Independent Drive Test Report

For

Cochin

2019

June

SOUTH ZONE

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%.

The Independent Drive Test has been carried out by M/s PhiMetrics Technologies Pvt. Ltd. on behalf of TRAI in Cochin City & adjoining areas from 9:00 AM to 9:00 PM; 17th June to 21st June 2019. The drive test covered a drive route of 570 KMs & 6 hotspot over a period of five days. Approximately 820 calls were made for each of the 12 networks: five 2G networks, five 3G networks and two LTE network covering 5 unique TSPs

Overview | Voice Summary | Data Summary

Overview

Overview:

Telecom Regulatory Authority of India has been entrusted with the task of laying down the standards of quality of service to be provided by the service providers and ensuring its enforcement; and also TRAI is responsible for conducting the periodical audit of such services provided by the service providers so as to protect the interest of the consumers of telecommunications service

TRAI is regularly monitoring the performance of Telecom Service Providers (TSP) against the benchmarks for the various Quality of Service (QoS) parameters laid down by the Authority. TSPs submit Performance Monitoring Reports to TRAI every quarter. TRAI also undertakes audit and assessment of Quality of Service through independent agencies to verify the Quality of Service claimed. The Audit agencies conduct sample 'Drive tests' across various cities in the country as part of audit and assessment of the TSPs' performance.

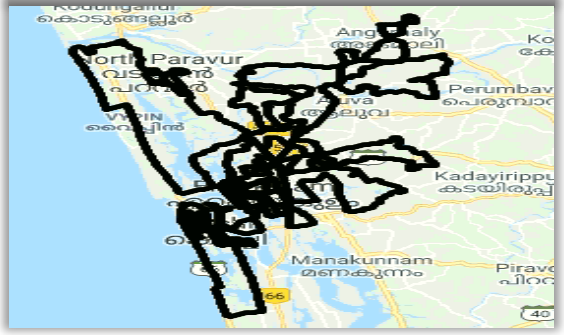
In view of complaints on call drops and other network quality issues, on behalf of TRAI, an Independent Drive Test (IDT) was conducted by PhiMetrics Technologies Pvt. Ltd. From **17th June to 21st June 2019** covering various locations in Cochin City & surrounding region. The performance of **Airtel, BSNL, Tata, Vodafone Idea Limited (VIL(Idea, Vodafone)), and Jio** were monitored across various technologies (2G, 3G, and 4G). The drive test route was defined on the basis of several factors that include - areas from where call drop complaints are commonly received; areas of heavy usage; residential areas away from arterial roads; office areas; areas where previous Drive tests showed network issues; etc.
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, Video Streaming Delay and Latency

Drive Test Details For Cochin:

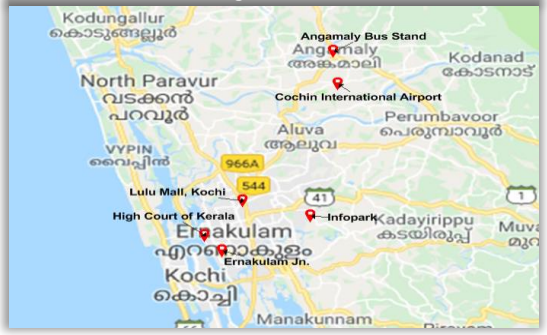
Independent Drive test was conducted for a period of five days from 17th June to 21st June 2019 in Cochin city & surrounding areas from 9:00 AM to 9:00 PM. Calls were made for 90 sec duration with wait time of 10 sec between calls in all technologies.
Voice Tests: The drive test covered a drive route of approximately 570 KMs over a period of four days from **17th June to 20th June 2019** . Approximately 820 calls were made for each of the 12 networks: five 2G (Lock Mode) networks, five 3G (Dual mode) networks and two VoLTE network covering 5 unique TSPs.
* In case of multiple call failure in similar geo location in given period of 60secs has been counted as one call failure
Data Tests: Data Tests were performed at 6 static locations for one day on **18th June 2019, 20th June 2019 & 21st June 2019** ; five 2G (Lock mode) networks, five 3G (Free Mode) networks and four 4G (Free Mode) networks covering 5 unique TSPs were tested.
* For Voice and Data KPI's, 2G measurement is done with UE locked on 2G, 3G measurement is done with UE in Dual mode (2G & 3G) and 4G measurement is done with UE in Dual (2G/3G).
* 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 PayTm
Video Streaming	130 sec clip
Latency	32 Bytes on www.google.com

Voice Test Drive Route - Cochin



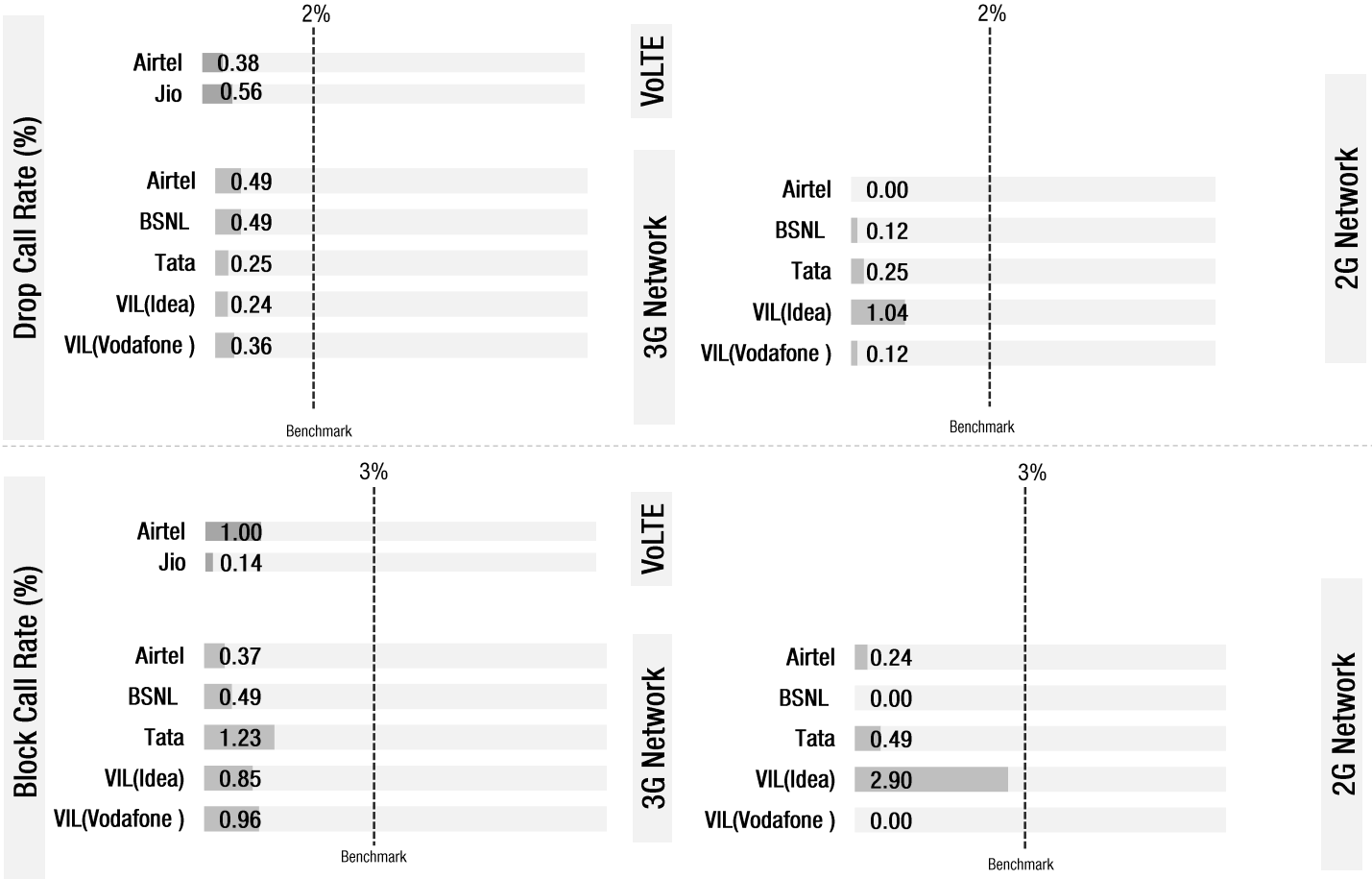
Data Service testing across 6 Static Locations



Voice Calls

Key Observations

QoS compliance of the TSPs in Cochin for Voice across technologies 2G/3G/4G-VoLTE is given below:



KPI	2G Networks				
	Airtel	BSNL	Tata	Vodafone Idea Ltd	
				Idea	Vodafone
SDCCH Congestion(<=1%)	0.00%	0.00%	0.00%	2.02%	0.00%
TCH Congestion (<=2%)	0.24%	0.00%	0.49%	0.88%	0.00%

KPI	3G Networks				
	Airtel	BSNL	Tata	Vodafone Idea Ltd	
				Idea	Vodafone
CSFB Failure %	0.00%	NA	NA	0.00%	0.00%
SDCCH Congestion%	0.00%	0.00%	0.12%	0.48%	0.00%
RRC Congestion%	0.24%	0.24%	0.25%	0.24%	0.84%
SDCCH & RRC Congestion(<=1%)	0.24%	0.24%	0.37%	0.73%	0.84%
TCH Congestion %	0.00%	0.00%	0.12%	0.12%	0.00%
RAB Congestion %	0.12%	0.24%	0.74%	0.00%	0.12%
TCH & RAB Congestion (<=2%)	0.12%	0.24%	0.86%	0.12%	0.12%

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.

*NA = Not Applicable Not meeting Benchmark

Voice Calls

Key Observations

Coverage

a) Percentage of coverage samples for 2G ≥ -85 dBm.

TSPs	2G				
	Airtel	BSNL	Tata	VIL(Idea)	VIL(Vodafone)
Coverage%	90.73%	93.20%	90.11%	89.96%	94.09%

b) Percentage of coverage samples for 2G ≥ -85 dBm, 3G ≥ -90 dBm & LTE ≥ -110 dBm.

TSPs	3G					VoLTE	
	Airtel	BSNL	Tata	VIL(Idea)	VIL(Vodafone)	Airtel	Jio
Coverage %	87.03%	86.71%	78.68%	87.52%	93.59%	95.44%	92.75%

c) Percentage of time spent on 3G network:

TSPs	3G				
	Airtel	BSNL	Tata	VIL(Idea)	VIL(Vodafone)
Time Spent on 3G%	53.36%	30.41%	61.12%	42.47%	82.86%

d) Percentage of RLT >=48:

TSPs	2G				
	Airtel	BSNL	Tata	VIL(Idea)	VIL(Vodafone)
%RLT >=48	0.00%	0.28%	0.00%	0.00%	0.00%

e) Average CST Second

TSPs	2G				
	Airtel	BSNL	Tata	VIL(Idea)	VIL(Vodafone)
Second	2.61	3.64	2.90	2.78	2.64

TSPs	3G					VOLTE	
	Airtel	BSNL	Tata	VIL(Idea)	VIL(Vodafone)	Airtel	Jio
Second	4.21	2.93	2.62	3.49	3.01	1.49	0.41

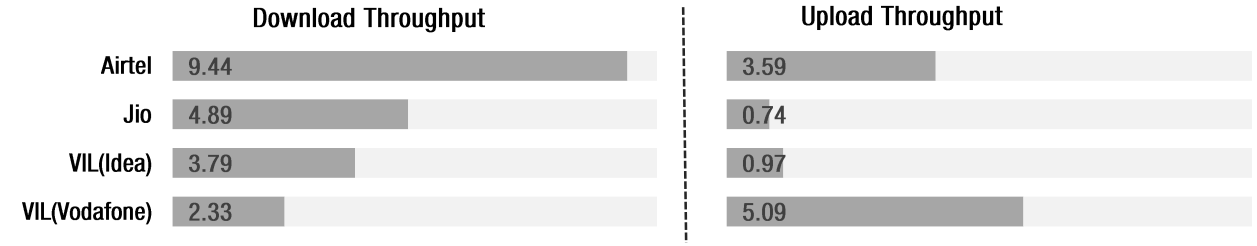
Data Services Static

Key Observations

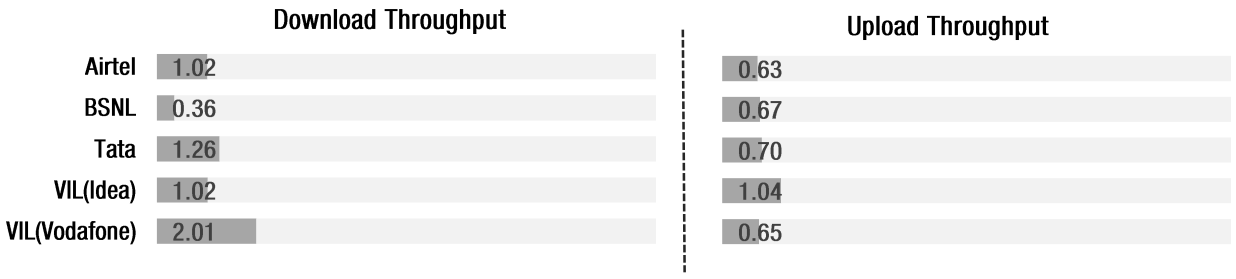
Data was tested at 6 locations .Following services were tested: Data Download/Upload, Latency (www.google.com), Video Streaming (YouTube) and Web browsing (Flipkart, Amazon, PayTm)

Data Download and Upload Performance (Mbps)

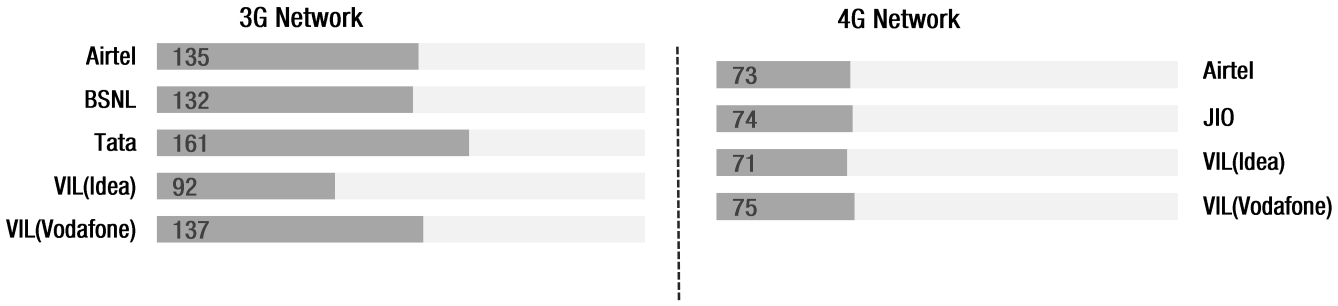
4G Network:



3G Network:



Latency (msec)

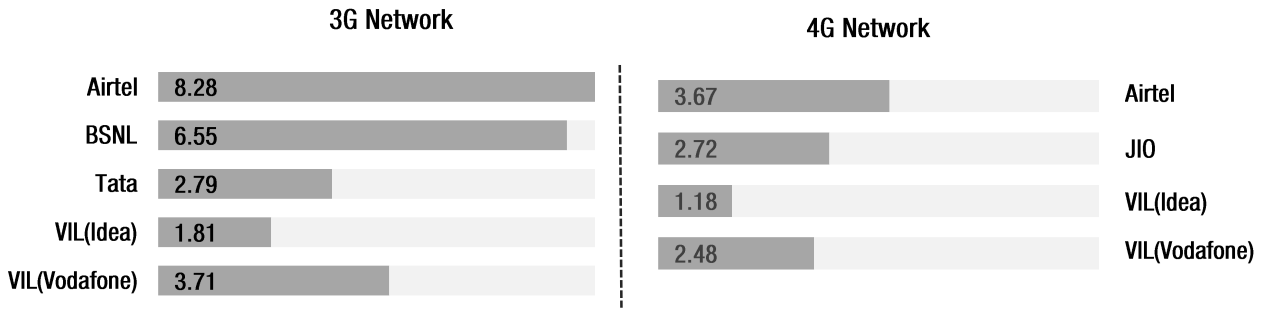


Data Services Static

Key Observations

Video Streaming Performance (130 sec YouTube video sample sizes)

Streaming (sec)

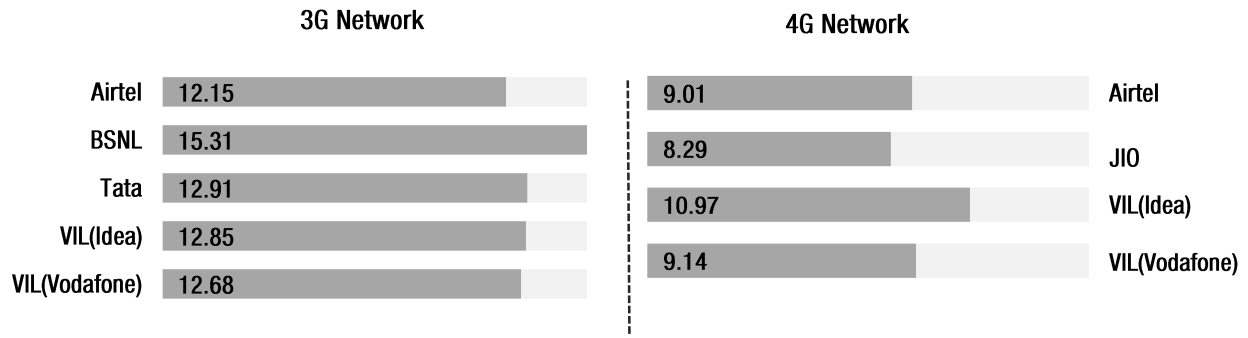


Streaming Delay further broken into 2 parameters which form the end-user perception to assess consistency on Video streaming.

- Initial Start time
- Interruption time while playing the video.

Video Streaming	3G					4G			
	Airtel	BSNL	Tata	VIL		Airtel	JIO	VIL	
				Idea	Vodafone			Idea	Vodafone
Avg. Initial Start Time (sec)	5.12	6.55	2.79	1.81	3.71	3.67	2.72	1.18	2.48
Avg. Interruption Time (sec)	3.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Web Page Download Time (sec)



Web browsing experience is the average time taken to fully load the websites tested.

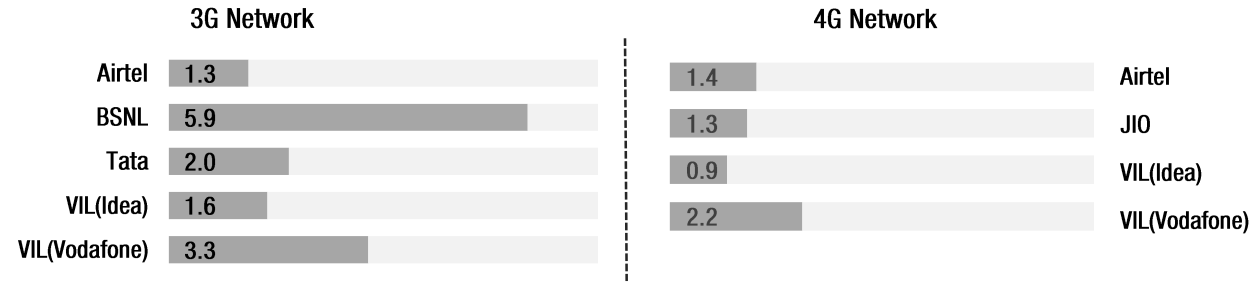
Data Services Dynamic

Key Observations

Data was tested between one location to another location .Following services were tested: Data Download/Upload, Latency (www.google.com), Video Streaming (YouTube) and Web browsing (Flipkart, Amazon, PayTm)

Video Streaming Performance (130 sec YouTube video sample sizes)

Streaming (sec)

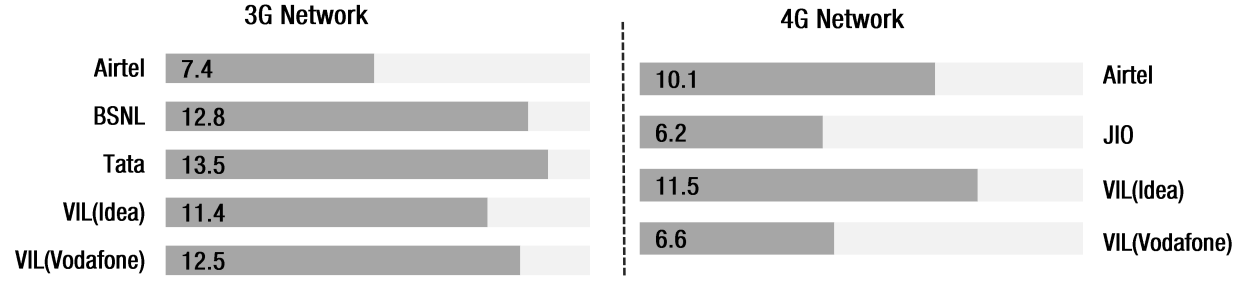


Streaming Delay further broken into 2 parameters which form the end-user perception to assess consistency on Video streaming.

- Initial Start time
- Interruption time while playing the video.

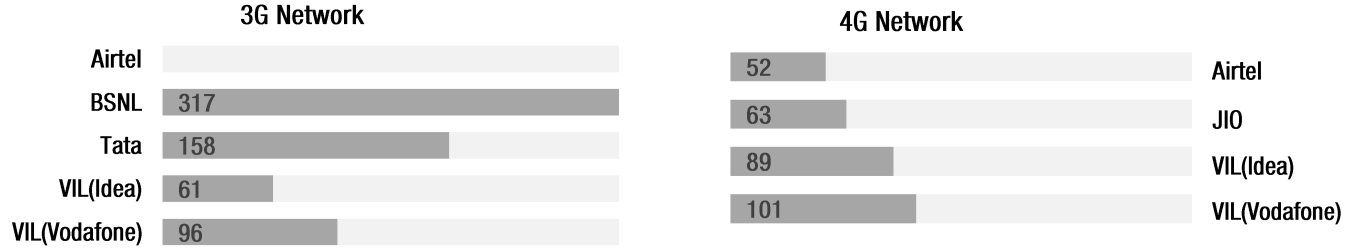
Video Streaming	3G					4G			
	Airtel	BSNL	Tata	VIL		Airtel	JIO	VIL	
				Idea	Vodafone			Idea	Vodafone
Avg. Initial Start Time (sec)	1.30	5.85	1.96	1.61	3.25	1.43	1.28	0.95	2.18
Avg. Interruption Time (sec)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Web Page Download Time (sec)



Web browsing experience is the average time taken to fully load the websites tested.

Latency (msec)



Summary

City Level Summary

Voice Call	2G				
	Airtel	BSNL	Tata	VIL	
				Idea	Vodafone
Call Attempt	823	816	814	794	814
Blocked Call Rate (%)	0.24%	0.00%	0.49%	2.90%	0.00%
CSSR% (Accessibility)	99.76%	100.00%	99.51%	97.10%	100.00%
Drop Call Rate (%)	0.00%	0.12%	0.25%	1.04%	0.12%
Mobility HOSR (%)	97.76%	98.45%	97.79%	99.57%	99.77%
Rx Quality (%)	97.83%	99.18%	97.96%	97.13%	99.12%

Voice Call	3G					VoLTE	
	Airtel	BSNL	Tata	VIL		Airtel	Jio
				Idea	Vodafone		
Call Attempt	821	819	815	825	837	798	720
Blocked Call Rate (%)	0.37%	0.49%	1.23%	0.85%	0.96%	1.00%	0.14%
CSSR% (Accessibility)	99.63%	99.51%	98.77%	99.15%	99.04%	99.00%	99.86%
Drop Call Rate (%)	0.49%	0.49%	0.25%	0.24%	0.36%	0.38%	0.56%
Mobility HOSR (%)	99.94%	99.20%	99.85%	99.76%	99.95%	99.75%	99.76%
Rx Quality (%)	95.28%	89.31%	97.88%	93.19%	94.69%	71.00%	87.39%

Summary

City Level Summary(contd.)

Data Services Static	2G				
	Airtel	BSNL	Tata	VIL	
				Idea	Vodafone
Download Throughput (Kbps)	119.01	38.13	132.79	116.69	62.79
Upload Throughput (kbps)	130.43	48.50	121.05	132.94	111.19
Web Browsing Delay (sec)	32.93	26.97	27.73	39.08	36.86
Latency (msec)	574	266	588	339	410

Data Services Static	3G					4G			
	Airtel	BSNL	Tata	VIL		Airtel	JIO	VIL	
				Idea	Vodafone			Idea	Vodafone
Download Throughput (Mbps)	1.02	0.36	1.26	1.02	2.01	9.44	4.89	3.79	2.33
Upload Throughput (Mbps)	0.63	0.67	0.70	1.15	0.65	3.59	0.74	0.97	5.09
Web Browsing Delay (sec)	12.15	15.31	12.91	13.31	12.68	9.01	8.29	10.97	9.14
Video Streaming Delay (sec)	8.28	6.55	2.79	1.89	3.71	3.67	2.72	1.18	2.48
Latency (msec)	135	132	161	94	137	73	74	71	75

Data Services Dynamic	3G					4G			
	Airtel	BSNL	Tata	VIL		Airtel	JIO	VIL	
				Idea	Vodafone			Idea	Vodafone
*Download Throughput (Mbps)	TO	TO	TO	TO	TO	TO	TO	TO	TO
*Upload Throughput (Mbps)	TO	TO	TO	TO	TO	TO	TO	TO	TO
Web Browsing Delay (sec)	7.38	12.83	13.53	11.38	12.54	10.05	6.23	11.49	6.62
Video Streaming Delay (sec)	1.30	5.85	1.96	1.61	3.25	1.43	1.28	0.95	2.18
Latency (msec)	TO	317	158	61	96	52	63	89	101

All download & Upload test were time out due to temporary server issue

*TO=Timeout

Summary

City Level Summary(contd.)

Angamaly Bus Stand	2G				
	Airtel	BSNL	Tata	VIL	
				Idea	Vodafone
Download Throughput (Kbps)	95.40	33.57	102.23	TO	62.79
Upload Throughput (kbps)	121.41	33.47	123.17	TO	114.04
Web Browsing Delay (sec)	34.57	30.07	32.20	TO	37.11
Latency (msec)	520	271	556	TO	390

Angamaly Bus Stand	3G					4G			
	Airtel	BSNL	Tata	VIL		Airtel	JIO	VIL	
				Idea	Vodafone			Idea	Vodafone
Download Throughput (Mbps)	1.63	0.14	1.65	0.23	0.34	4.95	1.51	1.83	4.11
Upload Throughput (Mbps)	0.74	0.04	0.86	0.12	0.04	4.80	0.30	0.31	8.20
Web Browsing Delay (sec)	14.24	18.08	15.28	22.10	19.33	14.62	10.09	13.62	7.73
Video Streaming Delay (sec)	10.85	TO	2.96	TO	TO	4.72	5.41	2.01	1.65
Latency (msec)	208	247	153	TO	283	96	74	67	93

High Court of Kerala	2G				
	Airtel	BSNL	Tata	VIL	
				Idea	Vodafone
*Download Throughput (Kbps)	TO	TO	TO	TO	TO
*Upload Throughput (kbps)	TO	TO	TO	TO	TO
Web Browsing Delay (sec)	36.37	27.98	25.56	45.09	31.41
Latency (msec)	562	234	537	541	436

High Court of Kerala	3G					4G			
	Airtel	BSNL	Tata	VIL		Airtel	JIO	VIL	
				Idea	Vodafone			Idea	Vodafone
*Download Throughput (Mbps)	TO	TO	TO	TO	TO	TO	TO	TO	TO
**Upload Throughput (Mbps)	TO	TO	TO	TO	TO	TO	TO	TO	TO
Web Browsing Delay (sec)	15.70	20.11	14.85	11.54	10.32	8.86	8.01	11.70	8.08
Video Streaming Delay (sec)	3.31	TO	3.58	1.50	2.00	2.78	2.87	1.56	1.26
Latency (msec)	115	TO	158	126	95	65	117	67	54

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*TO=Timeout

Summary

City Level Summary(contd.)

Cochin International Airport	2G				
	Airtel	BSNL	Tata	VIL	
				Idea	Vodafone
Download Throughput (Kbps)	142.62	42.69	178.64	116.69	TO
Upload Throughput (kbps)	139.46	63.54	118.93	132.94	102.64
Web Browsing Delay (sec)	33.55	18.12	32.79	42.72	6.95
Latency (msec)	648	221	551	231	TO

Cochin International Airport	3G					4G			
	Airtel	BSNL	Tata	VIL		Airtel	JIO	VIL	
				Idea	Vodafone			Idea	Vodafone
Download Throughput (Mbps)	0.41	0.57	0.88	1.82	3.67	13.93	8.27	5.75	0.54
Upload Throughput (Mbps)	0.52	1.30	0.55	1.66	1.26	2.37	1.17	1.64	1.98
Web Browsing Delay (sec)	15.24	13.83	14.51	13.29	10.86	6.43	8.48	9.89	12.56
Video Streaming Delay (sec)	16.12	8.64	3.98	1.27	1.65	5.09	0.91	0.70	6.33
Latency (msec)	228	131	216	80	97	81	60	70	86

Ernakulam Jn.	2G				
	Airtel	BSNL	Tata	VIL	
				Idea	Vodafone
*Download Throughput (Kbps)	TO	TO	TO	TO	TO
*Upload Throughput (kbps)	TO	TO	TO	TO	TO
Web Browsing Delay (sec)	29.96	34.03	18.81	38.78	46.24
Latency (msec)	628	251	596	459	474

Ernakulam Jn.	3G					4G			
	Airtel	BSNL	Tata	VIL		Airtel	JIO	VIL	
				Idea	Vodafone			Idea	Vodafone
*Download Throughput (Mbps)	TO	TO	TO	TO	TO	TO	TO	TO	TO
*Upload Throughput (Mbps)	TO	TO	TO	TO	TO	TO	TO	TO	TO
Web Browsing Delay (sec)	12.51	16.39	10.97	9.66	9.65	6.21	5.72	12.16	11.18
Video Streaming Delay (sec)	13.35	TO	1.50	1.19	1.17	1.35	0.83	1.19	2.68
Latency (msec)	102	93	146	79	225	48	60	78	95

*All download & Upload test were time out due to temporary server issue

*TO=Timeout

Summary

City Level Summary(contd.)

Infopark	2G				
	Airtel	BSNL	Tata	VIL	
				Idea	Vodafone
*Download Throughput (Kbps)	TO	TO	TO	TO	TO
*Upload Throughput (kbps)	TO	TO	TO	TO	TO
Web Browsing Delay (sec)	35.16	25.68	27.33	46.14	39.40
Latency (msec)	555	457	629	271	446

Infopark	3G					4G			
	Airtel	BSNL	Tata	VIL		Airtel	JIO	VIL	
				Idea	Vodafone			Idea	Vodafone
*Download Throughput (Mbps)	TO	TO	TO	TO	TO	TO	TO	TO	TO
*Upload Throughput (Mbps)	TO	TO	TO	TO	TO	TO	TO	TO	TO
Web Browsing Delay (sec)	8.75	14.16	11.71	14.73	10.75	13.47	11.38	8.44	9.07
Video Streaming Delay (sec)	7.87	5.47	3.45	3.41	1.11	7.17	5.64	1.07	1.71
Latency (msec)	88	100	144	100	77	94	70	61	47

Lulu Mall, Kochi	2G				
	Airtel	BSNL	Tata	VIL	
				Idea	Vodafone
*Download Throughput (Kbps)	TO	TO	TO	TO	TO
*Upload Throughput (kbps)	TO	TO	TO	TO	TO
Web Browsing Delay (sec)	27.48	25.31	28.02	16.37	38.77
Latency (msec)	491	218	681	239	278

Lulu Mall, Kochi	3G					4G			
	Airtel	BSNL	Tata	VIL		Airtel	JIO	VIL	
				Idea	Vodafone			Idea	Vodafone
*Download Throughput (Mbps)	TO	TO	TO	TO	TO	TO	TO	TO	TO
*Upload Throughput (Mbps)	TO	TO	TO	TO	TO	TO	TO	TO	TO
Web Browsing Delay (sec)	6.59	12.88	10.24	15.38	13.68	4.74	6.13	10.00	6.21
Video Streaming Delay (sec)	1.00	5.55	1.33	1.89	14.54	0.93	0.68	0.82	1.22
Latency (msec)	68	89	152	65	93	52	64	83	74

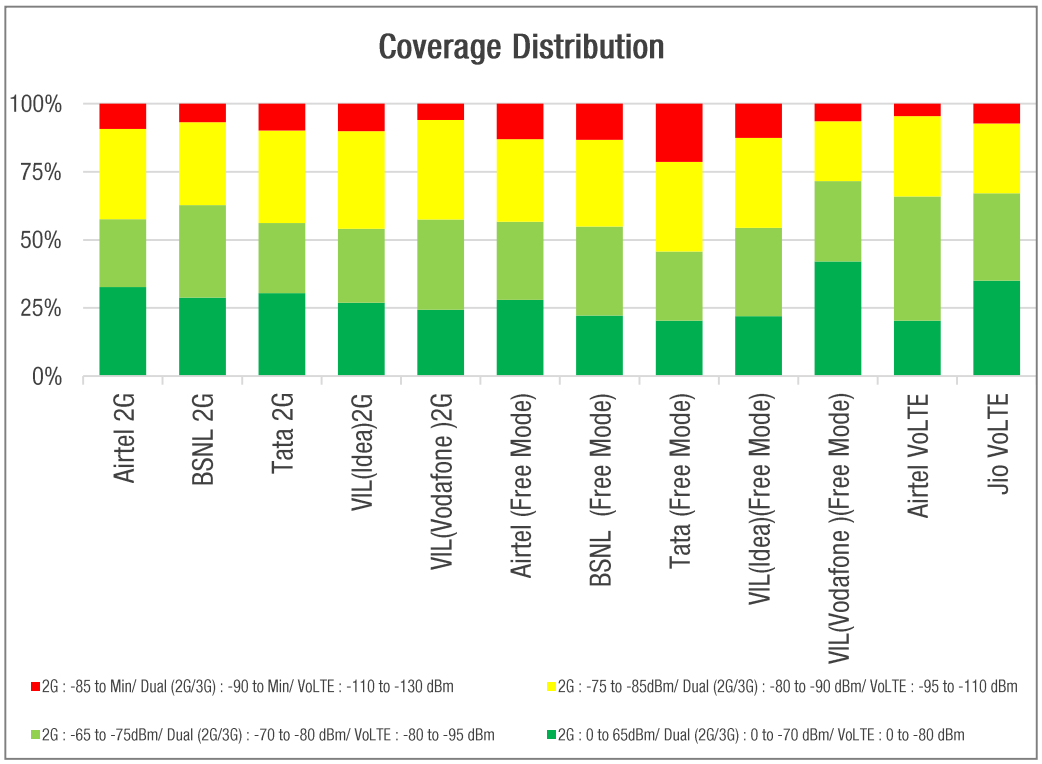
*All download & Upload test were time out due to temporary server issue

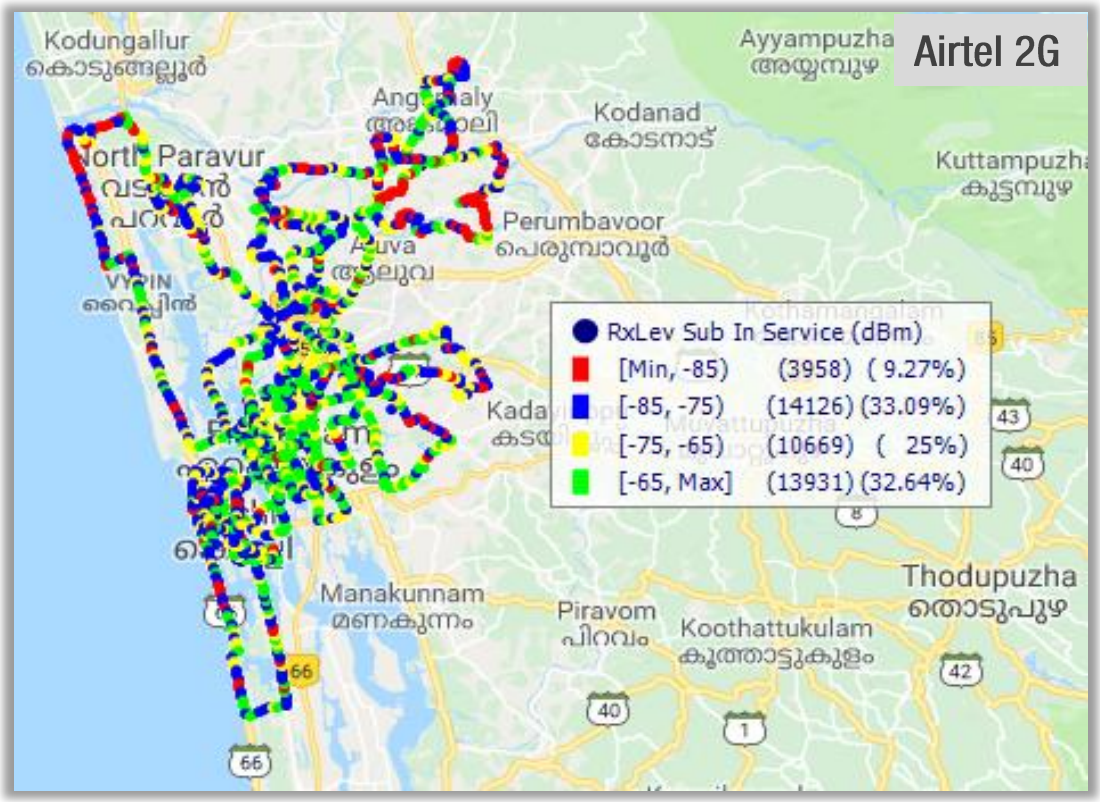
*TO=Timeout

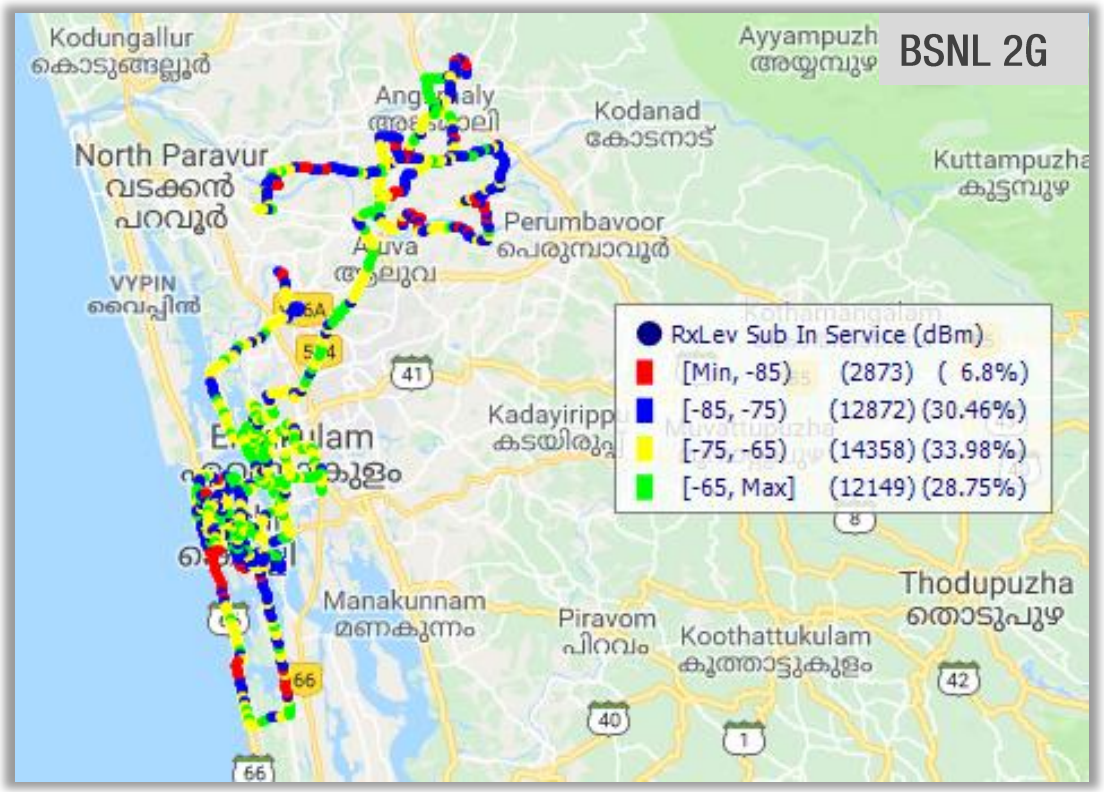
I. Coverage Details

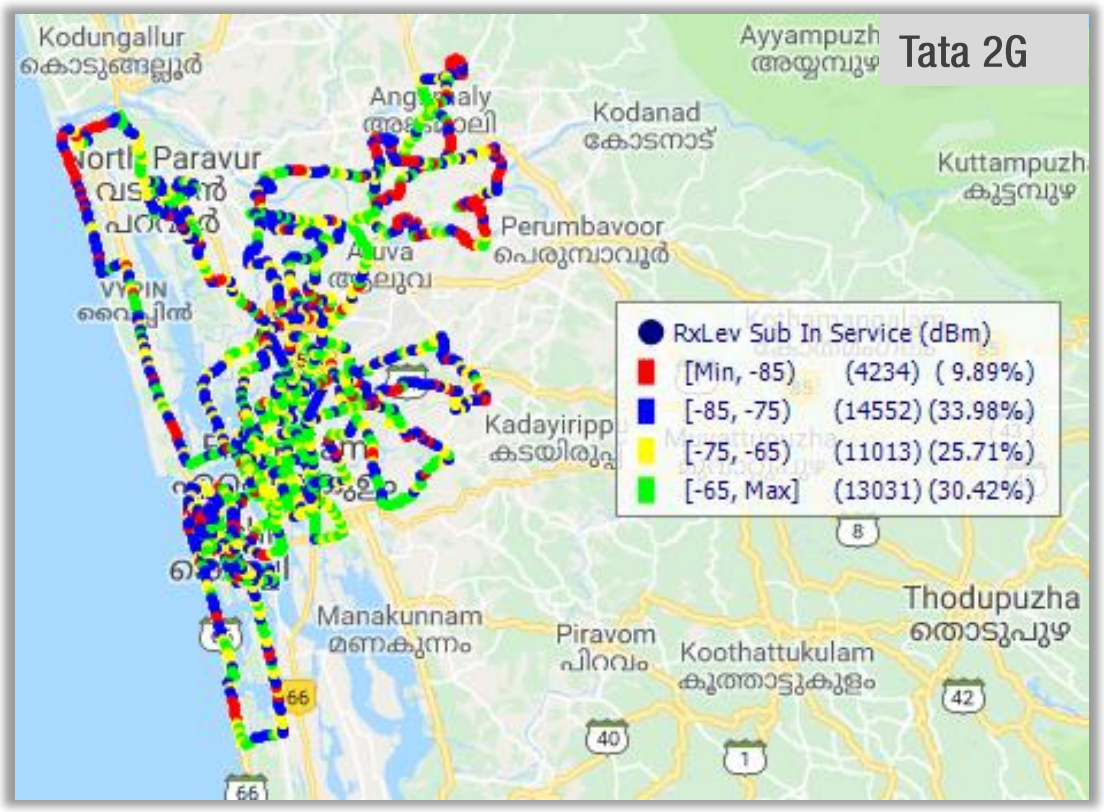
RF Coverage relates to the geographical footprint within the system that has sufficient RF signal strength to provide for a call/data session. The Coverage rate of an TSP is calculated on the basis of % of samples in which the Rx level ≥ -85 dBm, RSCP is ≥ -90 dBm & RSRP ≥ -110dBm. The details are as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

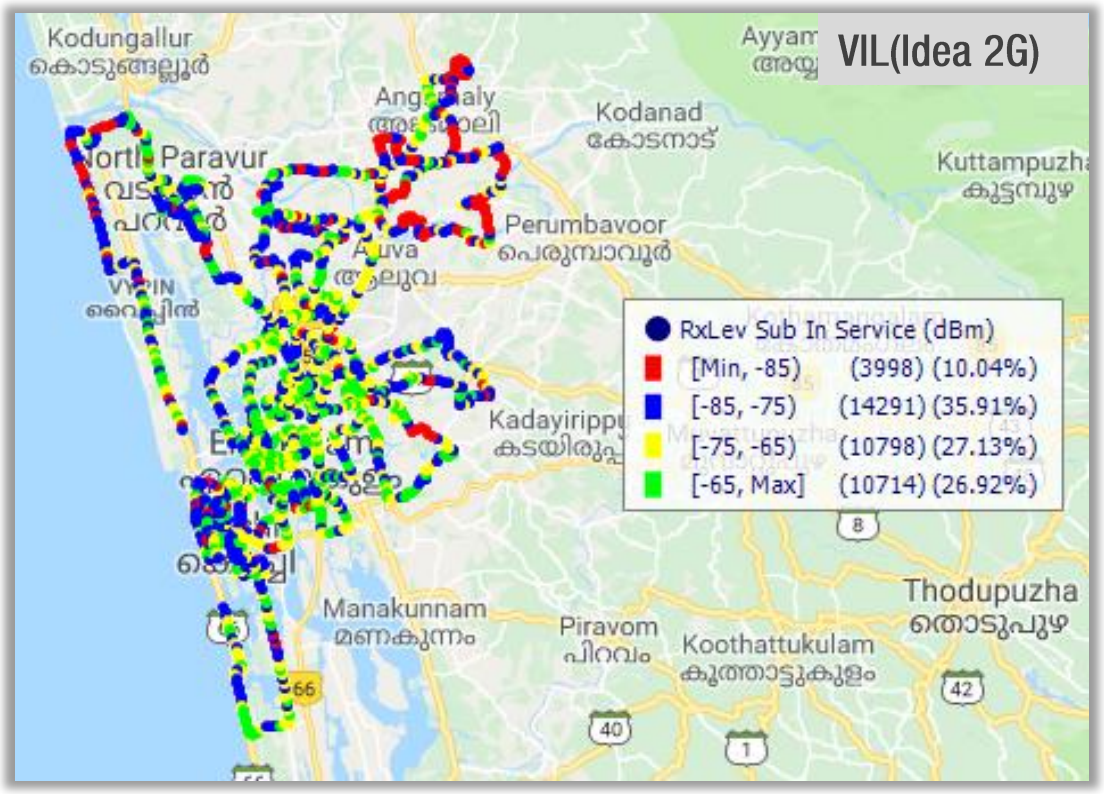
TSP	Coverage Rate
Airtel 2G	90.73%
BSNL 2G	93.20%
Tata 2G	90.11%
VIL(Idea)2G	89.96%
VIL(Vodafone)2G	94.09%
Airtel (Free Mode)	87.03%
BSNL (Free Mode)	86.71%
Tata (Free Mode)	78.68%
VIL(Idea)(Free Mode)	87.52%
VIL(Vodafone)(Free Mode)	93.59%
Airtel VoLTE	95.44%
Jio VoLTE	92.75%

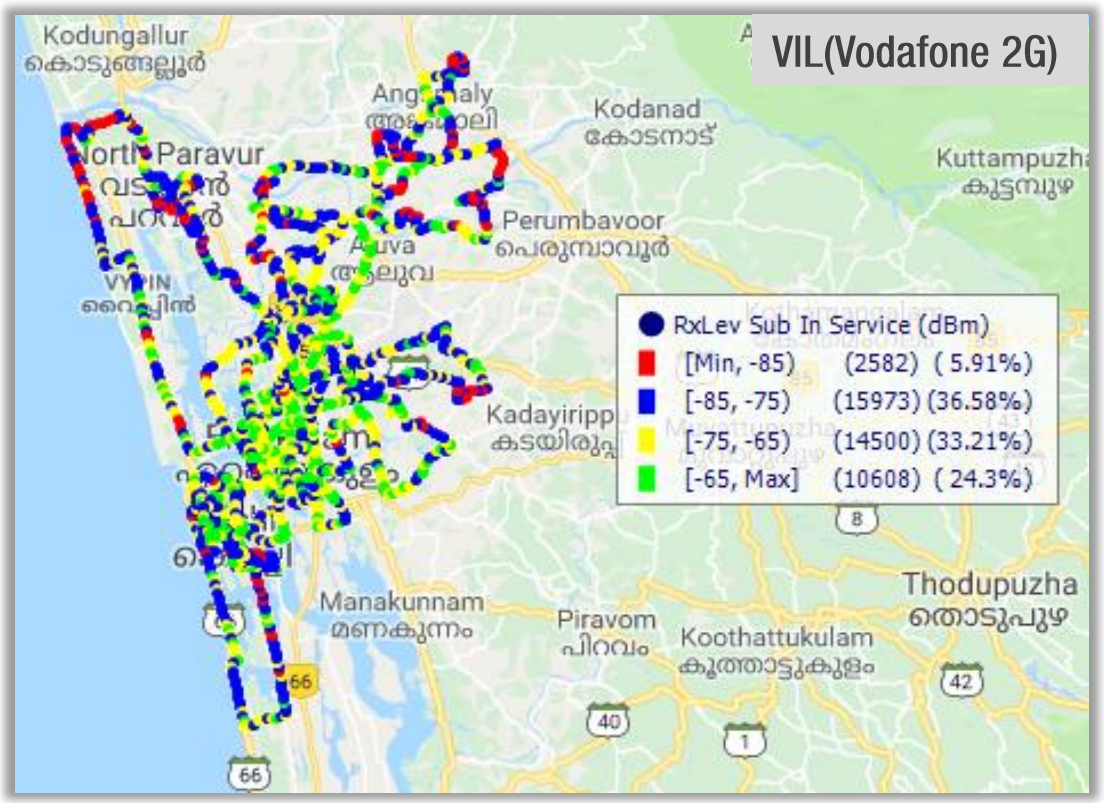


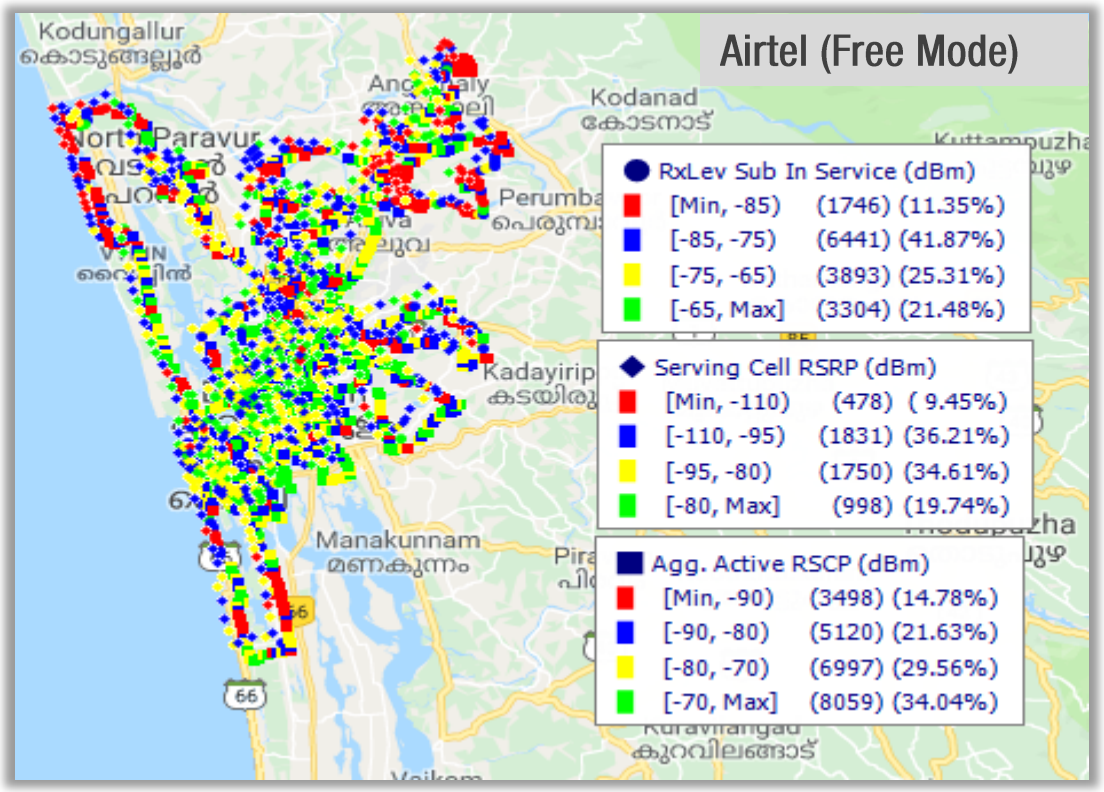


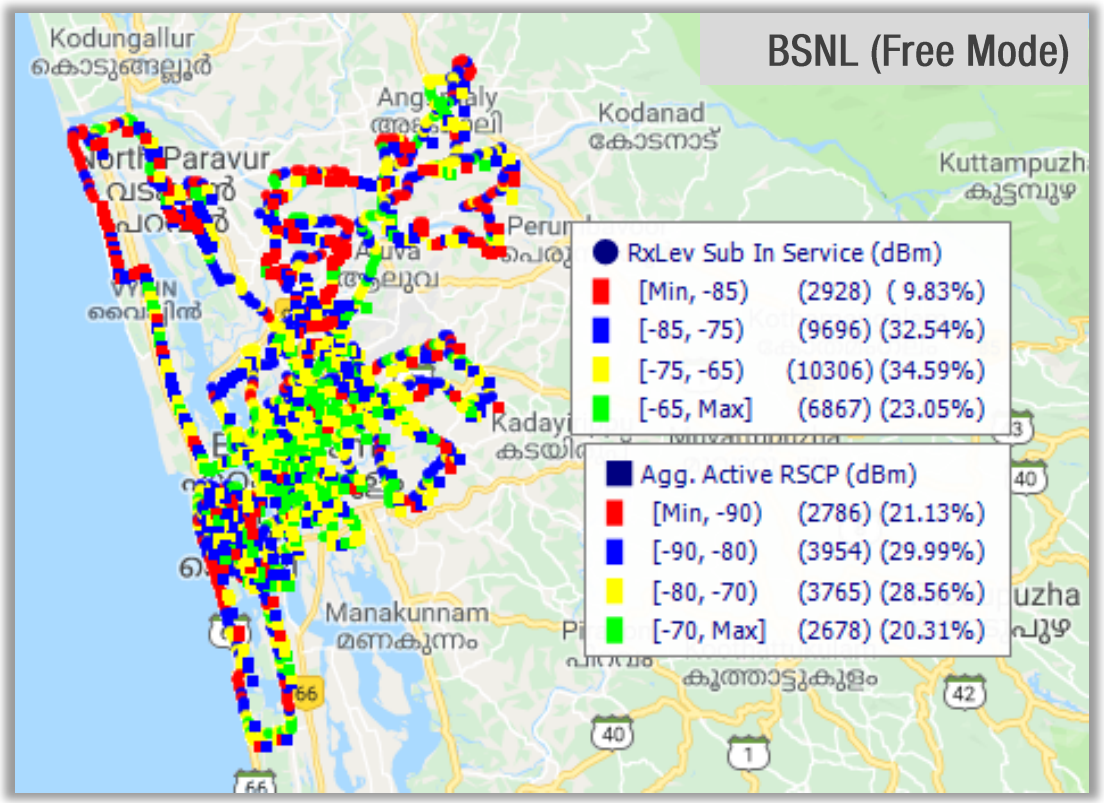

BSNL 2G
Kodungallur
കൊടുങ്ങല്ലൂർ
Ayyampuzh
അയ്യമ്പുഴ
Kodanad
കോടനാട്
North Paravur
വടക്കൻ പറവൂർ
Perumbavoor
പെരുമ്പാവൂർ
Kuttampuzha
കുട്ടമ്പുഴ
VYPIN
വൈപ്പിൻ
Kadayirippu
കടയിരുപ്പ്
Manakunnam
മണകുന്നം
Piravom
പിറവം
Koothattukulam
കൂത്താട്ടുകുളം
Thodupuzha
തൊടുപുഴ
RxLev Sub In Service (dBm)
[Min, -85) (2873) (6.8%)
[-85, -75) (12872) (30.46%)
[-75, -65) (14358) (33.98%)
[-65, Max] (12149) (28.75%)

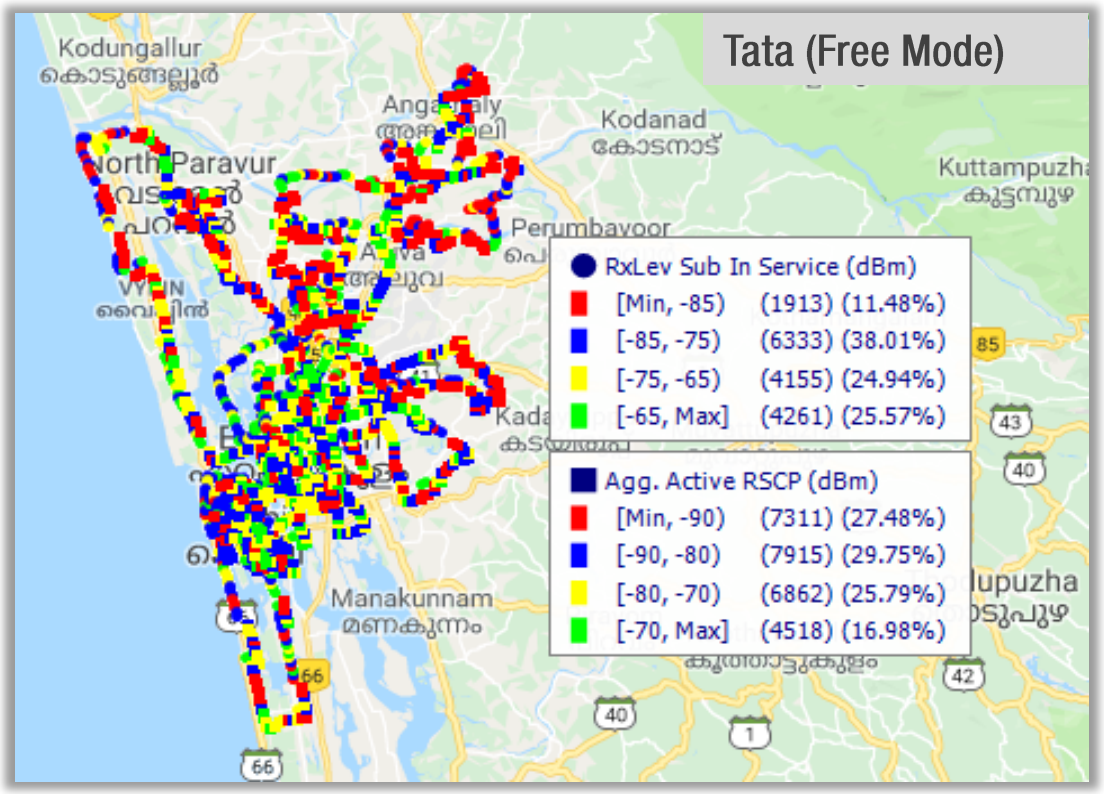

Tata 2G
Kodungallur
കൊടുങ്ങല്ലൂർ
Ayyampuzh
അയ്യമ്പുഴ
Kodanad
കോടനാട്
Perumbavoor
പെരുമ്പാവൂർ
Kuttampuzha
കുട്ടമ്പുഴ
Kadayirippu
കടയിരുപ്പ്
Manakunnam
മണകുന്നം
Piravom
പിറവം
Koothattukulam
കൂത്താട്ടുകുളം
Thodupuzha
തൊടുപുഴ
RxLev Sub In Service (dBm)
[Min, -85) (4234) (9.89%)
[-85, -75) (14552) (33.98%)
[-75, -65) (11013) (25.71%)
[-65, Max] (13031) (30.42%)

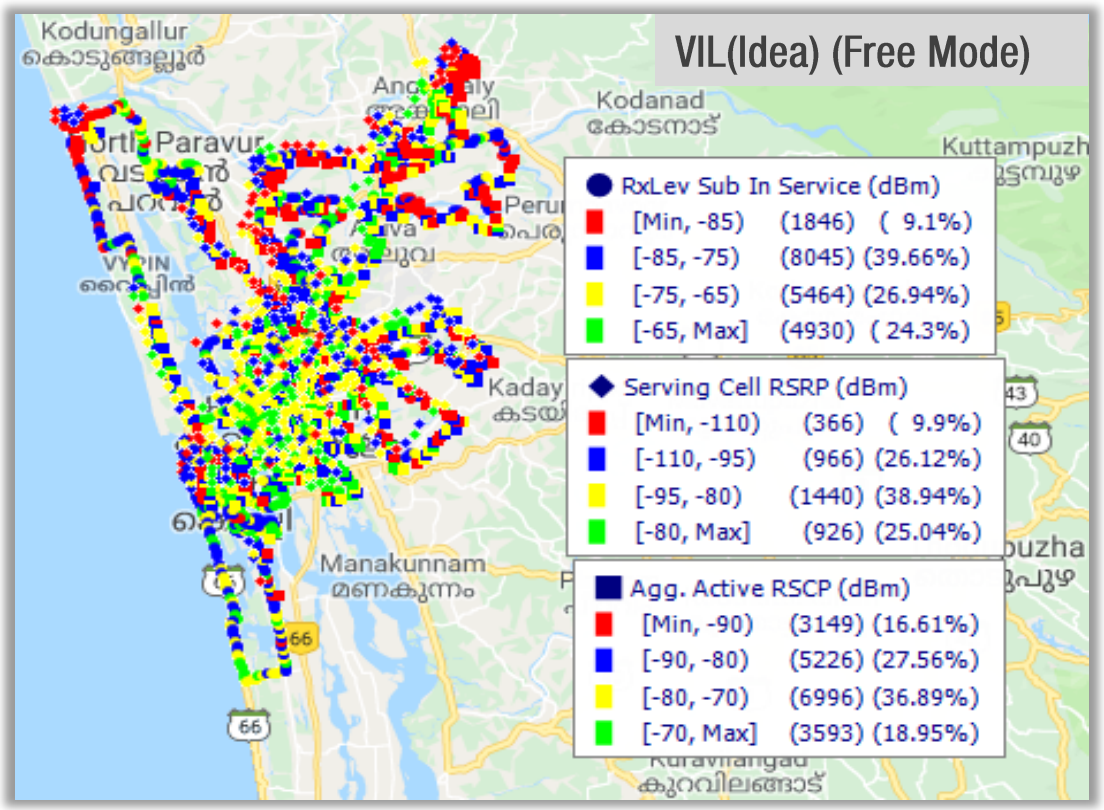

VIL(Idea 2G)
Kodungallur
കൊടുങ്ങല്ലൂർ
Kodanad
കോടനാട്
Perumbavoor
പെരുമ്പാവൂർ
Kuttampuzha
കുട്ടമ്പുഴ
Kadayirippu
കടയിരുപ്പ്
Manakunnam
മണകുന്നം
Piravom
പിറവം
Koothattukulam
കൂത്താട്ടുകുളം
Thodupuzha
തൊടുപുഴ
RxLev Sub In Service (dBm)
[Min, -85) (3998) (10.04%)
[-85, -75) (14291) (35.91%)
[-75, -65) (10798) (27.13%)
[-65, Max] (10714) (26.92%)

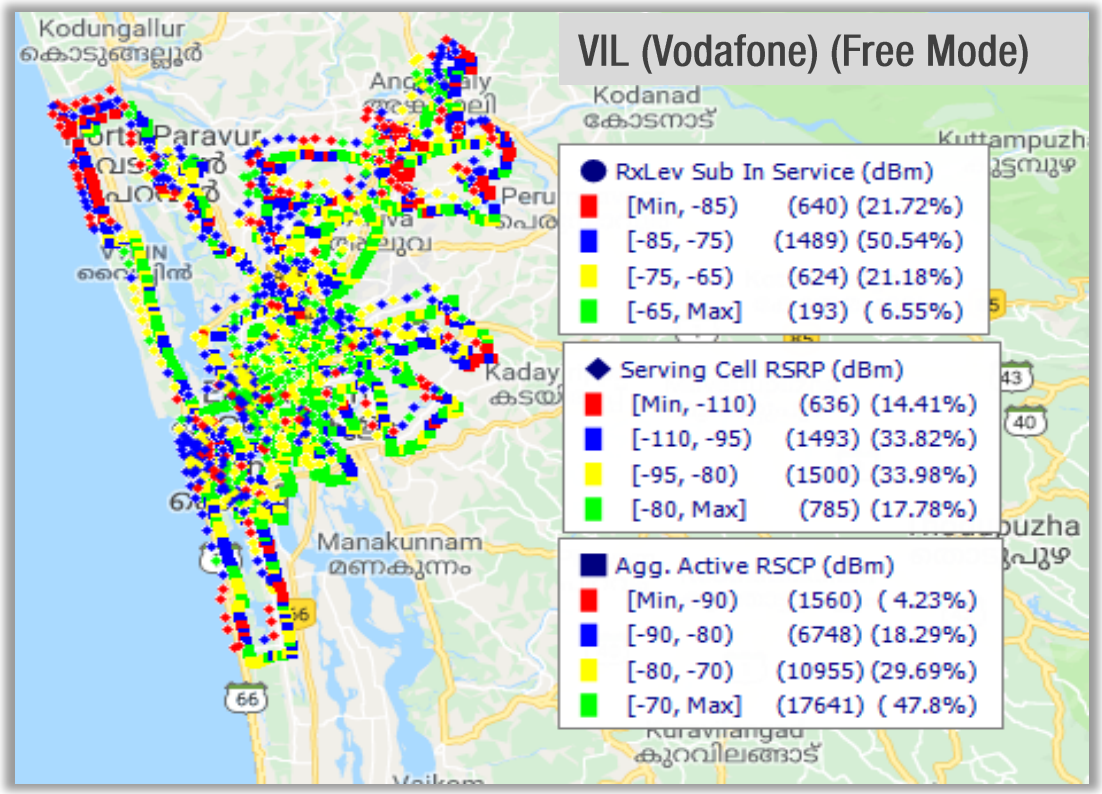

VIL(Vodafone 2G)
Kodungallur
കൊടുങ്ങല്ലൂർ
Kodanad
കോടനാട്
Perumbavoor
പെരുമ്പാവൂർ
Kuttampuzha
കുട്ടമ്പുഴ
Kadayirippu
കടയിരുപ്പ്
Manakunnam
മണകുന്നം
Piravom
പിറവം
Koothattukulam
കൂത്താട്ടുകുളം
Thodupuzha
തൊടുപുഴ
RxLev Sub In Service (dBm)
[Min, -85) (2582) (5.91%)
[-85, -75) (15973) (36.58%)
[-75, -65) (14500) (33.21%)
[-65, Max] (10608) (24.3%)

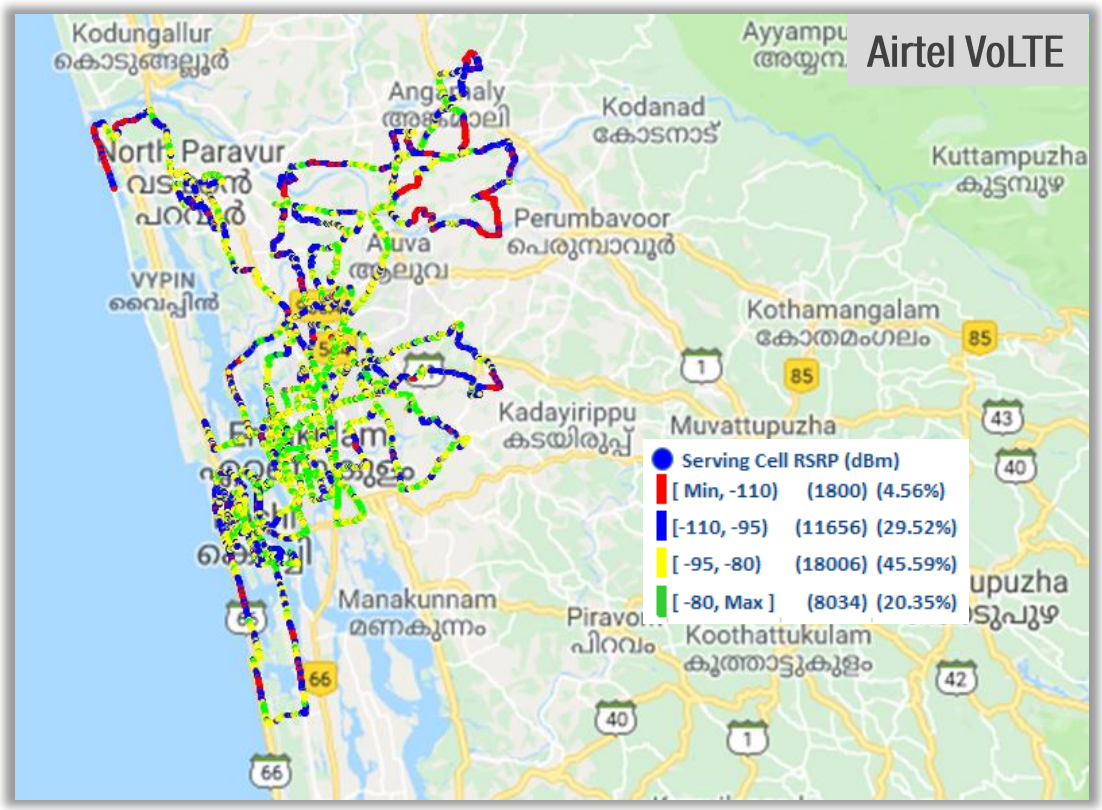

Airtel (Free Mode)
Kodungallur
കൊടുങ്ങല്ലൂർ
Kodanad
കോടനാട്
Manakunnam
മണകുന്നം
RxLev Sub In Service (dBm)
[Min, -85) (1746) (11.35%)
[-85, -75) (6441) (41.87%)
[-75, -65) (3893) (25.31%)
[-65, Max] (3304) (21.48%)
Serving Cell RSRP (dBm)
[Min, -110) (478) (9.45%)
[-110, -95) (1831) (36.21%)
[-95, -80) (1750) (34.61%)
[-80, Max] (998) (19.74%)
Agg. Active RSCP (dBm)
[Min, -90) (3498) (14.78%)
[-90, -80) (5120) (21.63%)
[-80, -70) (6997) (29.56%)
[-70, Max] (8059) (34.04%)

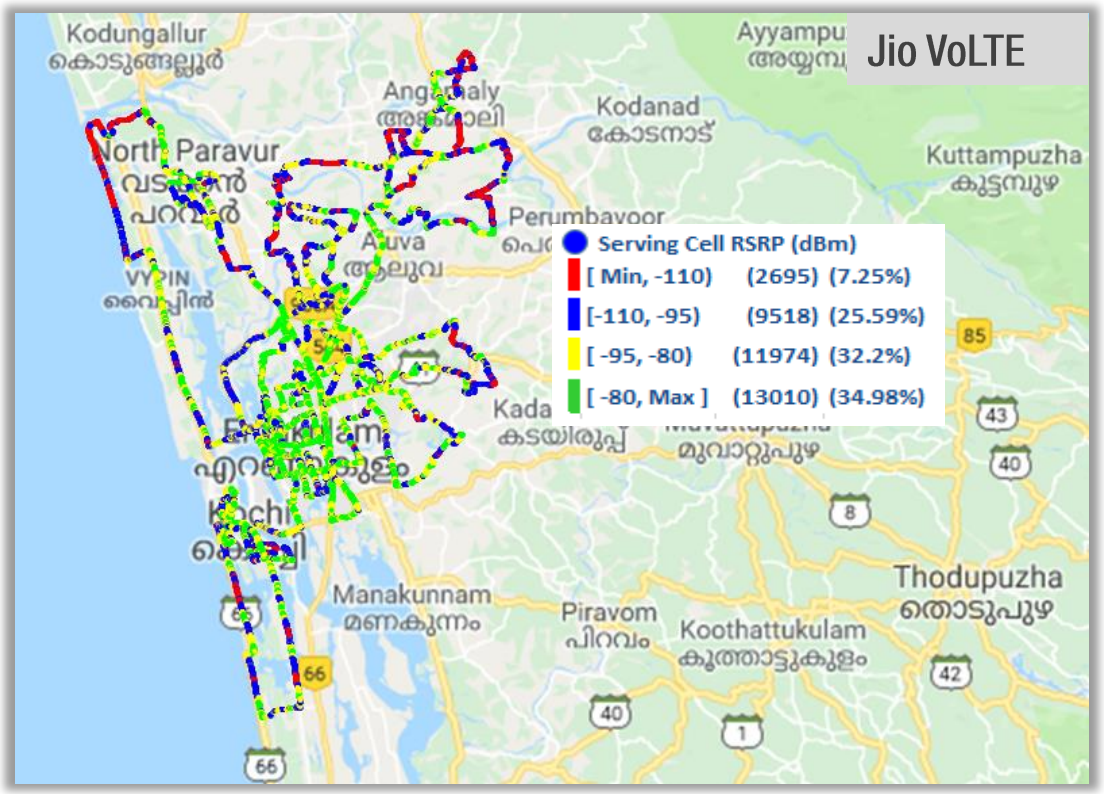

BSNL (Free Mode)
Kodungallur
കൊടുങ്ങല്ലൂർ
Kodanad
കോടനാട്
Kuttampuzha
കുട്ടമ്പുഴ
Manakunnam
മണകുന്നം
RxLev Sub In Service (dBm)
[Min, -85) (2928) (9.83%)
[-85, -75) (9696) (32.54%)
[-75, -65) (10306) (34.59%)
[-65, Max] (6867) (23.05%)
Agg. Active RSCP (dBm)
[Min, -90) (2786) (21.13%)
[-90, -80) (3954) (29.99%)
[-80, -70) (3765) (28.56%)
[-70, Max] (2678) (20.31%)


Tata (Free Mode)
Kodungallur
Kodanad
Perumbavoor
Manakunnam
RxLev Sub In Service (dBm)
[Min, -85) (1913) (11.48%)
[-85, -75) (6333) (38.01%)
[-75, -65) (4155) (24.94%)
[-65, Max] (4261) (25.57%)
Agg. Active RSCP (dBm)
[Min, -90) (7311) (27.48%)
[-90, -80) (7915) (29.75%)
[-80, -70) (6862) (25.79%)
[-70, Max] (4518) (16.98%)


VIL(Idea) (Free Mode)
Kodungallur
Kodanad
Manakunnam
RxLev Sub In Service (dBm)
[Min, -85) (1846) (9.1%)
[-85, -75) (8045) (39.66%)
[-75, -65) (5464) (26.94%)
[-65, Max] (4930) (24.3%)
Serving Cell RSRP (dBm)
[Min, -110) (366) (9.9%)
[-110, -95) (966) (26.12%)
[-95, -80) (1440) (38.94%)
[-80, Max] (926) (25.04%)
Agg. Active RSCP (dBm)
[Min, -90) (3149) (16.61%)
[-90, -80) (5226) (27.56%)
[-80, -70) (6996) (36.89%)
[-70, Max] (3593) (18.95%)


VIL (Vodafone) (Free Mode)
Kodungallur
കൊടുങ്ങല്ലൂർ
Kodanad
കോടനാട്
Manakunnam
മണകുന്നം
Kaday
കടയ
RxLev Sub In Service (dBm)
[Min, -85) (640) (21.72%)
[-85, -75) (1489) (50.54%)
[-75, -65) (624) (21.18%)
[-65, Max] (193) (6.55%)
Serving Cell RSRP (dBm)
[Min, -110) (636) (14.41%)
[-110, -95) (1493) (33.82%)
[-95, -80) (1500) (33.98%)
[-80, Max] (785) (17.78%)
Agg. Active RSCP (dBm)
[Min, -90) (1560) (4.23%)
[-90, -80) (6748) (18.29%)
[-80, -70) (10955) (29.69%)
[-70, Max] (17641) (47.8%)


Airtel VoLTE
Kodungallur
കൊടുങ്ങല്ലൂർ
Kodanad
കോടനാട്
Perumbavoor
പെരുമ്പാവൂർ
Aluva
ആലുവ
VYPIN
വൈപ്പിൻ
Kothamangalam
കോതമംഗലം
Kadayirippu
കടയിരുപ്പ്
Muvattupuzha
Manakunnam
മണകുന്നം
Koothattukulam
കൂത്താട്ടുകുളം
Kuttampuzha
കുട്ടമ്പുഴ
Serving Cell RSRP (dBm)
[Min, -110) (1800) (4.56%)
[-110, -95) (11656) (29.52%)
[-95, -80) (18006) (45.59%)
[-80, Max] (8034) (20.35%)

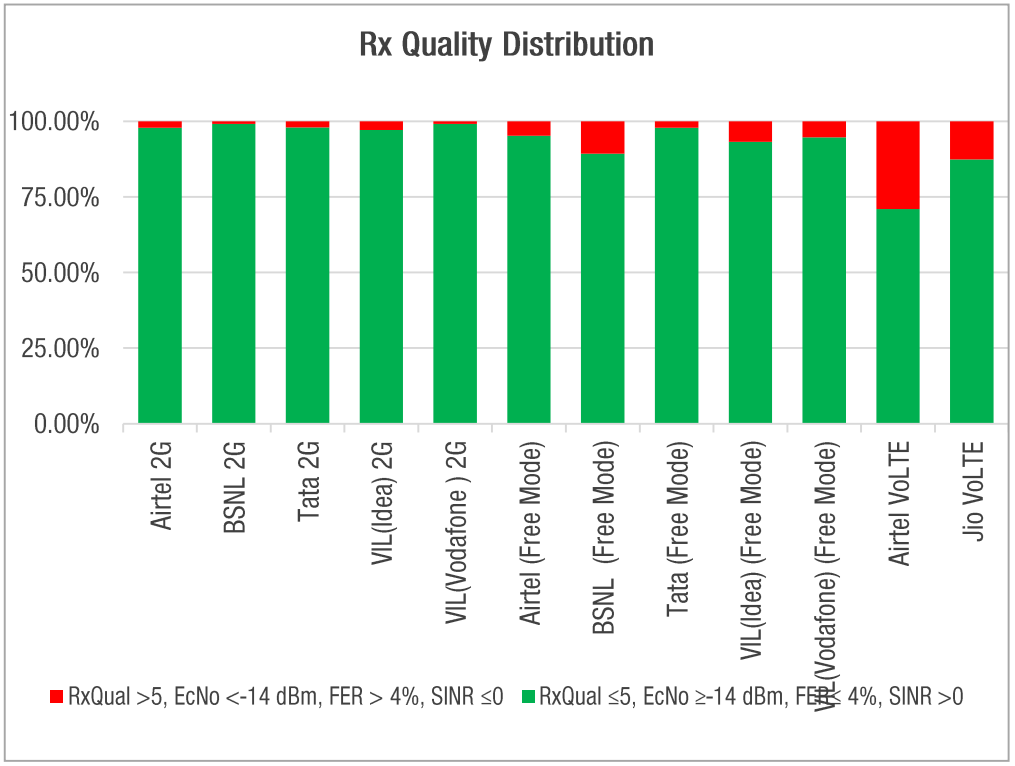

Jio VoLTE
Kodungallur
കൊടുങ്ങല്ലൂർ
Kodanad
കോടനാട്
Kuttampuzha
കുട്ടമ്പുഴ
Perumbavoor
Aluva
ആലുവ
Manakunnam
മണകുന്നം
Piravom
പിറവം
Koothattukulam
കൂത്താട്ടുകുളം
Thodupuzha
തൊടുപുഴ
Serving Cell RSRP (dBm)
[Min, -110) (2695) (7.25%)
[-110, -95) (9518) (25.59%)
[-95, -80) (11974) (32.2%)
[-80, Max] (13010) (34.98%)

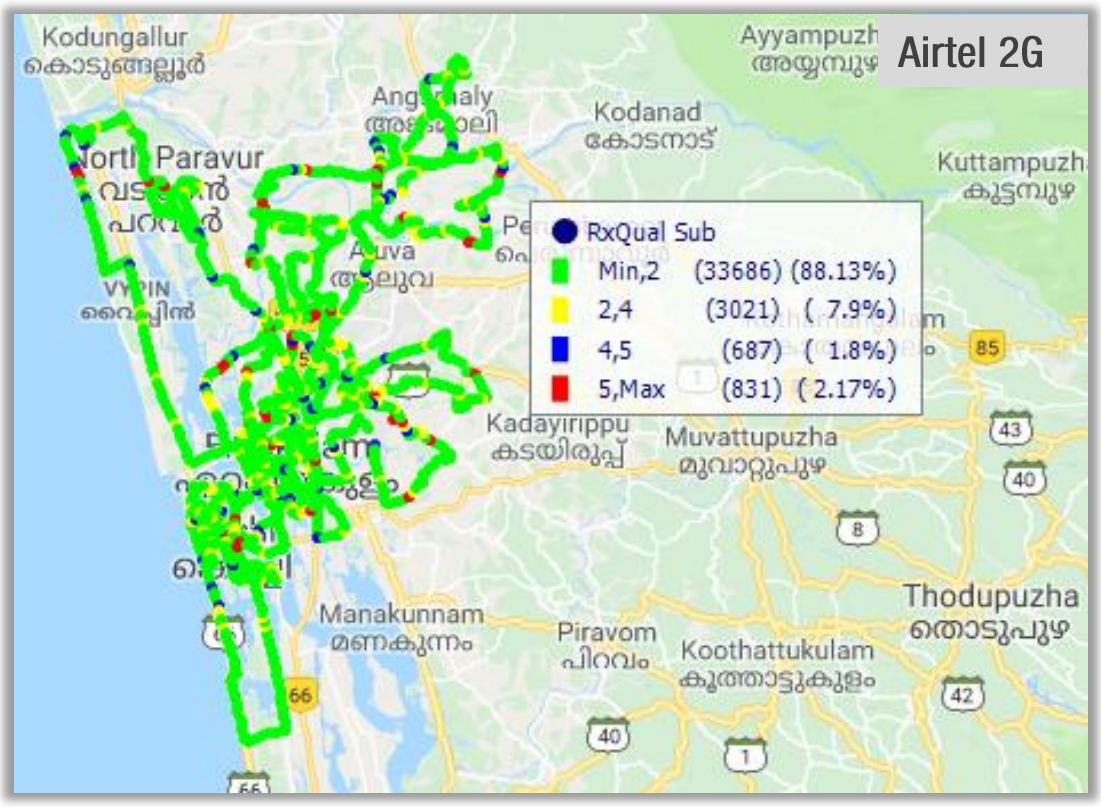
II. Quality Details

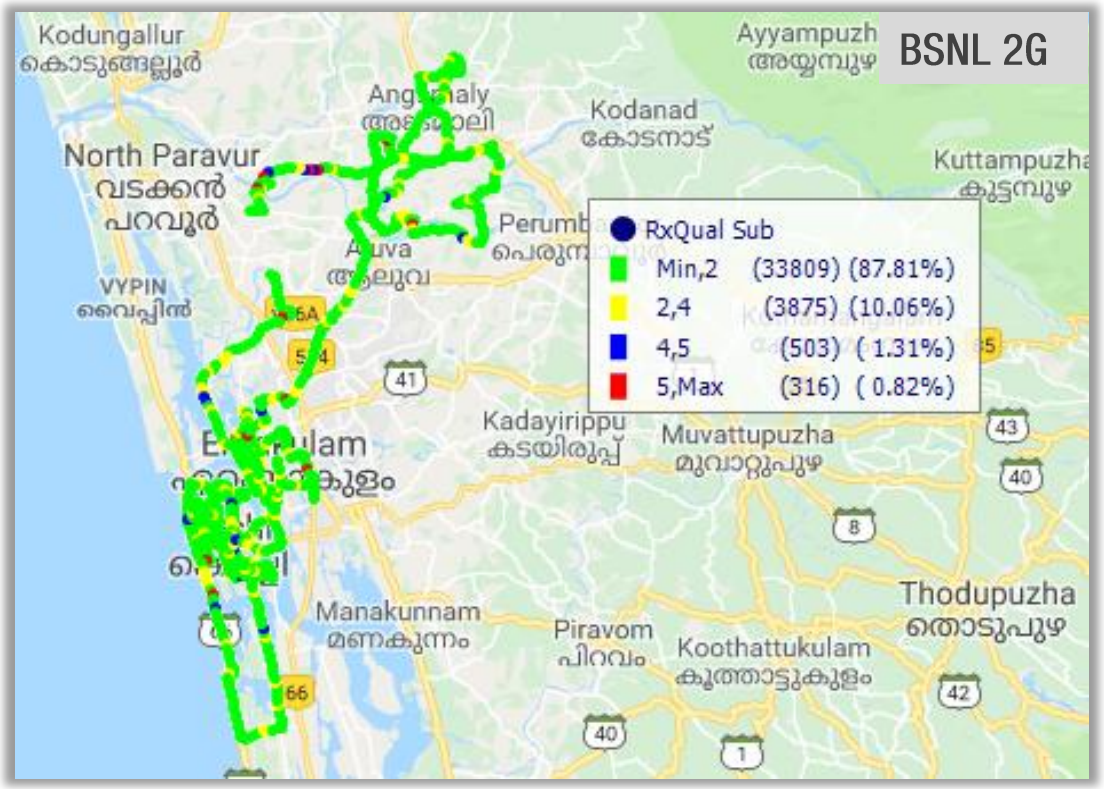
For measuring voice quality, as per the QoS norms, RxQual <=5 for GSM TSPs, EcNo >= -14 dBm for 3G TSP sand SINR >0 in case of VoLTE is considered to be good, where as quality beyond this benchmark is considered to be bad. The benchmark should usually be ≥ 95%.

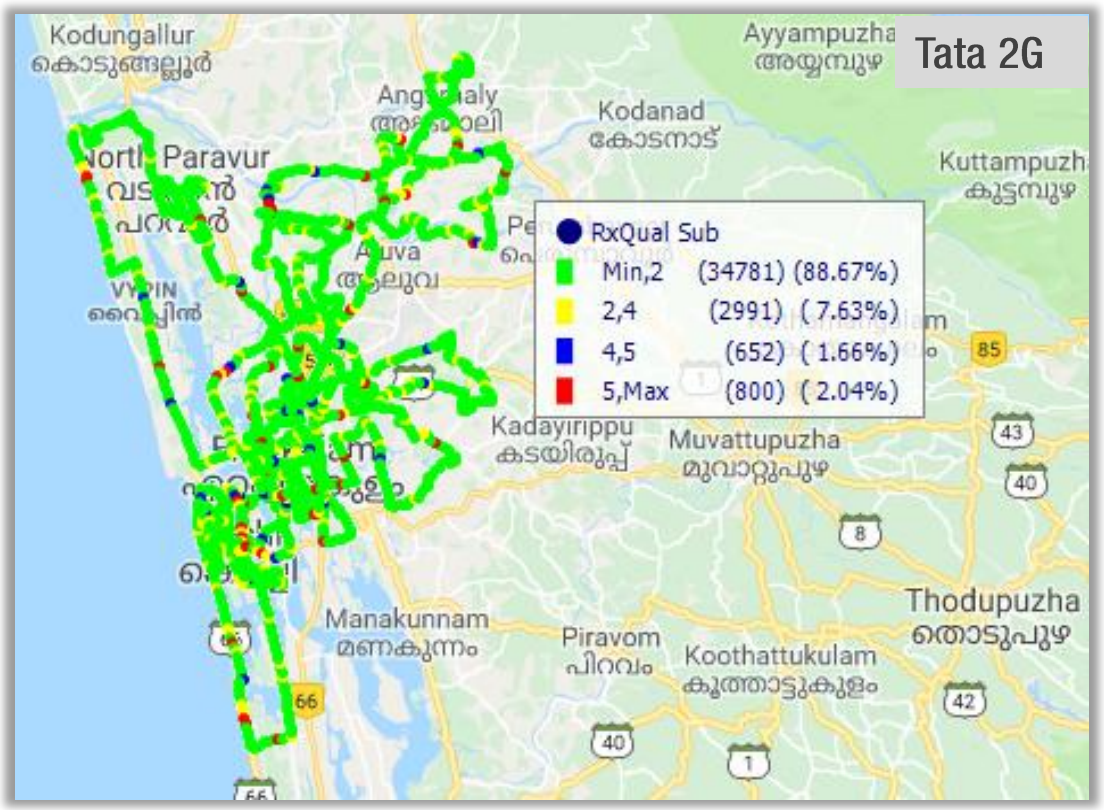
TSP	Rx Quality
Airtel 2G	97.83%
BSNL 2G	99.18%
Tata 2G	97.96%
VIL(Idea) 2G	97.13%
VIL(Vodafone) 2G	99.12%
Airtel (Free Mode)	95.28%
BSNL (Free Mode)	89.31%
Tata (Free Mode)	97.88%
VIL(Idea) (Free Mode)	93.19%
VIL(Vodafone) (Free Mode)	94.69%
Airtel VoLTE	71.00%
Jio VoLTE	87.39%

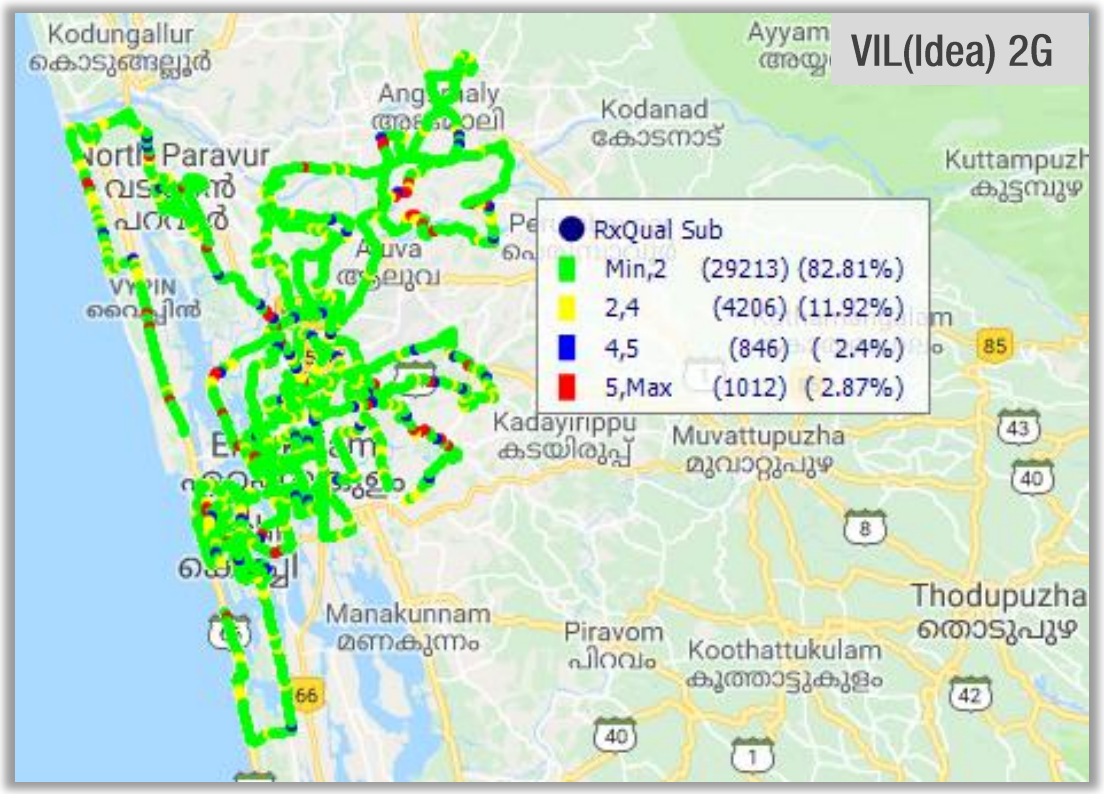
TSPs not meeting the Benchmark

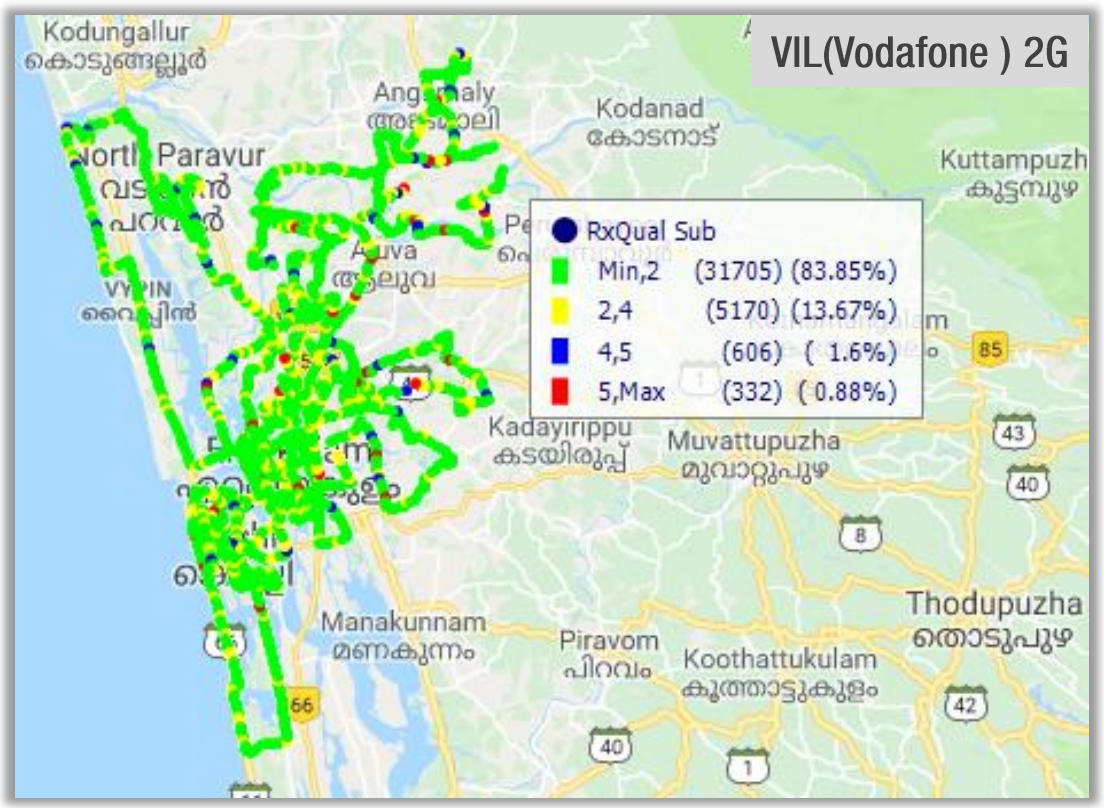


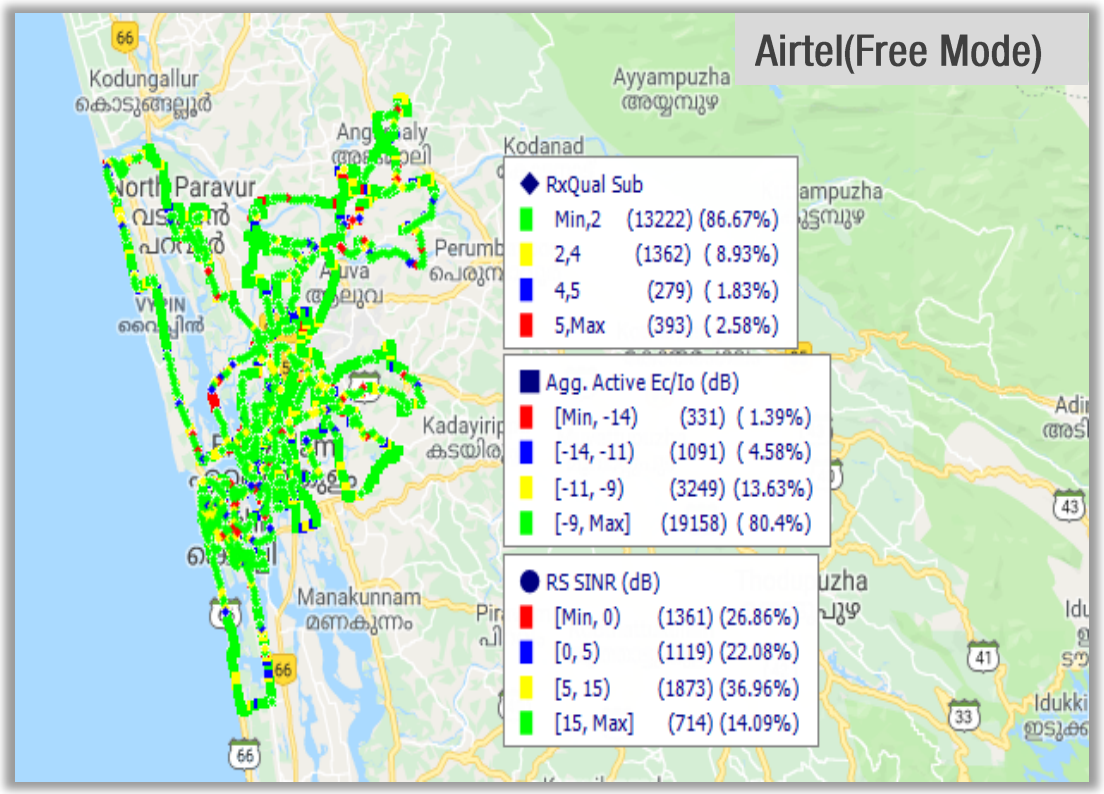


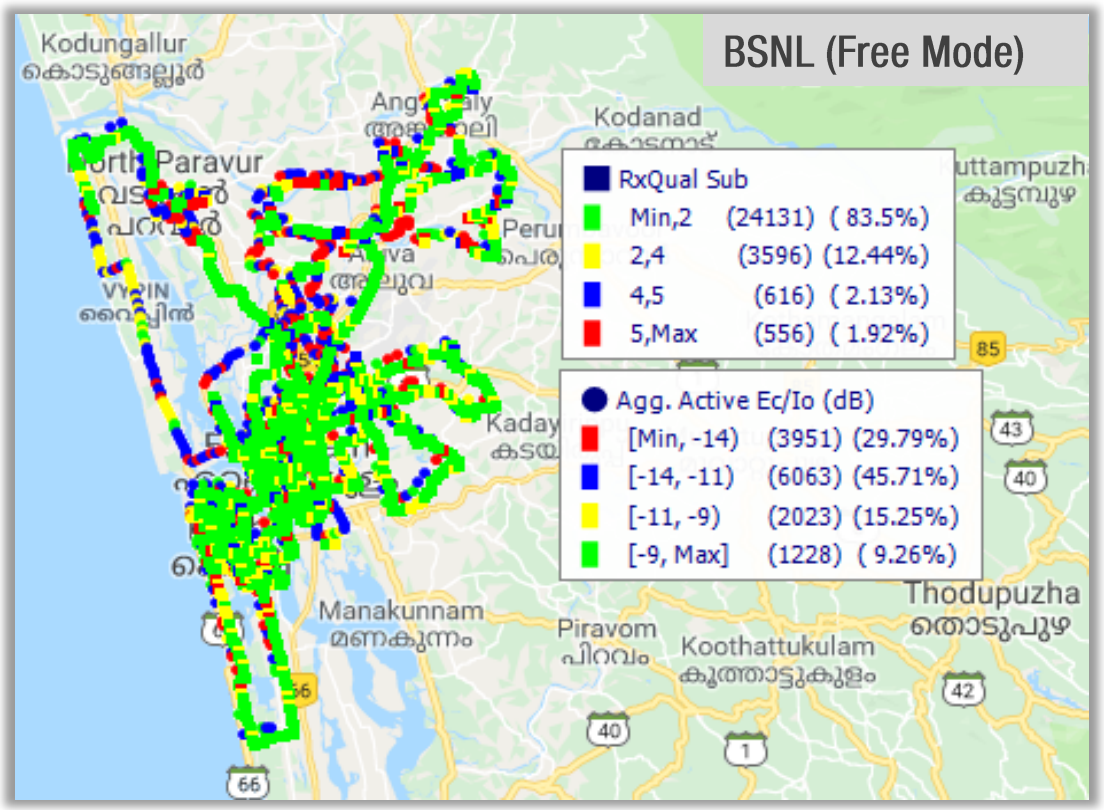

BSNL 2G
Kodungallur
കൊടുങ്ങല്ലൂർ
Ayyampuzh
അയ്യമ്പുഴ
Kodanad
കോടനാട്
North Paravur
വടക്കൻ
പറവൂർ
Kuttampuzha
കുട്ടമ്പുഴ
VYPIN
വൈപ്പിൻ
Aluva
ആലുവ
RxQual Sub
Min,2 (33809) (87.81%)
2,4 (3875) (10.06%)
4,5 (503) (1.31%)
5,Max (316) (0.82%)
Kadayirippu
കടയിരുപ്പ്
Muvattupuzha
മുവാറ്റുപുഴ
Manakunnam
മണകുന്നം
Piravom
പിറവം
Koothattukulam
കൂത്താട്ടുകുളം
Thodupuzha
തൊടുപുഴ

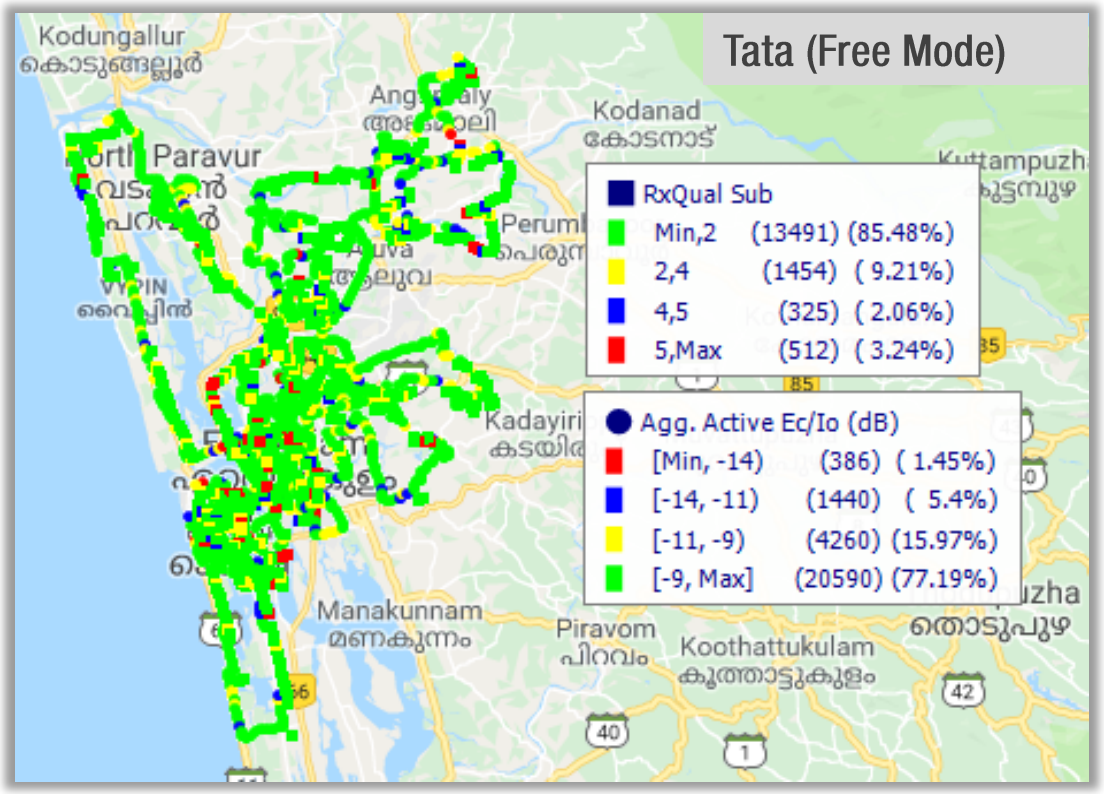

Tata 2G
Kodungallur
കൊടുങ്ങല്ലൂർ
Ayyampuzha
അയ്യമ്പുഴ
Kodanad
കോടനാട്
Kuttampuzh
കുട്ടമ്പുഴ
VYPIN
വൈപ്പിൻ
Aluva
ആലുവ
RxQual Sub
Min,2 (34781) (88.67%)
2,4 (2991) (7.63%)
4,5 (652) (1.66%)
5,Max (800) (2.04%)
Kadayirippu
കടയിരുപ്പ്
Muvattupuzha
മുവാറ്റുപുഴ
Manakunnam
മണകുന്നം
Piravom
പിറവം
Koothattukulam
കൂത്താട്ടുകുളം
Thodupuzha
തൊടുപുഴ

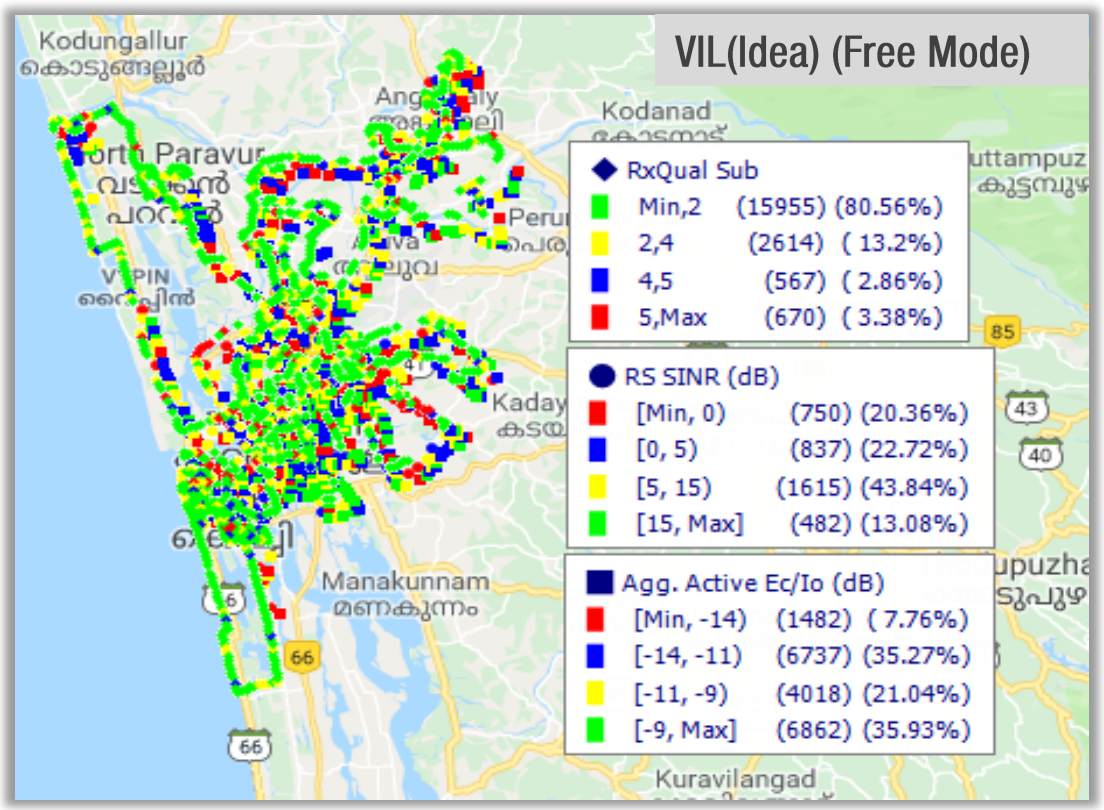

VIL(Idea) 2G
Kodungallur
കൊടുങ്ങല്ലൂർ
Ayyam
Kodanad
കോടനാട്
Kuttampuzh
കുട്ടമ്പുഴ
Paravur
Aluva
VYPIN
വൈപ്പിൻ
RxQual Sub
Min,2 (29213) (82.81%)
2,4 (4206) (11.92%)
4,5 (846) (2.4%)
5,Max (1012) (2.87%)
Kadayirippu
കടയിരുപ്പ്
Muvattupuzha
മുവാറ്റുപുഴ
Manakunnam
മണകുന്നം
Piravom
പിറവം
Koothattukulam
കൂത്താട്ടുകുളം
Thodupuzha
തൊടുപുഴ
85
43
40
8
66
42
1

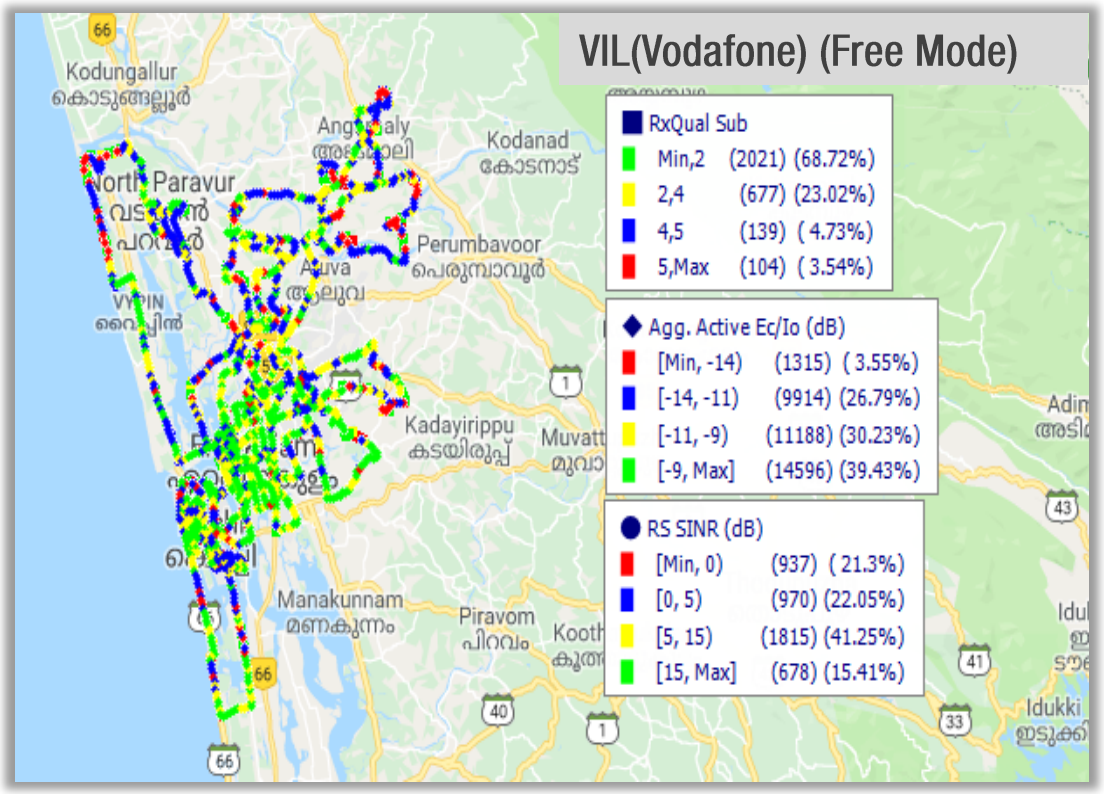

VIL(Vodafone) 2G
Kodungallur
കൊടുങ്ങല്ലൂർ
Kodanad
കോടനാട്
Kuttampuzh
കുട്ടമ്പുഴ
Paravur
Aluva
VYPIN
വൈപ്പിൻ
RxQual Sub
Min,2 (31705) (83.85%)
2,4 (5170) (13.67%)
4,5 (606) (1.6%)
5,Max (332) (0.88%)
Kadayirippu
കടയിരുപ്പ്
Muvattupuzha
മുവാറ്റുപുഴ
Manakunnam
മണകുന്നം
Piravom
പിറവം
Koothattukulam
കൂത്താട്ടുകുളം
Thodupuzha
തൊടുപുഴ
85
43
40
8
66
42
1

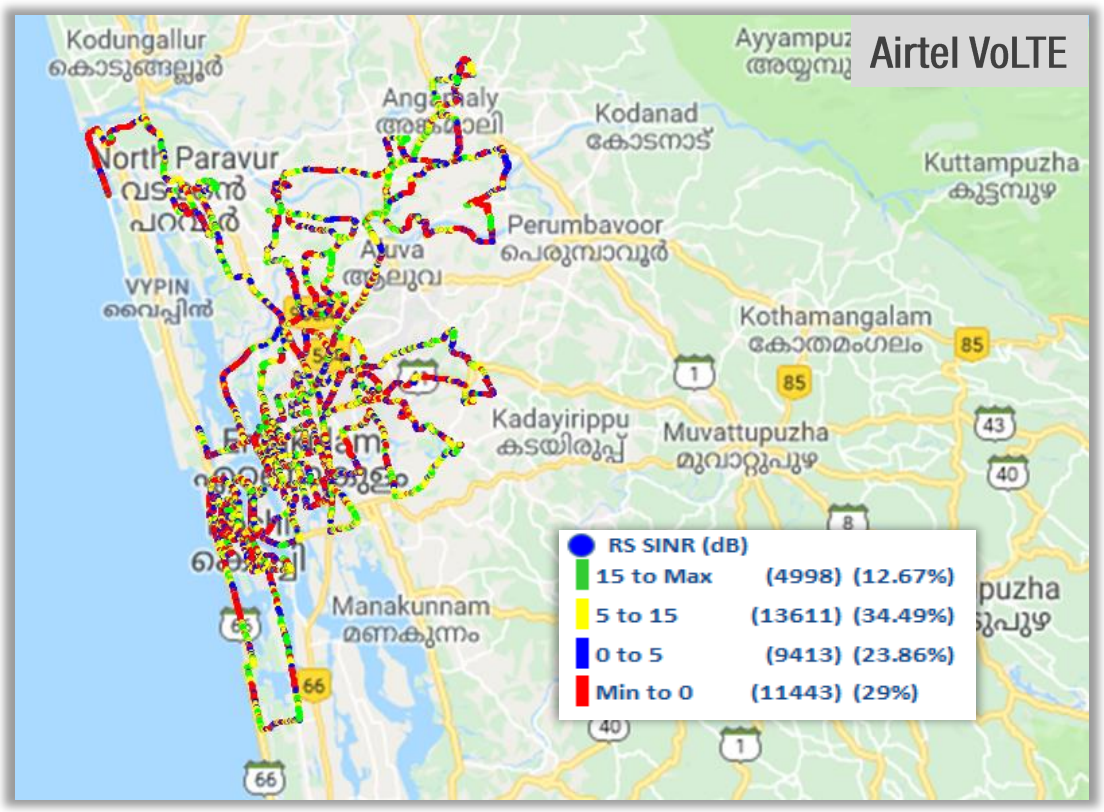

Airtel(Free Mode)
Kodungallur
Ayyampuzha
Kodanad
Manakunnam
RxQual Sub
Min,2 (13222) (86.67%)
2,4 (1362) (8.93%)
4,5 (279) (1.83%)
5,Max (393) (2.58%)
Agg. Active Ec/Io (dB)
[Min, -14) (331) (1.39%)
[-14, -11) (1091) (4.58%)
[-11, -9) (3249) (13.63%)
[-9, Max] (19158) (80.4%)
RS SINR (dB)
[Min, 0) (1361) (26.86%)
[0, 5) (1119) (22.08%)
[5, 15) (1873) (36.96%)
[15, Max] (714) (14.09%)

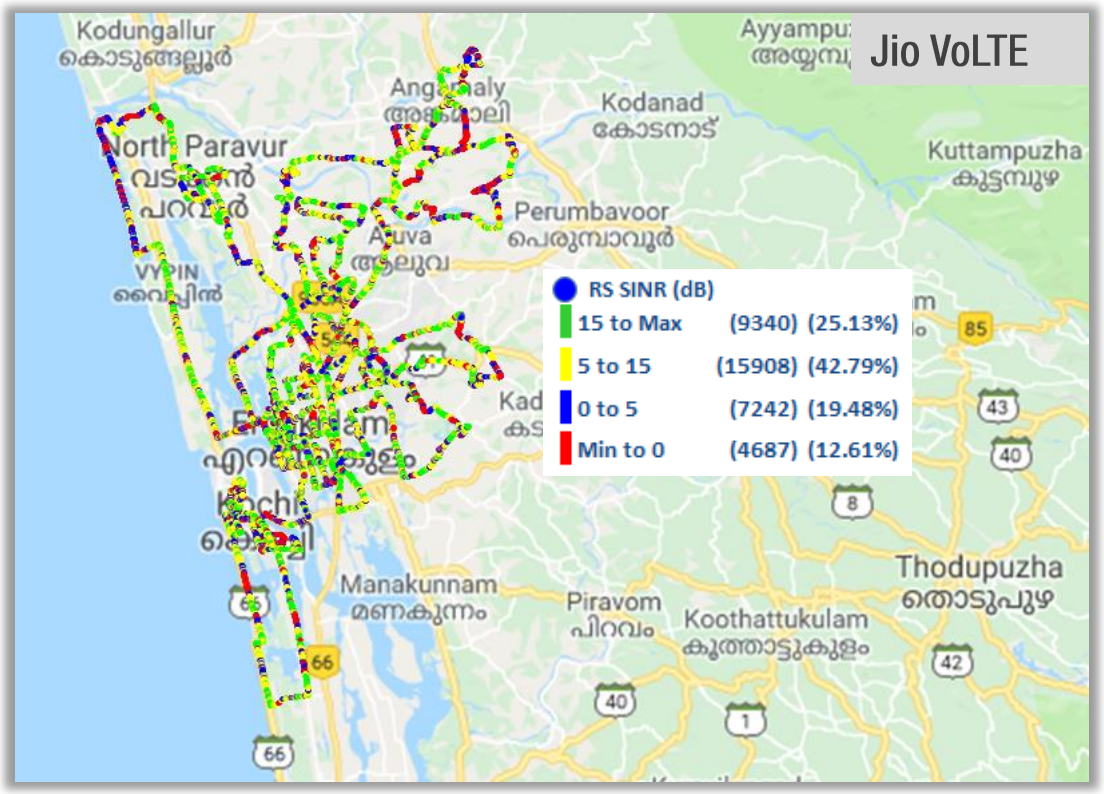

BSNL (Free Mode)
Kodungallur
Kodanad
Manakunnam
Piravom
Koothattukulam
Thodupuzha
RxQual Sub
Min,2 (24131) (83.5%)
2,4 (3596) (12.44%)
4,5 (616) (2.13%)
5,Max (556) (1.92%)
Agg. Active Ec/Io (dB)
[Min, -14) (3951) (29.79%)
[-14, -11) (6063) (45.71%)
[-11, -9) (2023) (15.25%)
[-9, Max] (1228) (9.26%)


Tata (Free Mode)
Kodungallur
കൊടുങ്ങല്ലൂർ
Kodanad
കോടനാട്
Manakunnam
മണകുന്നം
Piravom
പിറവം
Koothattukulam
കൂത്താട്ടുകുളം
RxQual Sub
Min,2 (13491) (85.48%)
2,4 (1454) (9.21%)
4,5 (325) (2.06%)
5,Max (512) (3.24%)
Agg. Active Ec/Io (dB)
[Min, -14) (386) (1.45%)
[-14, -11) (1440) (5.4%)
[-11, -9) (4260) (15.97%)
[-9, Max] (20590) (77.19%)

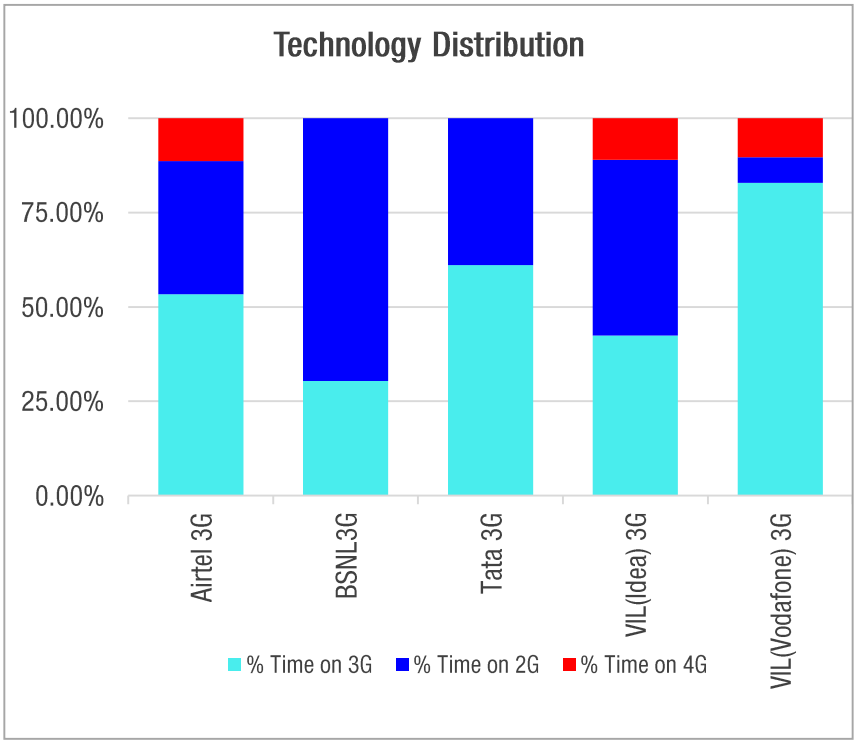

VIL(Idea) (Free Mode)
Kodungallur
കൊടുങ്ങല്ലൂർ
Kodanad
Manakunnam
മണകുന്നം
RxQual Sub
Min,2 (15955) (80.56%)
2,4 (2614) (13.2%)
4,5 (567) (2.86%)
5,Max (670) (3.38%)
RS SINR (dB)
[Min, 0) (750) (20.36%)
[0, 5) (837) (22.72%)
[5, 15) (1615) (43.84%)
[15, Max] (482) (13.08%)
Agg. Active Ec/Io (dB)
[Min, -14) (1482) (7.76%)
[-14, -11) (6737) (35.27%)
[-11, -9) (4018) (21.04%)
[-9, Max] (6862) (35.93%)
Kuravilangad

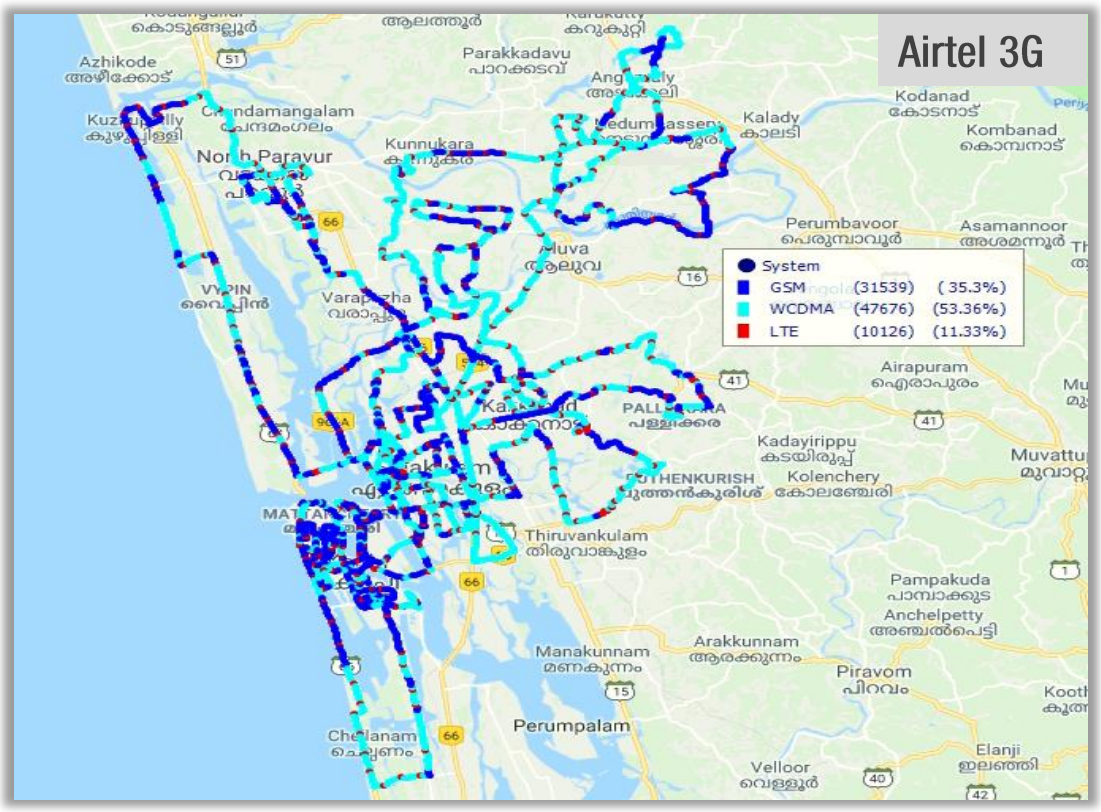

VIL(Vodafone) (Free Mode)
RxQual Sub
Min,2 (2021) (68.72%)
2,4 (677) (23.02%)
4,5 (139) (4.73%)
5,Max (104) (3.54%)
Agg. Active Ec/Io (dB)
[Min, -14) (1315) (3.55%)
[-14, -11) (9914) (26.79%)
[-11, -9) (11188) (30.23%)
[-9, Max] (14596) (39.43%)
RS SINR (dB)
[Min, 0) (937) (21.3%)
[0, 5) (970) (22.05%)
[5, 15) (1815) (41.25%)
[15, Max] (678) (15.41%)
Kodungallur
Kodanad
Perumbavoor
Kadayirippu
Manakunnam
Piravom
Idukki

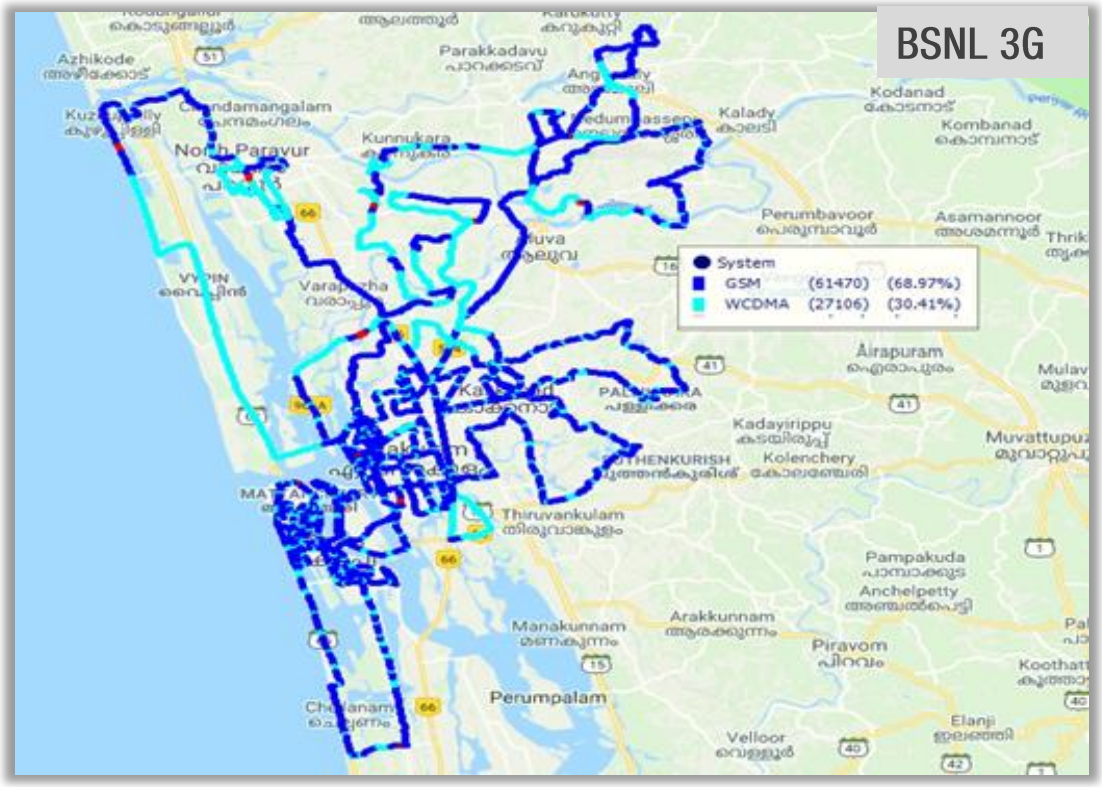

Airtel VoLTE
RS SINR (dB)
15 to Max (4998) (12.67%)
5 to 15 (13611) (34.49%)
0 to 5 (9413) (23.86%)
Min to 0 (11443) (29%)
Kodungallur
Kodanad
Perumbavoor
Kuttampuzha
Kothamangalam
Kadayirippu
Muvattupuzha
Manakunnam
VYPIN

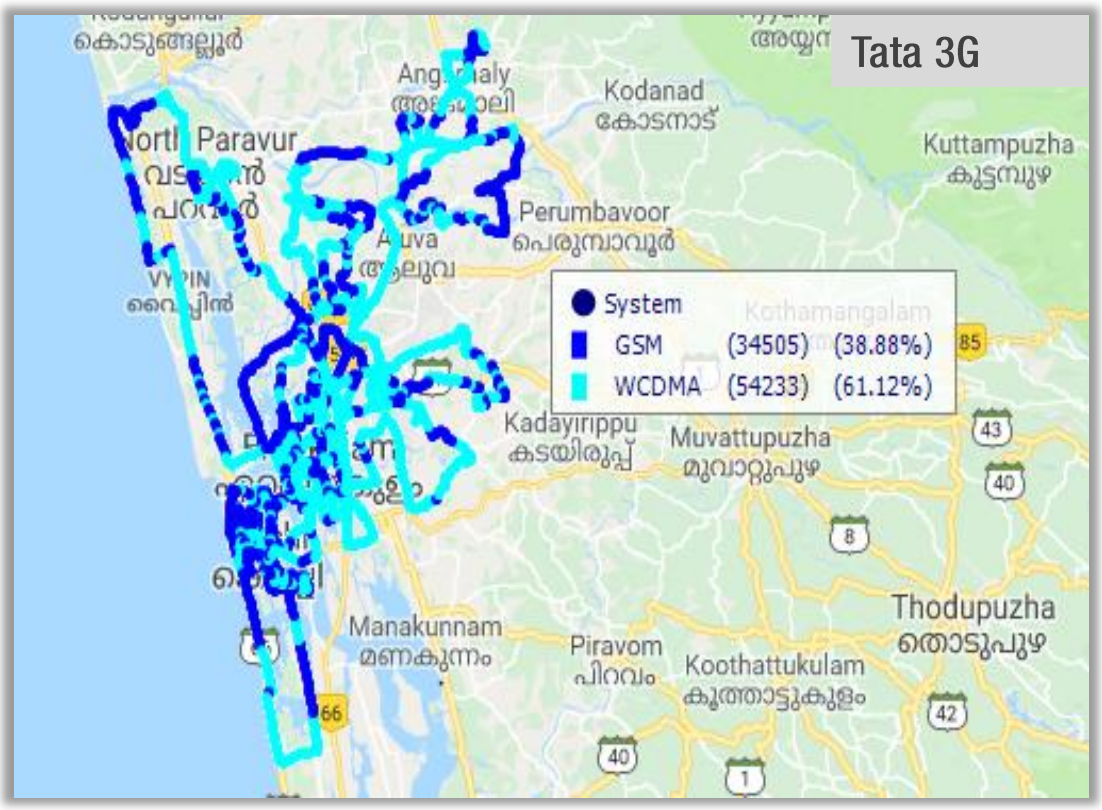

Jio VoLTE
Kodungallur
കൊടുങ്ങല്ലൂർ
Ayyampu
അയ്യമ്പു
Kodanad
കോടനാട്
Kuttampuzha
കുട്ടമ്പുഴ
North Paravur
വടക്കൻ
പറവൂർ
Perumbavoor
പെരുമ്പാവൂർ
Aluva
ആലുവ
VYPIN
വൈപ്പിൻ
RS SINR (dB)
15 to Max (9340) (25.13%)
5 to 15 (15908) (42.79%)
0 to 5 (7242) (19.48%)
Min to 0 (4687) (12.61%)
Manakunnam
മണകുന്നം
Piravom
പിറവം
Koothattukulam
കൂത്താട്ടുകുളം
Thodupuzha
തൊടുപുഴ
85
43
40
8
42
1
66
65

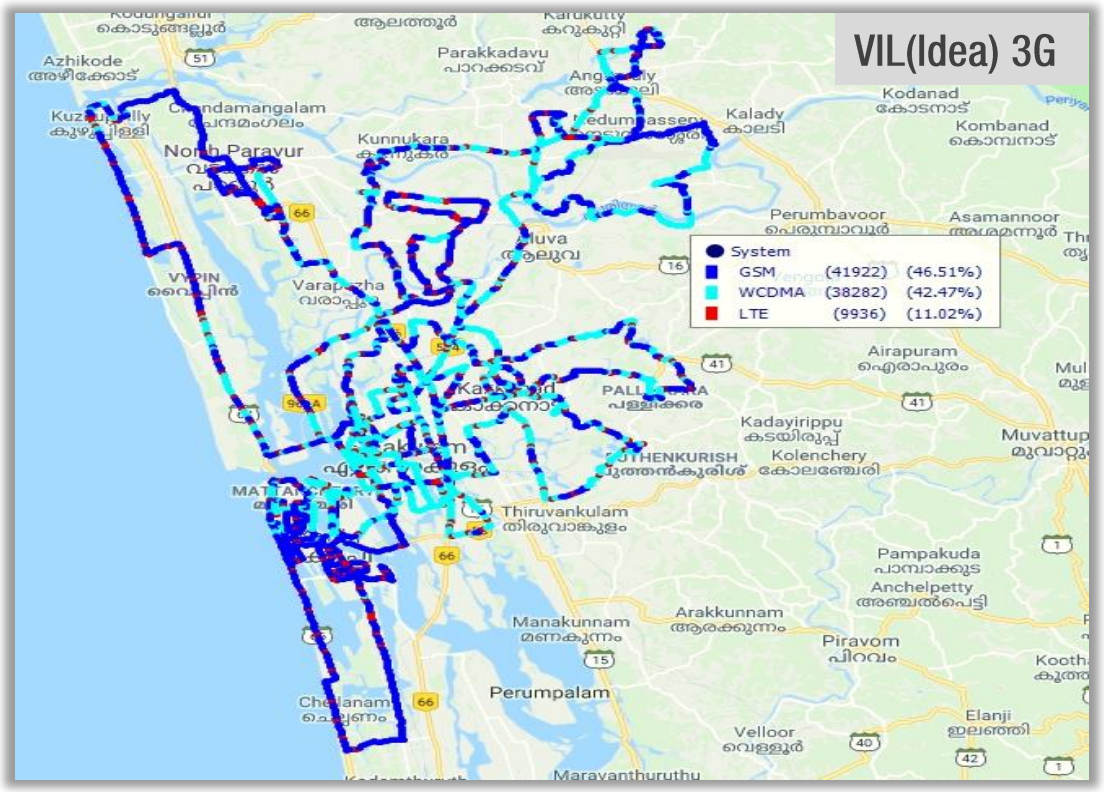
TSP	% Time on 3G
Airtel 3G	53.36%
BSNL3G	30.41%
Tata 3G	61.12%
VIL(Idea) 3G	42.47%
VIL(Vodafone) 3G	82.86%

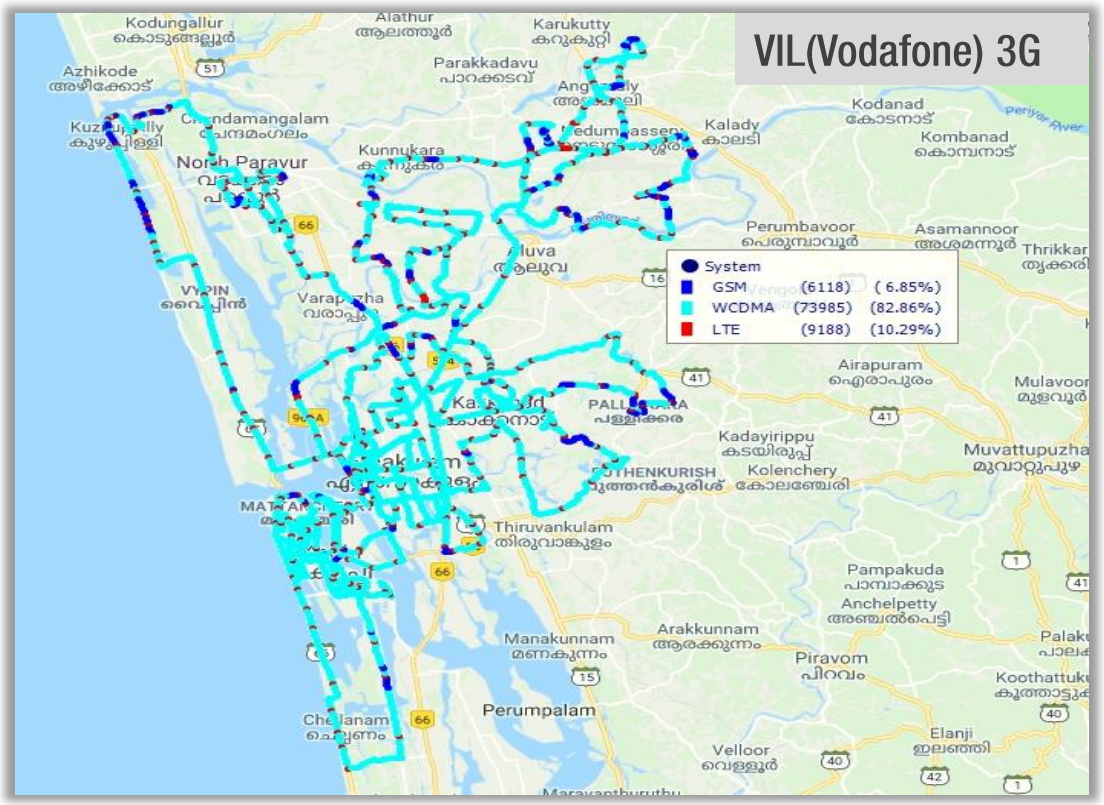





BSNL 3G
System
GSM (61470) (68.97%)
WCDMA (27106) (30.41%)
Parakkadavu
Kodanad
Kalady
Kombanad
Perumbavoor
Asamannoor
Kunnukara
Aluva
Varapuzha
Airapuram
Kadayirippu
Kolenchery
Thiruvankulam
Pampakuda
Anchelpetty
Manakunnam
Arakkunnam
Piravom
Perumpalam
Velloor
Elanji


Tata 3G
Kodanad
കോടനാട്
Kuttampuzha
കുട്ടമ്പുഴ
Perumbavoor
പെരുമ്പാവൂർ
System
GSM (34505) (38.88%)
WCDMA (54233) (61.12%)
Kadayirippu
കടയിരുപ്പ്
Muvattupuzha
മുവാറ്റുപുഴ
Thodupuzha
തൊടുപുഴ
Manakunnam
മണകുന്നം
Piravom
പിറവം
Koothattukulam
കൂത്താട്ടുകുളം


VIL(Idea) 3G
System
GSM (41922) (46.51%)
WCDMA (38282) (42.47%)
LTE (9936) (11.02%)
Kodungallur
Alathur
Karukutty
Azhikode
Parakkadavu
Kodanad
Kalady
Kombanad
Kunnukara
North Paravur
Perumbavoor
Asamannoor
Aluva
VYPIN
Varapuzha
Airapuram
Kadayirippu
Kolenchery
Thiruvankulam
Pampakuda
Anchelpetty
Arakkunnam
Manakunnam
Piravom
Perumpalam
Velloor
Elanji


VIL(Vodafone) 3G
System
GSM (6118) (6.85%)
WCDMA (73985) (82.86%)
LTE (9188) (10.29%)
Kodungallur
Alathur
Karukutty
Azhikode
Parakkadavu
Kodanad
Kalady
Kombanad
Kunnukara
North Paravur
Perumbavoor
Asamannoor
Aluva
VYPIN
Varapuzha
Airapuram
Kadayirippu
Kolenchery
Thiruvankulam
Pampakuda
Anchelpetty
Arakkunnam
Manakunnam
Piravom
Perumpalam
Velloor
Elanji