

Operator Assisted Drive Test Report

For

Ernakulam

12th to 15th Dec 2023 Ernakulam – Thrishur - Ernakulam (NH/SH) - 148 Kms (12th Dec 2023) Ernakulam & Surrounding Area - 262 Kms (13th to 15th Dec 2023)

TRAI RO, Bengaluru

Key Performance Indicators:

- All TSPs have met the 2% QOS benchmark of Drop Call Rate.
- All TSPs have met the 3% QOS benchmark of Call Block Rate.
- All 3G/4G TSPs have not met the Rx Quality.

The Operator Assisted Drive Test has been carried out by the Regional Office, Bangalore with the help of Service Providers from 12th to 15th Dec 2023. The drive test covered the route of 410 Kms including NH/SH of 148 Kms & 6 hotspots. Approximately 550 calls were made for each of the 8 networks: three 2G networks, one 3G network, and four LTE networks covering four TSPs.



Regional Office, TRAI Bengaluru conducted Operator Assisted Drive Test from **12th to 15th Dec 2023** covering various locations in **Ernakulam & Surrounding Region**. The performance of Airtel, BSNL, Vodafone Idea, and Jio were monitored across various technologies (2G, 3G, and 4G/4G). The test results obtained from these drive tests were utilized to assess the network quality for Voice and Data services in terms of

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

Data: Download and Upload Throughputs, Web Browsing Delay and Latency

Drive Test Details:

Voice Tests: Calls were made for 90 sec duration with a wait time of 10 sec between calls in all technologies. The drive test covered a drive route of approximately **410 KMs** including **NH/SH** of **148 Kms** over a period of 4 days from **12th to 15th Dec 2023**. Approximately 550 calls were made for each of the 8 networks: three 2G (Lock Mode) networks, one 3G (Dual mode) network, and four 4G networks covering 4 unique TSPs.

Data Tests: Dynamic data test (Test Data on Move) was conducted for **410 KMs** including **NH/SH** of **148 Kms** over a period of 4 days for download throughput for 3G & 4G technology. Data Tests were performed at 6 static locations; three 2G (Lock mode) networks, one 3G (Dual mode) network, and four 4G (Free mode) networks covering 4 unique TSPs were tested. All the data through put figure mentioned in the report are based on the average value.

* 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 Free Mode.

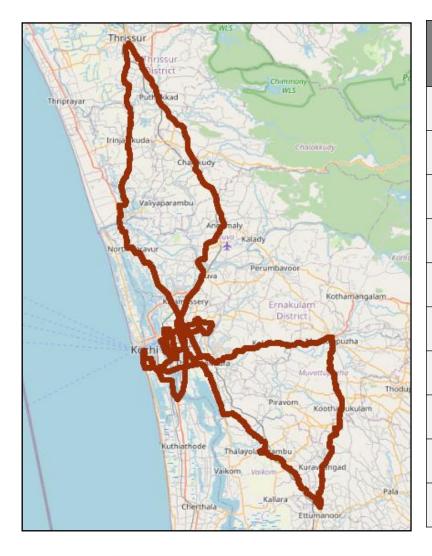
* 3G KPI's which are calculated from UE in Dual Mode (2G & 3G) includes samples and events of 2G.

* 4G KPI's which are calculated from the UE in Free Mode included samples and events of 2G & 3G.

Service	Specifications						
Download	2G (Locked) - 500KB, 3G (Dual) - 20 MB, 4G (Free) - 40 MB						
Upload	2G (Locked) - 100KB, 3G (Dual) - 5 MB, 4G (Free) - 10 MB						
Web Browsing	3 links of e/m commerce website www.amazon.in, www.flipkart.com and PayTm						
Latency	32 Bytes on www.google.com						
Video Streaming	130 secs clip						

Overview

Voice & Dynamic Data Test (Data Test on Move) Drive Route



Areas covered					
ALUVA	ANGAMALI				
CHALAKKUDI	PUTHUKKAD				
THRISSUR	IRINJALAKUDA				
KODUNGALLUR	PARAVOOR				
EDAPPALLI	KANJIRAMATTAM				
ETTUMANOOR	KOOTHATTUKULAM				
MUVATTUPUZHA	KOLANCHERY				
THRIPUNITHURA	FORT KOCHI				
THEVARA	KADAVANTHARA				
PALARIVATTOM	VYTILLA				

Data Service Test- Static Locations

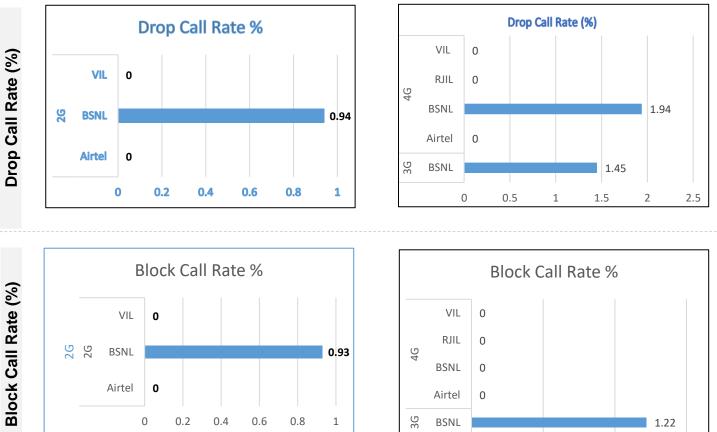


1. GENERAL HOSPITAL
2. KSRTC BUS STAND
3. KALOOR STADIUM
4. COCHIN UNIVERSITY
5. INFOPARK
6. HILL PALACE MUSEUM

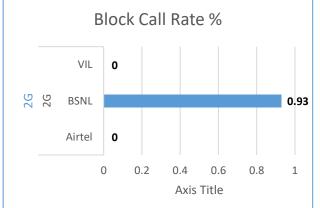
Overview Details

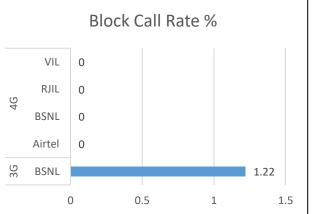
Voice Calls

Key Observations



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





KPIs		2G		3G 4G				
	Airtel	BSNL	VIL	BSNL	Airtel	BSNL	RJIL	VIL
Drop Call Rate %	0	0.94	0	1.45	0	1.94	0	0
Block Call Rate %	0	0.93	0	1.22	0	0	0	0

- a) All TSPs have met the 2% QOS benchmark of Drop Call Rate.
- b) All TSPs have met the 3% QOS benchmark of Block Call Rate.

Voice Calls

Key Observations

Coverage

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

		2G	
TSPs	Airtel	BSNL	VIL
Coverage%	93.38	78.30	96.39

b) Percentage of coverage samples for $3G \ge -90 \text{ dBm } \& \text{LTE} \ge -110 \text{ dBm}$.

	3G		4G		
TSPs	BSNL	Airtel	BSNL	JIO	VIL
Coverage %	86.39	98.06	80.00	98.67	99.11

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

	3G	4G					
TSPs	BSNL	Airtel	BSNL	JIO	VIL		
Time Spent on 3G/4G%	8.18	100	21.9	100	99.38		

City Level Summary

Voice Call	2G				
	Airtel	BSNL	VIL		
Call Attempt	523	642	537		
Blocked Call Rate (%)	0	0.93	0		
CSSR% (Accessibility)	100	99.07	100		
Drop Call Rate (%)	0	0.94	0		
Rx Quality (%)	97.96	97.2	97.57		
Mobility HOSR (%)	99.74	97.87	99.06		

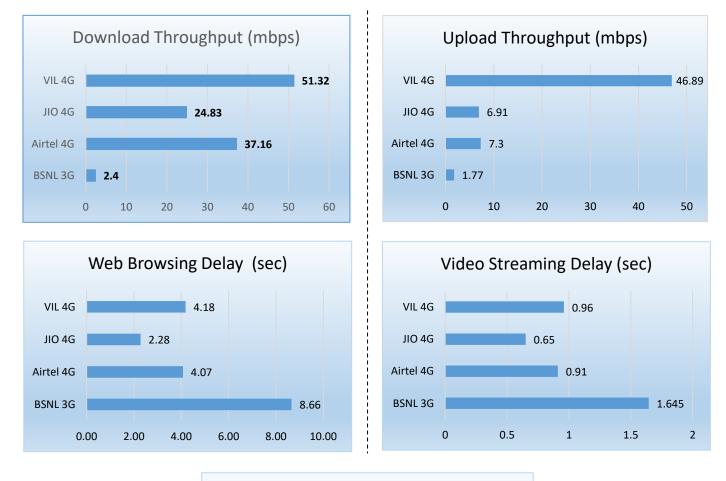
		3G/4G					
Voice Call	BSNL 3G	Airtel 4G	BSNL 4G	JIO 4G	VIL 4G		
Call Attempt	490	536	155	524	551		
Blocked Call Rate (%)	1.22	0	0	0	0		
CSSR% (Accessibility)	98.78	100	100	100	100		
Drop Call Rate (%)	1.45	0	1.94	0	0		
Rx Quality (%)	61.1	92.51	87.7	93.71	90.52		
Mobility HOSR (%)	98.94	99.72	97.9	99.77	99.11		

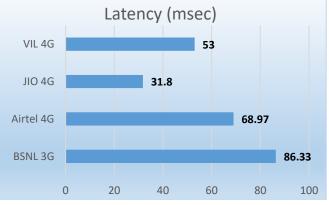
Data Services Static

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

Data Download, Upload Performance (Mbps), Web Browsing delay, Video Streaming and Latency 3G/4G

3G/4G/ Network:





City Level Summary(contd.)

Data Services Static	2G			
	Airtel	BSNL	VIL	
Download Throughput (kbps)	189.95	74.3	154.15	
Upload Throughput (kbps)	95.46	46.13	68.05	
Web Browsing Delay (sec)	55.5	17.17	59.34	
Latency (msec)	390.17	240.9	589	

	3G/4G					
Data Services Static	BSNL 3G	Airtel 4G	JIO 4G	VIL 4G		
Download Throughput (mbps)	2.4	37.16	24.83	51.32		
Upload Throughput (mbps)	1.77	7.3	6.91	46.89		
Web Browsing Delay (sec)	8.66	4.07	2.28	4.18		
Video Streaming Delay (sec)	1.645	0.91	0.65	0.96		
Latency (msec)	86.33	68.97	31.8	53		

Data Services	3G	4G				
Dynamic (Data Test on Move)	BSNL	Airtel	BSNL	JIO	VIL	
Download Throughput (mbps)	2.05	10.81	3.84	8.25	18.86	
Upload Throughput (mbps)	1.24	8.10	1.86	2.97	7.96	



City Level Data Services Static(contd.)

Data Services Static –		2G			
General Hospital	Airtel	BS	NL		VIL
Download Throughput (kbps)	205.16	10	9.8	1	.63.83
Upload Throughput (kbps)	96.34	49	9.4		60.6
Web Browsing Delay (sec)	63.77	1!	5.5	Į	58.89
Latency (ms)	409.6	409.6 235			697
Data Services Static –	3G		4G		
General Hospital	BSNL	Airtel	JIO		VIL
Download Throughput (Mbps)	1.61	16.74	13.34	ļ	59.86
Upload Throughput (Mbps)	1.51	5.82	13.63	3	33.64
Web Browsing Delay (sec)	9.12	3.78	3.05		4.17
Video Streaming Delay (sec)	1.49	0.99	0.57		0.77
Latency (ms)	88.4	66.8	30.4		48.6

Data Services Static –	2G				
KSRTC Bus Stand	Airtel	BSNL	VIL		
Download Throughput (kbps)	213.36	109.2	172.84		
Upload Throughput (kbps)	100.58	52.2	83.484		
Web Browsing Delay (sec)	56.18	15.25	63.852		
Latency (msec)	359	234.8	716		

Data Services Static -	3G	4G		
KSRTC Bus Stand	BSNL	Airtel	JIO	VIL
Download Throughput (Mbps)	2.61	39	12.88	48.1
Upload Throughput (Mbps)	2.5	9.81	4.82	50.934
Web Browsing Delay (sec)	8.27	4.32	2.02	4.102
Video Streaming Delay (sec)	1.58	0.83	0.58	1.2
Latency (ms)	88	64.2	31	58.6

City Level Data Services Static(contd.)

Data Services Static –		2G				
Kaloor Stadium	Airtel		BS	NL		VIL
Download Throughput (kbps)	141.54	Ļ	6	3		121.21
Upload Throughput (kbps)	109.12	-	37	.6		40.84
Web Browsing Delay (sec)	57.97		18.	112		73.822
Latency (ms)	389.6		25	52		414
Data Services Static –	3G			4G		
Kaloor Stadium	BSNL		Airtel	JIO		VIL
Download Throughput (Mbps)	2.63		25.33	13.44	Ļ	15.27
Upload Throughput (Mbps)	2.43		4.78	4.6		45.05
Web Browsing Delay (sec)	8.61		4.12	2.48		4.39
Video Streaming Delay (sec)	1.65		0.85	0.72		1.12
Latency (ms)	85.6		66.8	33.3		52

Data Services Static –		2G	
Cochin University	Airtel	BSNL	VIL
Download Throughput (kbps)	174.74	75	174.73
Upload Throughput (kbps)	81.78	41	71.49
Web Browsing Delay (sec)	50.47	18.52	53.422
Latency (msec)	312.6	258	582

Data Services Static –	3G		4G	
Cochin University	BSNL	Airtel	JIO	VIL
Download Throughput (Mbps)	1.4	58.55	34.2	41.3
Upload Throughput (Mbps)	1.24	8.62	8.85	49.01
Web Browsing Delay (sec)	8.74	4.26	1.98	4.32
Video Streaming Delay (sec)	1.78	0.96	0.65	1
Latency (ms)	83.2	69.2	30.3	54

City Level Data Services Static(contd.)

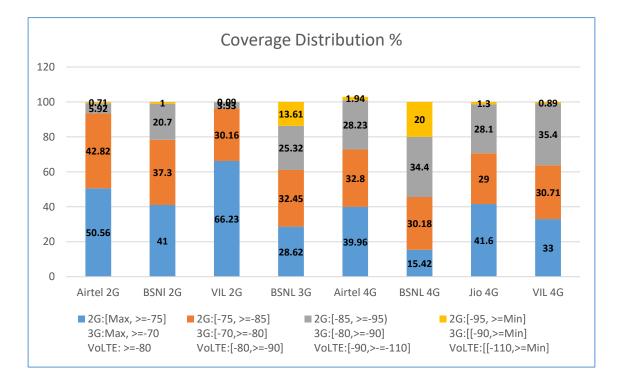
Data Services Static – Info Park		2G				
Data Services Static – Info Park	Airtel	Airtel		NL		VIL
Download Throughput (kbps)	212.72		44	.8		168.66
Upload Throughput (kbps)	87.74		36	.8		70.17
Web Browsing Delay (sec)	50.57		18.	.52		52.11
Latency (ms)	396	396 258		8	617	
Data Services Static – Info Park	3G	3G		4G	G	
	BSNL		Airtel	JIO		VIL
Download Throughput (Mbps)	2.3		46.38	30.1		73.15
Upload Throughput (Mbps)	1.32		5.79	3.04		52.63
Web Browsing Delay (sec)	9.02		4.01	2.08	;	4.08
Video Streaming Delay (sec)	1.72		0.93	0.66	i	0.83
Latency (ms)	88.8		72.6	30.7		49

Data Services Static –	2G			
Hill Palace Museum	Airtel	BSNL	VIL	
Download Throughput (kbps)	192.2	43.8	123.64	
Upload Throughput (kbps)	97.18	59.8	81.72	
Web Browsing Delay (sec)	54.01	17.15	53.92	
Latency (msec)	474.2	206.8	511	

Data Services Static –	3G		4G	
Hill Palace Museum	BSNL	Airtel	JIO	VIL
Download Throughput (Mbps)	3.86	36.97	44.99	70.24
Upload Throughput (Mbps)	1.62	9	6.51	50.07
Web Browsing Delay (sec)	8.21	3.92	2.05	4.03
Video Streaming Delay (sec)	1.65	0.91	0.73	0.86
Latency (ms)	84	74.2	35.2	54

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.

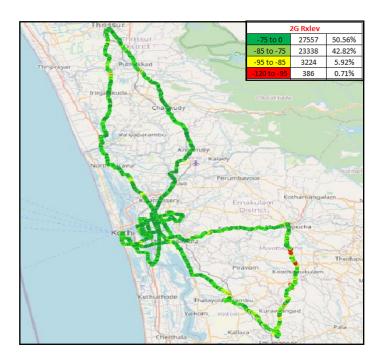
TSP	Coverage Rate %
Airtel 2G	93.38
BSNI 2G	78.30
VIL 2G	96.39
BSNL 3G	86.39
Airtel VoLTE	98.06
BSNL 4G	80.00
Jio VoLTE	98.67
VIL VoLTE	99.11

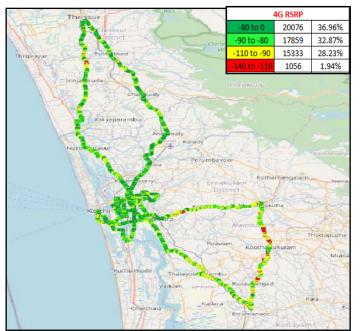


AIRTEL

Technology	Coverage Rate %
2G	93.38
4G	98.06

2G





4G

2G						
Overall RxLevel	# Samples	% PDF				
[Max, >=-75]	27557	50.56				
[-75, >=-85)	23338	42.82				
[-85, >=-95)	3224	5.92				
[-95, >=Min)	386	0.71				
Total	54505	100				

4G/VoLTE		
Overall RSRP	# Samples	% PDF
[Max, >=-80]	20076	36.96%
[-80, >=-90)	17859	32.87%
[-90, >=-110)	15333	28.23%
[-110, >=Min)	1056	1.94%
Total	54324	100

I. Coverage Details

Thris sur

bir al

H

% PDF

28.62

32.45

25.32

13.61

100

all arayar • Jerayar au Less mail

BSNL		
Technology	Coverage Rate %	
2G	78.3	
3G	86.39	
4G	80.00	
2G 3	BG 4G	





	riccur	പടിക്കുട്		1. 2.1
(0)	A CONTRACTOR OF			5 5
clly.	P D Marke			Const Ballion and
રક્ષી				
100 March 100	1.	and the second second		1000
ว"ayar เสนอกซ์	Putticklo ADDIA IN	VI M ^{art}		A DECEMBER OF STREET
al factorial	Chiefe a	Contractor (and the second second
1 M	1			Sec
District Control of Co	otu plo			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
(Croken)	was allestat			
		Cha lutte		
100		102 032)	1000	the second second
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			5
Kodug	Iu			5
0.0.000		Arolio Adli	Hos offs I	
	and the second	Aug	und, Vn o	raticg
27.0	1	ana	anam Facs	Caller
No		0	-F	125 10 10
	All and	<10 C 3		C C
	1000	A INC	Provide exagence	
	Val Z		a many .	aradia
CAL YOF	restaurent		100	Sol
and the second	A STATE OF THE STA	cap to the second	6.0 Y	6 de
		1 · · · ·		
				MUNTOD.
			-	30
	7.65	de Es	BSN	N - N
		100	100	
	G.D.C.	then the	n ment fre	
	1000000000	C7313 0	CONTRACTOR IN	
				vor Kneth
	Chelaria			02.50
	Cholden		100 C	
	14	1114-112 4	Very Street	
	10		ha ayo	413)
		1 1 S A C A		Sec. Con
	1	and the second	kom	
	20	Miles		
· · · · · · · · · · · · · · · · · · ·	20	miles.		
19		in interersing		CHARMANNER;

2G			3G	
Overall RxLevel	# Samples	% PDF	Overall RSCP	# Samples
[Max, >=-75]	99352	41.0	[Max, >=-70]	18530
[-75, >=-85]	90386	37.3	[-70, >=-80]	21010
[-85, >=-95]	50161	20.7	[-80, >=-90]	16393
[-95, >=Min]	2423	1.0	[-90, >=Min]	8812
Total	242322	100	Total	64745

4G		
Overall RSRP	# Samples	% PDF
[Max, >=-80]	1031	15.42
[-80, >=-90]	2017	30.18
[-90, >=-110]	2299	34.40
[-110, >=Min]	1337	20.00
Total	6683	100

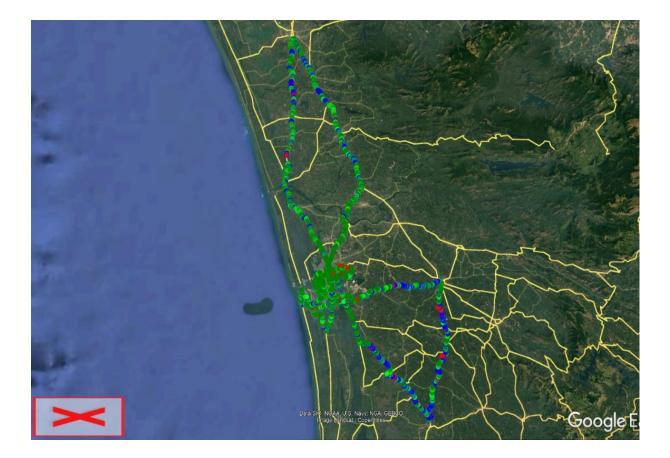
20 Miles

Fire-on

LARS

I. Coverage Details

Technology	Coverage Rate %
4G	98.67

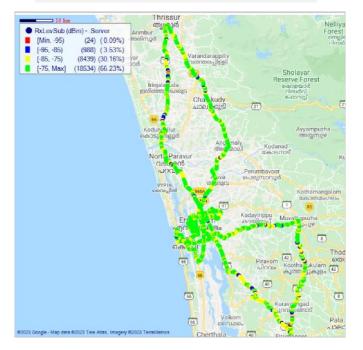


40	4G/VoLTE		
Overall RSRP	# Samples	% PDF	
[Max, >=-80]	19281	41.6	
[-80, >=-90)	13452	29.0	
[-90, >=-110)	13010	28.1	
[-110, >=Min)	617	1.3	
Total	46360	100	

I. Coverage Details

VIL		
Technology	Coverage Rate %	
2G	96.39	
4G	99.11	

2G



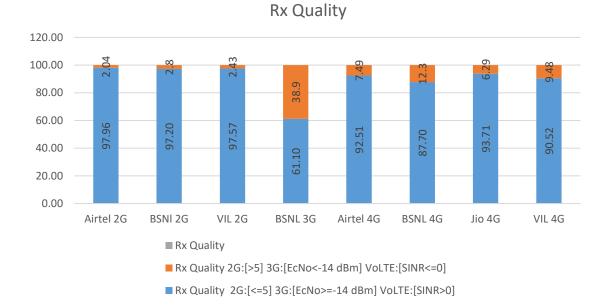
2G		
Overall RxLevel	# Samples	% PDF
[Max, >=-75]	18534	66.23
[-75, >=-85)	8439	30.16
[-85, >=-95)	988	3.53
[-95, >=Min)	24	0.09
Total	27985	100

4G

4G/VoLTE		
Overall RSRP	# Samples	% PDF
[Max, >=-80]	9263	33.00
[-80, >=-90)	8622	30.71
[-90, >=-110)	9938	35.40
[-110, >=Min)	250	0.89
Total	28073	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 4G is considered to be good, where as quality beyond this benchmark is considered to be bad. The benchmark should usually be \geq 95%.

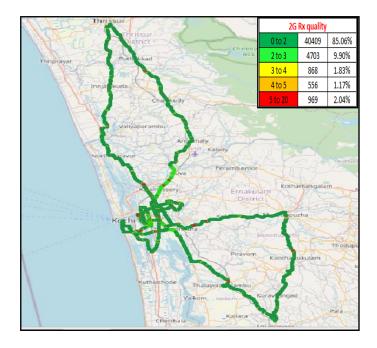
TSP	Rx Quality %
Airtel 2G	97.96
BSNI 2G	97.20
VIL 2G	97.57
BSNL 3G	61.10
Airtel VoLTE	92.51
BSNL 4G	87.70
Jio VoLTE	93.71
VIL VoLTE	90.52



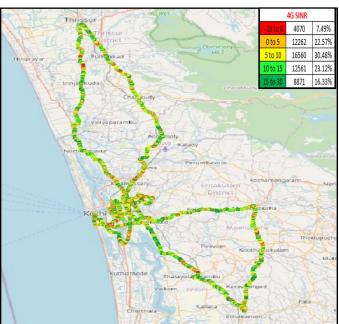
Airtel

Technology	Rx Quality %
2G	97.96
4G	92.51

2G



4G



Overall Rx Quality	# Samples	% PDF	Overall SINR	# Samples	% PDF
(Min, <=2)	40409	85.06%			
(0 , 0)	4700	0.000/	(Min, <=0)	4070	7.49%
(2, <=3)	4703	9.90%	(0, <=5)	12262	22.57%
(3 , <=4)	868	1.83%	(5, <=10)	16560	30.48%
(4 , <=5)	556	1.17%	(10, <=15)	12561	23.12%
(5 , <=Max)	969	2.04%	(15, <=Max)	8871	16.33%
Total	47505	100	Total	54324	100

Quality Details

BSNL

Technology	Rx Quality %
2G	97.20
3G	61.1
4G	87.70

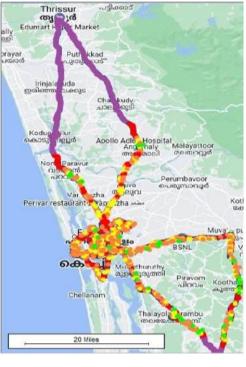
2G



Overall Rx Quality	# Samples	% PDF
(Min, <=2)	194342	80.2
(2, <=3)	17447	7.2
(3 , <=4)	11147	4.6
(4 , <=5)	12601	5.2
(5 , <=Max)	8785	2.8
Total	242322	100

Quality Details

3G



Overall EcNo	# Samples	% PDF
(Max, <=-6)	129	0.2
(-6, <=-9)	1424	2.2
(-9, <=-11)	2655	4.1
(-11, <=-14)	35351	54.6
(-14, <= Min)	25186	38.9
Total	64745	100

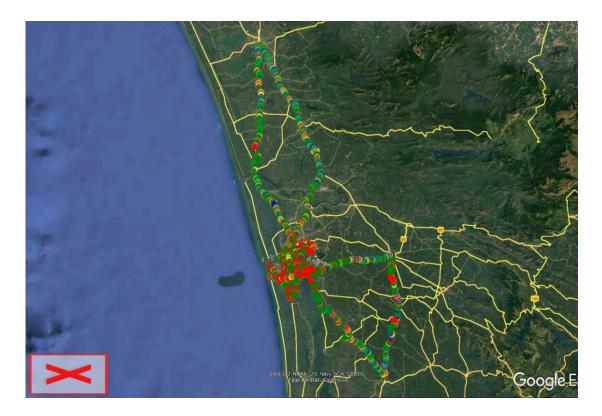
4G



Overall SINR	# Samples	% PDF
(MIN, <=0)	822	12.3
(0, <=5)	1771	26.5
(5, <=10)	1584	23.7
(10, <=15)	20.8	1390
(15, <= Min)	1116	16.7
Total	6683	100

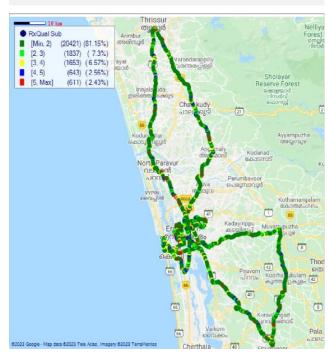
Page 19 of 37

JIO	
Technology	Rx Quality (%)
4G/4G	93.71



Overall SINR	# Samples	% PDF
(Min, <=0)	2905	6.3%
(0, <=5)	7168	15.5%
(5, <=10)	10592	22.8%
(10, <=15)	11753	25.3%
(15, <=Max)	13956	30.1%
Total	46374	100%

VIL	
Technology	Rx Quality %
2G	97.57
4G	90.52



		Fore
		លាក កាំពា
/arandarappilly		
വരന്തരപ്പിള്ളി	Sec. 19.	
Second Contraction		olayar ve Forest
	Gaß	നളയാർ സർവ്
Cha kudy		ഥാറസ്
ചാലംബുടി	20	5 miles
100		
200 P 🔮 🛙		Ayyampuzha
Angema	naly	അയ്യമ്പുഴ
(00.20)	Kodanad	
		m.
	Perumbavoor	
ര്ഷാവ	പെരുന്നാവൂർ	
COLEA C		Kothamangalan
AN (1)		കോതമംഗലം
00000	Production of the	attupuzha
	ASOLOGIA	at puzna
5 1 m	PR.I.S	
		1
	(42	The
	piravom Ko	othan kulam
66	and the same service	ത്ത് ട്രുകുളം (42)
	40	1
		2 7 6
	Kurav	logad Lucasos
Vaiko		Pal
		alDE
Cherthala	(40) Ettur	13DBAR

4G

Thrissur തൃദ്രൂർ

- 10 km

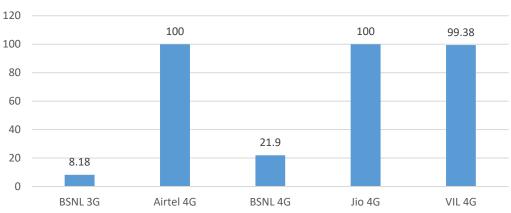
Overall Rx Quality	# Samples	% PDF
(Min, <=2)	20421	81.15
(2, <=3)	1837	7.30
(3 , <=4)	1653	6.57
(4 , <=5)	643	2.56
(5 , <=Max)	611	2.43
Total	25165	100

Overall SINR	# Samples	% PDF
(Min, <=0)	2662	9.48
(0, <=5)	6027	21.47
(5, <=10)	7951	28.32
(10, <=15)	6153	21.92
(15, <=Max)	5279	18.81
Total	28072	100

2G

Quality Details

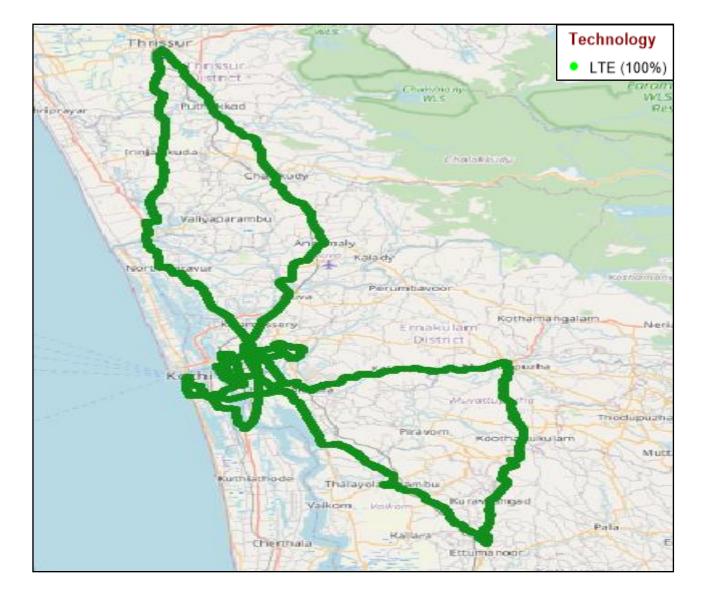
TSP	Time Spent on 3G/4G %
BSNL 3G	8.18
Airtel VoLTE	100
BSNL 4G	21.9
Jio VoLTE	100
VIL VoLTE	99.38



Percentage of time spent on 3G/4G

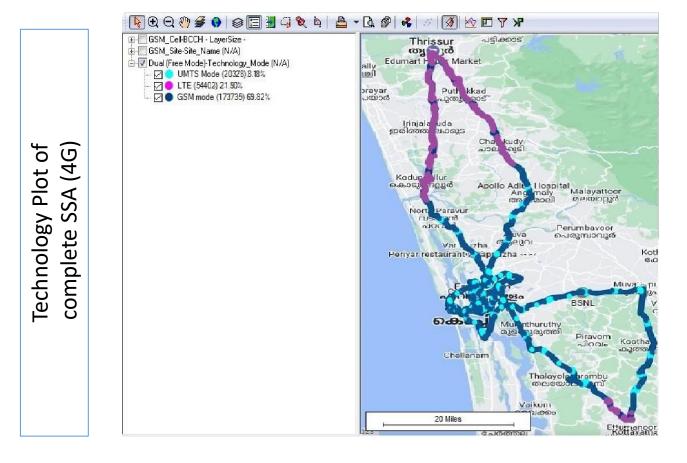
Airtel

Technology	Time Spent %	
4G	100	



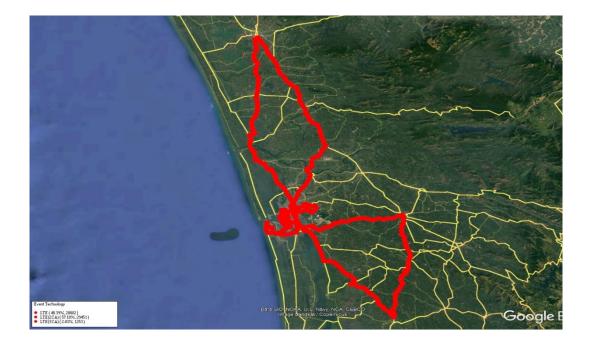
BSNL

Technology	Time Spent %	
3G	8.18	
4G	21.90	



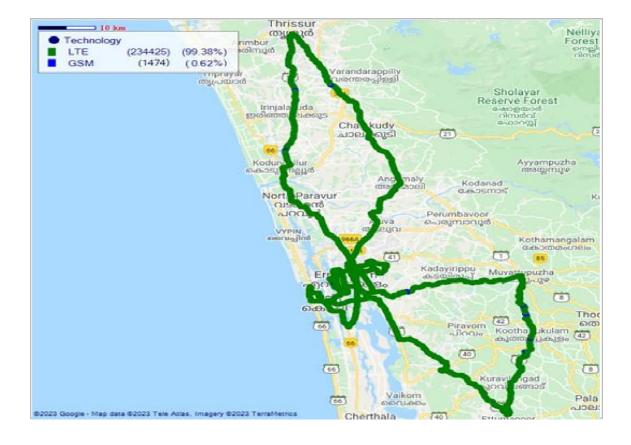
JIO

Technology	Time Spent %
4G	100



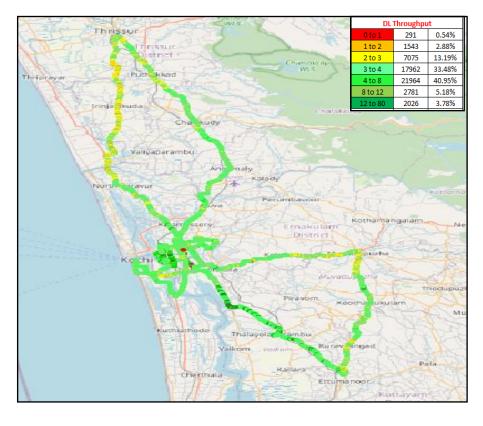
VIL

Technology	Time Spent	
4G	99.38	

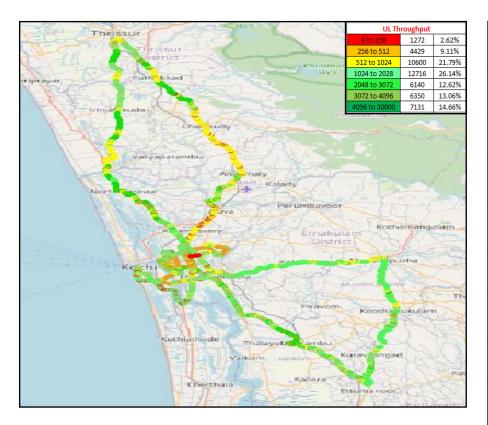


IV. Dynamic Data Test(Data Test on Move)- 4G DL/UL Details

Airtel



DL throughput	No. of Samples	%
0 to 1 Mbps	291	0.54
1 to 2 Mbps	1543	2.88
2 to 3 Mbps	7075	13.19
3 to 4 Mbps	17962	33.48
4 to 8 Mbps	21964	40.95
8 to 12 Mbps	2781	5.18
>12 Mbps	2026	3.78
Total	53642	100

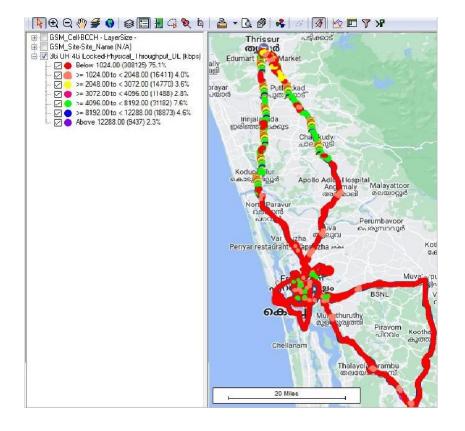


UL throughput	No. of samples	%
0 to 256 Kbps	1272	2.62
250 to 512 Kbps	4429	9.11
512 Kbps to 1 Mbps	10600	21.79
1 to 2 Mbps	12716	26.14
2 to 3 Mbps	6140	12.62
3 to 4 Mbps	6350	13.06
>4 Mbps	7131	14.66
Total	48638	100

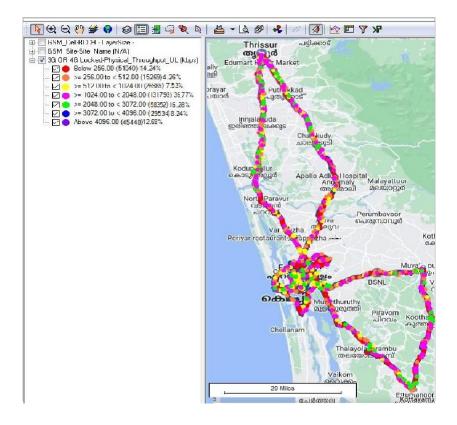
Dynamic Data Test Details

IV. Dynamic Data Test(Data Test on Move)-3G/4G DL/UL Details

BSNL



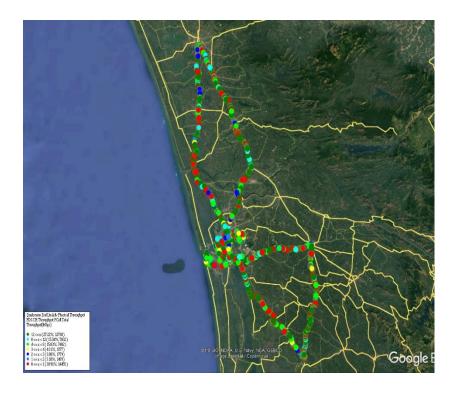
DL throughput	No. of Samples	%
0 to 1 Mbps	308125	75.1
1 to 2 Mbps	16411	4.0
2 to 3 Mbps	14770	3.6
3 to 4 Mbps	11488	2.8
4 to 8 Mbps	31182	7.6
8 to 12 Mbps	18873	4.6
>12 Mbps	9437	2.3
Total	410286	100

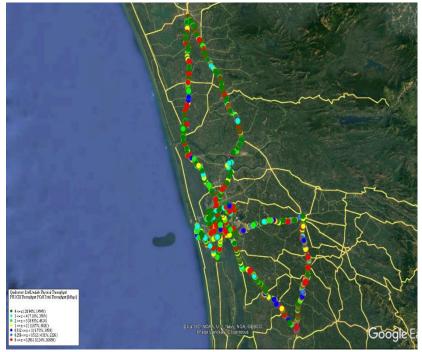


UL throughput	No. of Samples	%
0 to 1 Mbps	51040	14.24
1 to 2 Mbps	15269	4.26
2 to 3 Mbps	26989	7.53
3 to 4 Mbps	131793	36.77
4 to 8 Mbps	58352	16.28
8 to 12 Mbps	29534	8.24
>12 Mbps	45448	12.68
Total	358425	100

IV. Dynamic DataTest(Data Test on Move)-4G DL/UL Details

JIO





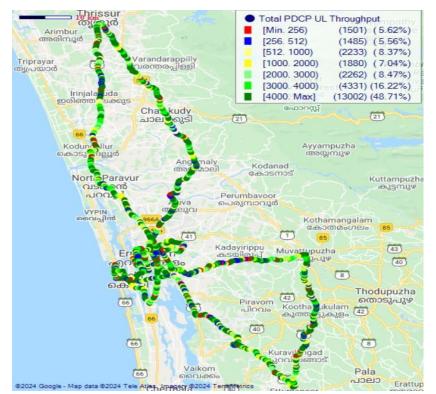
DL throughput	No. of Samples	%
0 to 1 Mbps	14455	31
1 to 2 Mbps	1489	3
2 to 3 Mbps	1779	4
3 to 4 Mbps	1877	4
4 to 8 Mbps	7402	16
8 to 12 Mbps	7032	15
>12 Mbps	12730	27
Total	46764	100

UL throughput	No. of samples	%
0 to 256 kbps Mbps	16650	32.24
256 to 512 kbps	2226	4.31
512 Kbps to 1 Mbps	3474	6.73
1 to 2 Mbps	6026	11.67
2 to 3 Mbps	4614	8.93
3 to 4 Mbps	3709	7.18
>4Mbps	14949	28.94
Total	51648	100

IV. Dynamic Data Test(Data Test on Move)-4G DL/UL Details

VIL





DL throughput	No. of Samples	%
0 to 1 Mbps	910	3.36
1 to 2 Mbps	500	1.84
2 to 3 Mbps	1877	6.92
3 to 4 Mbps	1686	6.22
4 to 8 Mbps	2484	9.16
8 to 12 Mbps	5240	19.33
>12 Mbps	14417	53.17
Total	27114	100

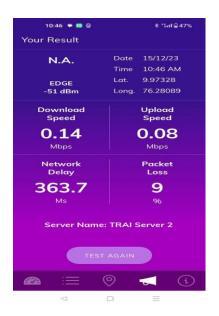
UL throughput	No. of samples	%
0 to 256 Kbps	1501	5.62
250 to 512 Kbps	1485	5.56
512 Kbps to 1 Mbps	2233	8.37
1 to 2 Mbps	1880	7.04
2 to 3 Mbps	2262	8.47
3 to 4 Mbps	4331	16.22
>4Mbps	13002	48.71
Total	26694	100

AIRTEL

V. TRAI My Speed App Test Details-2G

Techology-2G	General Hospital	KSRTC Bus Stand	Kaloor Stadium	Cochin University	Info Park	Hill Palace Museum
Download Speed (Mbps)	0.14	0.13	0.06	0.13	0.01	0.13
Upload Speed (Mbps)	0.08	0.01	0.03	0.14	0.03	0.01
Latency	NA	NA	NA	NA	NA	NA

General Hospital



KSRTC Bus Stand

11:23 ◀ ♥ ■ ₽ Your Result	* *¦nl ⊒45%			
N.A.	Date 15/12/23 Time 11:23 AM			
EDGE -63 dBm	Lat. 9.97802 Long. 76.28771			
Download Speed	Upload Speed			
0.13	0.01			
Network Delay	Packet Loss			
930.4 ^{Ms}	38 %			
Server Name:	TRAI Server 1			
TEST AGAIN				
	9 🛃 🛈			

Kaloor Stadium



Cochin University

16:07 🕥 🖪 🗿 🔗	• that 660 +			
Your Result				
AIRTEL	Date 15/12/23			
	Time 04:07 PM			
EDGE	Lat. 10.04551			
-51 dBm	Long. 76.32342			
Download Speed	Upload Speed			
0.13	0.14			
Mbps	Mbps			
Network	Packet			
Delay	Loss			
569.2	30			
Ms	%			
Server Name: TRAI Server 1				
TEST AGAIN				
	9 🛃 🛈			
=	0 4			

Info Park

17:35 🥶 🖌 🖬 🗗 🕈 🗳 🖬 🖬 🔹 🕈				
Your Result				
N.A.	Date 15/12/23			
	Time 05:35 PM			
EDGE	Lat. 10.01135			
-53 dBm	Long. 76.36065			
Download Speed	Upload Speed			
0.01	0.03			
Mbps	Mbps			
Network Delay	Packet Loss			
N.A.	N.A.			
Ms	%			
Server Name: TRAI Server 1				
TEST AGAIN				
) 🗖 🕻			
=				

11:23 ∢ ● ≅ 8 Your Result	∜ *ial ⊜ 45%			
N.A.	Date 15/12/23 Time 11:23 AM			
EDGE -63 dBm	Lat. 9.97802 Long. 76.28771			
Download Speed	Upload Speed			
0.13 Mbps	0.01 Mbps			
Network Delay	Packet Loss			
930.4 ^{Ms}	38 %			
Server Name: TRAI Server 1				
TEST AGAIN				
	9 🛃 i			
\triangleleft				

AIRTEL

V. TRAI My Speed App Test Details-4G

Techology-4G/VoLTE	General Hospital	KSRTC Bus Stand	Kaloor Stadium	Cochin University	Info Park	Hill Palace Museum
Download Speed (Mbps)	22.59	46.83	28.21	23.60	44.66	42.22
Upload Speed (Mbps)	9.10	9.50	11.50	13.45	5.91	8.76
Latency						

General Hospital



KSRTC Bus Stand



Kaloor Stadium



Cochin University

16:05 🕥 🖪 💋	o ≋.∰i @o≁			
Your Result				
AIRTEL	Date 15/12/23			
	Time 04:04 PM			
LTE_CA	Lat. 10.04550			
-70 dBm	Long. 76.32342			
Download	Upload			
Speed	Speed			
23.60	13.45			
Mbps	Mbps			
Network	Packet			
Delay	Loss			
40.6	0			
Ms	%			
Server Name: CHN				
TEST AGAIN				
	9 🔽 🛈			
=				

Info Park



20:30 ♥ ∎ ■ ■ Your Result	도 * 우 제 위비 🖲 100%			
AIRTEL	Date 15/12/23 Time 08:30 PM			
LTE -76 dBm	Lat. 9.95180 Long. 76.36128			
Download Speed	Upload Speed			
42.22	8.76 Mbps			
Network Delay	Packet Loss			
43.1	O %			
Server Name: New Server				
	9 🛃 i			

V. TRAI MySpeed App Test Details-2G

Techology-2G	General Hospital	KSRTC Bus Stand	Kaloor Stadium	Cochin University	Info Park	Hill Palace Museum
Download Speed (Kbps)	0.14	0.15	0.06	0.07	0.04	0.04
Upload Speed (Kbps)	0.05	0.05	0.08	0.03	0.03	0.06
Latency(ms)	197.0	199.0	222.4	236.3	227.0	223.0

General Hospital

9:47 🕥 🌑 🚱 🛤 🔸		10 F _	4 8
Your Result			
N.A.		5/12/23	
		9:47 AM	
EDGE -67 dBm		97321 5.28091	
-67 dBm	Long. 7	5.26091	
Download Speed		pload Speed	
0.14	0	.05	
Mbps		Mbps	
Network Delay	F	acket Loss	
197.0		9	
Ms		%	
Server Name: TEST	TRAI Serv	er 1	
	୭ 🚽	(Ē)
4	•		

Cochin University

4:25 🗣 🛿 🔿 🖴 📻 🔹	🕼 A al 20% a			
Your Result				
N.A.	Date 15/12/23			
	Time 04:25 PM			
EDGE	Lat. 10.04385			
-53 dBm	Long. 76.32311			
Download Speed	Upload Speed			
0.07	0.03			
Mbps	Mbps			
Network Delay	Packet Loss			
236.3	9			
Ms	%			
Server Name: TRAI Server 2 TEST AGAIN				
@ a :=	o 🛃 🛈			
111	0 <			

KSRTC Bus Stand



Info Park

Server Name: TRAI Server 2

TEST AGAIN

III O <

10 5 at 13%

10.01080

Upload Speed

0.03

Mbp

Packet Loss

9

%

9 🔜 🛈

N.A.

EDGE -69 dBm

Download Speed

0.04

Mbps

Network Delay

227.0

Your Result

L Dus Stanu

Kaloor Stadium

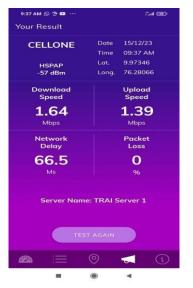




V. TRAI MySpeed App Test Details-3G/4G

Techology-4G/VoLTE	General Hospital	KSRTC Bus Stand	Kaloor Stadium	Cochin University	Info Park	Hill Palace Museum
Download Speed (Mbps)	1.64	2.23	2.36	1.12	2.27	4.34
Upload Speed (Mbps)	1.39	2.66	1.74	1.93	1.15	1.67
Latency(ms)	66.5	51.5	63.6	52.1	59.6	59.6

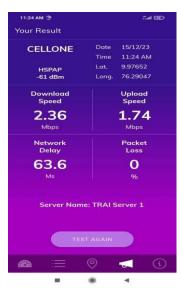
General Hospital



KSRTC Bus Stand



Kaloor Stadium



Cochin University

4:12 🗣 🖪 🔿 🛋 📷 🔸	101 📅 .il 18% 🖻		
Your Result			
CELLONE	Date 15/12/23		
	Time 04:12 PM		
HSPAP	Lat. 10.04584		
-24 dBm	Long. 76.32319		
Download	Upload		
Speed	Speed		
1.12	1.93		
Mbps	Mbps		
Network	Packet		
Delay	Loss		
52.1	0		
Ms	%		
Server Name: TRAI Server 1			
@ ::::::::::::::::::::::::::::::::::::	🔍 式 🛈		
111	0 <		

Info Park



Your Result CELLONE HSPAP	Date Time	15/12/23
		15/12/23
HSPAP	Time	
HSPAP		08:15 PM
	Lat.	9.95323
-67 dBm	Long.	76.36138
Download		Upload
Speed		Speed
4.34		1.67
Mbps		Mbps
Network		Packet
Delay		Loss
59.6		0
Ms		%
Server Name	TRAIS	ierver 1
a a ∷≡	0	🔨 (i
-		4

V. TRAI MySpeed App Test Details-4G

Techology-4G	General Hospital	KSRTC Bus Stand	Kaloor Stadium	Cochin University	Info Park	Hill Palace Museum
Download Speed (Mbps)	20.30	20.14	21.25	44.48	45.29	60.41
Upload Speed (Mbps)	3.09	5.36	17.90	10.07	8.71	9.96
Latency	56.9	38.0	48.3	44.7	42.3	29.2

KSRTC Bus Stand

General Hospital



Cochin University



Info Park



Hill Palace Museum

Kaloor Stadium



VODAFONE IDEA

V. TRAI MySpeed App Test Details-2G

Techology-2G	General Hospital	KSRTC Bus Stand	Kaloor Stadium	Cochin University	Info Park	Hill Palace Museum
Download Speed (Mbps)	0.11	0.15	0.12	0.21	0.14	0.17
Upload Speed (Mbps)	0.08	0.08	0.08	0.09	0.07	0.12
Latency						

General Hospital

12272	Dote 15/12/23
N.A.	Time 10:15 AM
	Lat. 9.97340
EDGE	
-65 dBm	Long. 76.28070
Download	Upload
Speed	Speed
0.11	0.08
Mbps	Mbps
Network	Packet
Delay	Loss
N.A.	N.A.
Ms	96
Server Nor	ne: TRAI Server 1
Т	ST AGAIN

KSRTC Bus Stand



Kaloor Stadium

2.26 🔮 🕈 🛹 👹		- 📉 🔤
Your Result		
Vi India	Date	15/12/23
	Time	02:17 PM
LTE	Lat.	9.99825
-51 dBm	Long.	76.30030
Download		Upload
Speed		Speed
0.12		0.08
Mbps		Mbps
Network		Packet
Delay		Loss
N.A.		N.A.
Ms		96
Server Nan		ierver 1
TE	ST AGAIN	
a =	0	

Cochin University



Info Park

6.46 9 🗄 🛹 🖈		·24.0
Your Result		
Vi India	Date	15/12/23
	Time	06:45 PM
EDGE	Lat.	10.01082
-59 dBm	Long.	76.36091
Download Speed		Upload Speed
0.14		0.07
Mbps		Mbps
Moba		mops
Network Delay		Packet Loss
N.A.		N.A.
Ms		96
Server Nan	n e: TRAI S ST AGAIN	erver 1
a =	0	

Hill Palace Museum

7:17 an 🔮 🛹 👁	• 🛀 4% 8
Your Result	
IDEA	Date 15/12/23
	Time 07:17 PM
EDGE	Lat. 9.95163
-63 dBm	Long. 76.36249
Download	Upload
Speed	Speed
0.17	0.12
Mbps	Mbps
Network	Packet
Delay	Loss
995.7	28
Ms	96
Server Nan	ne: TRAI Server 1
Т	

TRAI MySpeed Details

VODAFONE IDEA

V. TRAI MySpeed App Test Details-4G

Techology-4G/VoLTE	General Hospital	KSRTC Bus Stand	Kaloor Stadium	Cochin University	Info Park	Hill Palace Museum
Download Speed (Mbps)	56.60	40.25	19.14	44.63	67.95	32.09
Upload Speed (Mbps)	29.70	45.74	46.61	45.76	46.04	42.24
Latency						

General Hospital



Cochin University



KSRTC Bus Stand



Info Park



Kaloor Stadium



7:14 an 🕈 🛩 👁	waa 🖓 2% s
Your Result	
IDEA	Date 15/12/23
	Time 07:14 PM Lat. 9.95165
LTE -78 dBm	Long. 76.36249
Download Speed	Upload Speed
32.09	42.24
Mbps	Mbps
Network Delay	Packet Loss
38.5	O %
Server Nan	ne: TRAI Server 1
Тт	ST AGAIN
<i>@</i> a :=	