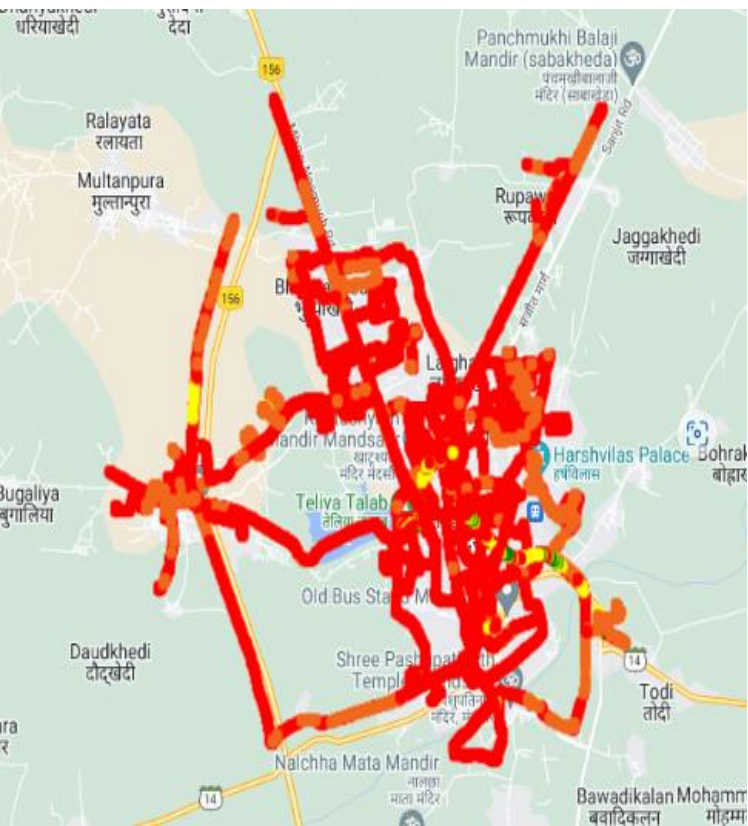


Dynamic Data Test

TSP- Airtel

Data Statistics - Dynamic data testing

Data KPIs - Overall	LTE
Download Throughput (Mbps)	3.4

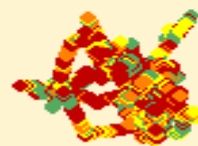


Color	Range	Count	Per
Red	[Min, 2000]	(20863)	(54.57%)
Orange	(2000, 6000]	(13693)	(35.82%)
Yellow	(6000, 10000]	(2185)	(5.72%)
Green	(10000, Max]	(1490)	(3.9%)

TSP-JIO

Data Statistics - Dynamic data testing

Data KPIs - Overall	LTE
Download Throughput (Mbps)	11.19



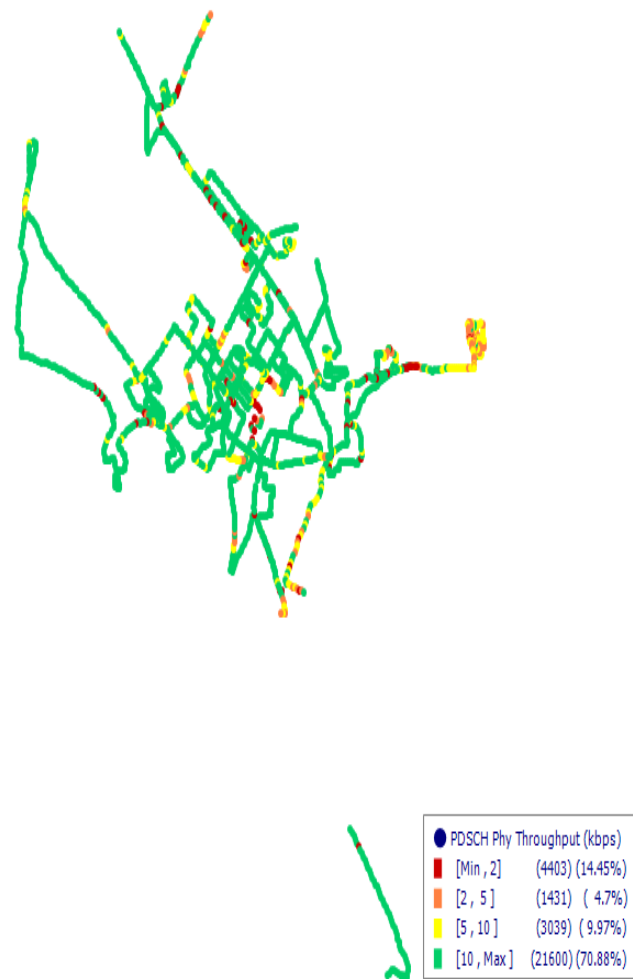
DL throughput	No of Sample	%	Legends
< 2Mbps	14649	28.66%	Red
2-5 Mbps	9855	19.28%	Orange
5-10 Mbps	11239	21.99%	Yellow
>10Mbps	15378	30.08%	Green

Dynamic Data Test

TSP-VIL LTE Data

Data Statistics - Dynamic data testing

Data KPIs - Overall	LTE
Download Throughput (Mbps)	23.40



DL throughput	No of Sample	%	Legends
< 2Mbps	4403	14.45%	■
2-5 Mbps	1431	4.70%	■
5-10 Mbps	3039	9.97%	■
>10Mbps	21600	70.88%	■