Operator Assisted Drive Test Report
Goalpara and South Salmara-Mankachar Districts, Assam
May, 2025
(RO, Kolkata)

Key Performance Indicators (KPIs):
The following TSPs could not meet the KPIs benchmark as stated below—

AIRTEL - Rx Quality in 2G network and 4G (SINR) network.
BSNL- Block Call Rate, Call Setup Success Rate and Hand Over Success Rate in 2G network. Drop Call Rate, Block Call Rate, Call Set up Success Rate, and Rx Quality in 4G (SINR) network.
RJIO-Rx Quality in 4G (SINR) network.
VIL- Rx Quality in 2G network.

The Operator Assisted Drive Test has been carried out by Regional Office, Kolkata with the help of Service Providers in Goalpara, and South Salmara-Mankachar Districts and surrounding areas including National Highway 17 on 1st and 2nd May 2025 from 08.15 AM to 06.30 PM. The drive test covered drive route of 330 KMs (approx) over a period of two days. Approximately 440 + calls were made for each of the 7 networks: three 2G networks, and Four 4G networks covering four TSPs.

Overview   Voice Summary   Data Summary

Overview

Goalpara is a city and the district headquarters of Goalpara district, Assam in India. It is situated 134 kilometres to the west of Guwahati.

South Salmara-Mankachar is an administrative district in the state of Assam in India. The district headquarter is located at Hatsingimari village which is situated at about 245 km from Guwahati. It was earlier a sub-division of the Dhubri District.

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, Call Setup Success Rate, Drop Call Rate and Block Call Rate.

Data: Download Throughputs and Upload Throughputs.

Voice Tests: Calls were made for 120 secs duration with wait time of 15 secs between call in 2G/ 3G on auto mode and 4G/ 5G on auto mode. Three 2G networks, one 3G network, Three 4G networks covering 4 unique TSPs were tested.

Data Tests: Dynamic Data Service Testing was performed along same route in 3G/4G/ 5G on auto mode. 250 MB file were downloaded and 125 MB file were uploaded from FTTP server in TSP's own server. Static Data Service Testing was also performed in 3G/ 4G / 5G on auto mode covering 4 unique TSPs were tested.

Service	Static Data Service Testing- Specifications
Download	250 MB in 3G/ 4G / 5G on auto mode
Upload	125 MB in 3G/ 4G / 5G on auto mode
Web Browsing	3 links of e/m commerce website www.amazon.in, www.flipkart.com and PayTm
Video Steaming	100 Sec Video & 25 sec Timeout
Latency	512 Bytes packet-- 1000 count on TSP own server using Ping.

Technology/ TSP	AIRTEL	BSNL	RJIO	VODAFONE-IDEA
2G	YES	YES	NO	YES
3G	NO	NO	NO	NO
4G	YES	YES	YES	YES
TOOL USED	TEMS	NIMO	X-CAL	TEMS

Voice & Dynamic Data Test Drive Route

### Drive Routes: Goalpara,Salmara and Mankachar Districts

DAY-1– Bhupenhazarika Museum – Guwahati University – Rampur PHC – Chaygaon BPHC – Jawaharlal Nehru College – Adarsha Mahavidyalaya, Amjonga – Upatola Post Office – Matia Block – Dubapara High School – Baladmari Char Post Office –Goalpara DC Office – Karbala Super Market –District Judicial Court, Goalpara – Agia Police Station –Bardamal Gaon Panchayat – Goalpara College

DAY-2– Tinali Market , Goalpara – Pancharatna View Point – Barbhita High School – Lakhipur PHC – Tikrikilla Bazar – Khalishabhita PHC – Fakirganj Post Office – Balurghat LP School – Phulbari Post Office – Koylaghat Bazar –Gomaijhora G/A Higher Secondary School – Kazi and Zaman College – Hatsingimari College –Kakripara Post Office

Data Service Test- Static Locations

Static Locations
Bhupen Hazarika Museum, Jalukbari
Goalpara College,Goalpara
Goalpara Tinali Market, Goalpara

Voice Calls

QoS compliance of the TSPs for Voice across technologies 2G/3G/4G-VoLTE:
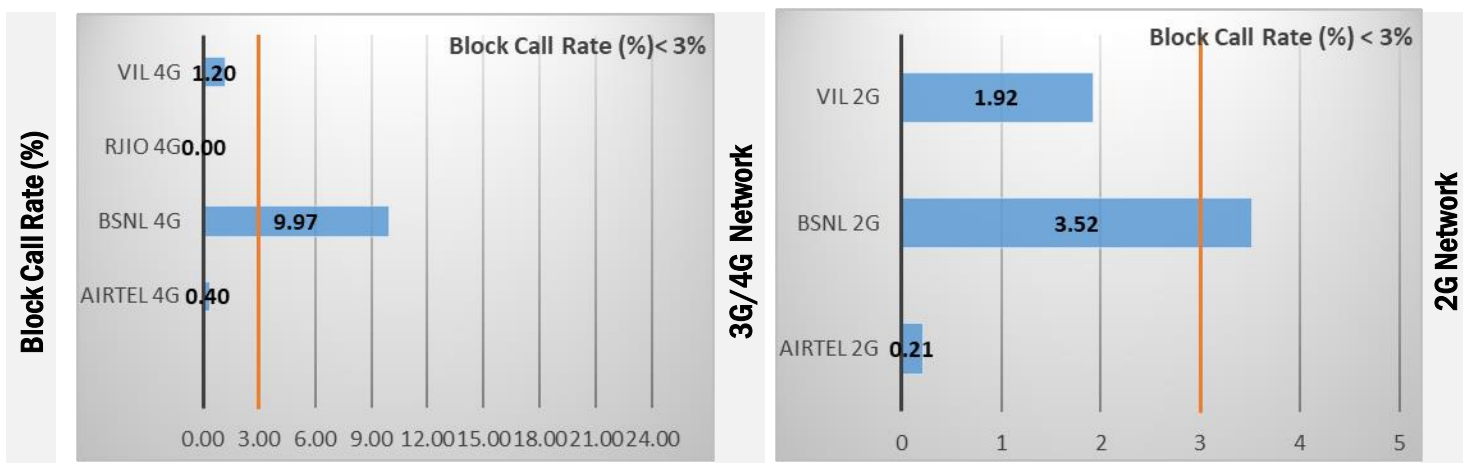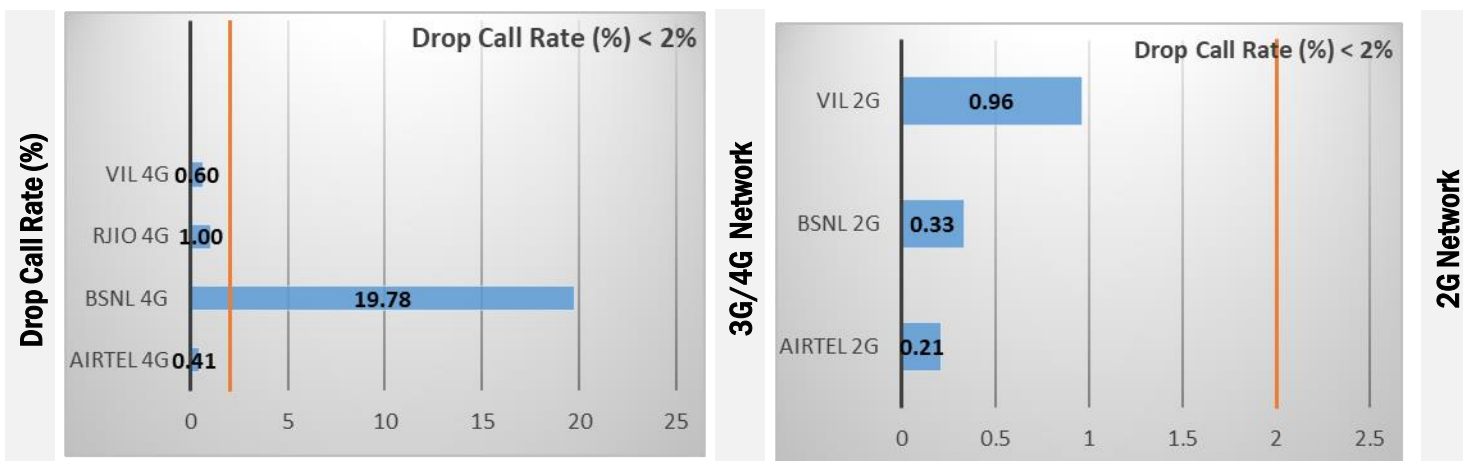
KPIs	2G			4G-VoLTE			
	AIRTEL	BSNL	VIL	AIRTEL	BSNL	RJIO	VIL
Drop Call Rate %	0.21	0.33	0.96	0.41	19.78	1.0	0.60
Block Call Rate %	0.21	3.52	1.92	0.40	9.97	0.00	1.20

a) All TSPs have met the 2% QOS benchmark of Drop Call Rate (DCR%) except BSNL (4G) network.

b) All TSPs have met the 3% QOS benchmark of Block Call Rate (BCR%) except BSNL (2G&4G) network

Voice Calls

Coverage

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

TSPs	2G		
	AIRTEL	**BSNL**	**VIL**
Coverage %	60.82	33.08	90.70

b) **Percentage of coverage samples for 4G ≥ -110 dBm.**

TSPs	4G			
	AIRTEL	**BSNL**	**RJIO**	**VIL**
Coverage %	94.84	71.32	87.00	93.99

Summary

Voice Call	2G		
	AIRTEL	BSNL	VIL
Call Attempt	481	312	208
Blocked Call Rate (%)	0.21	3.52	1.92
CSSR% (Accessibility)	99.79	96.47	98.08
Drop Call Rate (%)	0.21	0.33	0.96
Mobility HOSR (%)	98.33	94.00	100
Rx Quality (%)	92.34	97.59	94.49

Voice Call	4G			
	AIRTEL 4G	BSNL 4G	RJIO 4G	VIL 4G
Call Attempt	493	556	355	166
Blocked Call Rate (%)	0.40	9.97	0.00	1.20
CSSR% (Accessibility)	99.60	37.0	99.00	98.80
Drop Call Rate (%)	0.41	19.78	1.00	0.60
Mobility HOSR (%)	99.70	98.90	98.00	100
Rx Quality (%)	94.65	93.70	88.00	95.96

Dynamic Data was tested for 330 Kms. Download Throughput was tested.

Data Download Performance (Average Throughput in Mbps) - Dynamic Data Testing

4G Network:

4G-Dynamic Download Average Throughput(Mbps)

- VIL 4G: 26.24
- RJIO 4G: 16.7
- BSNL 4G: 19.99
- AIRTEL 4G: 5.8
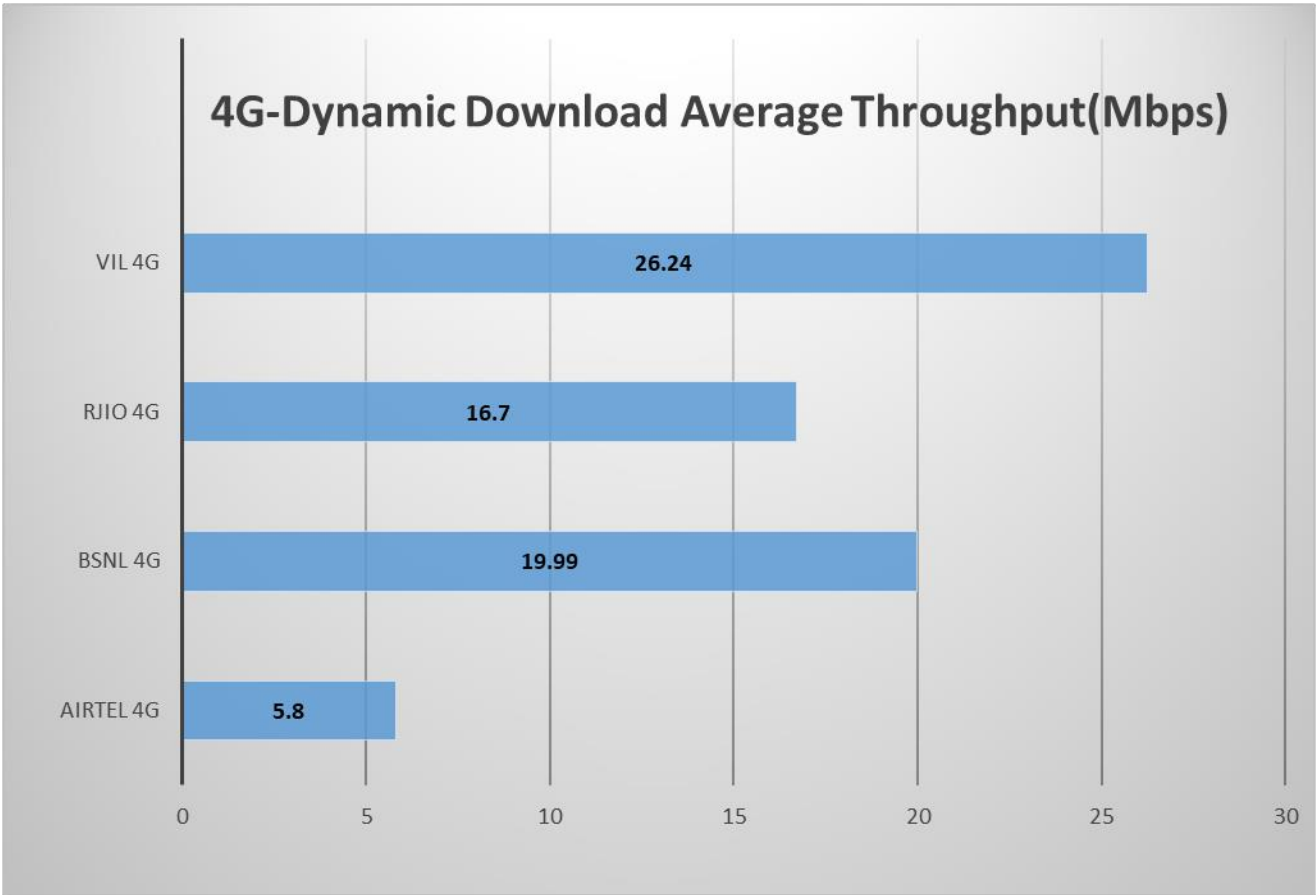
Summary-Data Services Static

Average Data Services Static	4G/5G			
	AIRTEL 4G/5G	BSNL 4G	RJIO 4G/5G	VIL 4G
Download throughput in Mbps	166.61	2.99	361.77	12.47
Upload Throughput in Mbps	53.22	0.88	22.50	5.96
Video streaming delay (sec)	1.26	3.08	0.0	1.18
Web Browsing Delay (secs)	1.0	1.01	2.07	1.41
Latency (msec)	52.10	2.73	24.00	57.00

Summary-Data Services Static

Location:-Dr. Bhupen Hazarika Museum, Jalukbari	4G /5G			
	AIRTEL 4G/5G	BSNL 4G	RJIO 4G/5G	VIL 4G
Download throughput in Mbps	209.49	4.46	315.00	8.53
Upload Throughput in Mbps	51.26	2.24	25.40	1.52
Video streaming delay (secs)	1.0	1.25	0.0	1.23
Web Browsing Delay (secs)	0.9	1.2	2.40	1.54
Latency (msec)	51.40	86	24.00	57.00

Location:- Goalpara College, Goalpara	4G/5G			
	AIRTEL 4G/5G	BSNL 4G	RJIO 4G/5G	VIL 4G
Download throughput in (mbps)	102.23	3.58	356.90	15.41
Upload Throughput in (mbps)	63.39	0.23	31.50	8.19
Video streaming delay (secs)	1.3	3.5	0.0	1.11
Web Browsing Delay (secs)	1.1	1.56	1.80	1.32
Latency (msec)	53.0	202	23.0	55.0

Location:-Goalpara Tiniali Market, Goalpara	4G /5G			
	AIRTEL 4G /5G	BSNL 4G	RJIO 4G/5G	VIL 4G
Download throughput in Mbps	188.10	0.936	413.4	13.47
Upload Throughput in Mbps	45.0	0.19	10.60	8.15
Video streaming delay (secs)	1.5	4.5	0.0	1.19
Web Browsing Delay (secs)	1.0	0.29	2.0	1.37
Latency (msec)	51.90	533	25.00	59.00

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 ≥ -85 dBm, RSCP is ≥ -90 dBm & RSRP ≥ -110dBm. The details are as follows.

TSP	Coverage Rate %
AIRTEL 2G	60.82
BSNL 2G	33.08
VIL 2G	90.70
AIRTEL 4G	94.84
BSNL 4G	71.32
RJIO 4G	87.00
VIL 4G	93.99

Coverage Rate %

TSP	Value
AIRTEL 2G	60.82
BSNL 2G	33.08
VIL 2G	90.70
AIRTEL 4G	94.84
BSNL 4G	71.32
RJIO 4G	87.00
VIL 4G	93.99
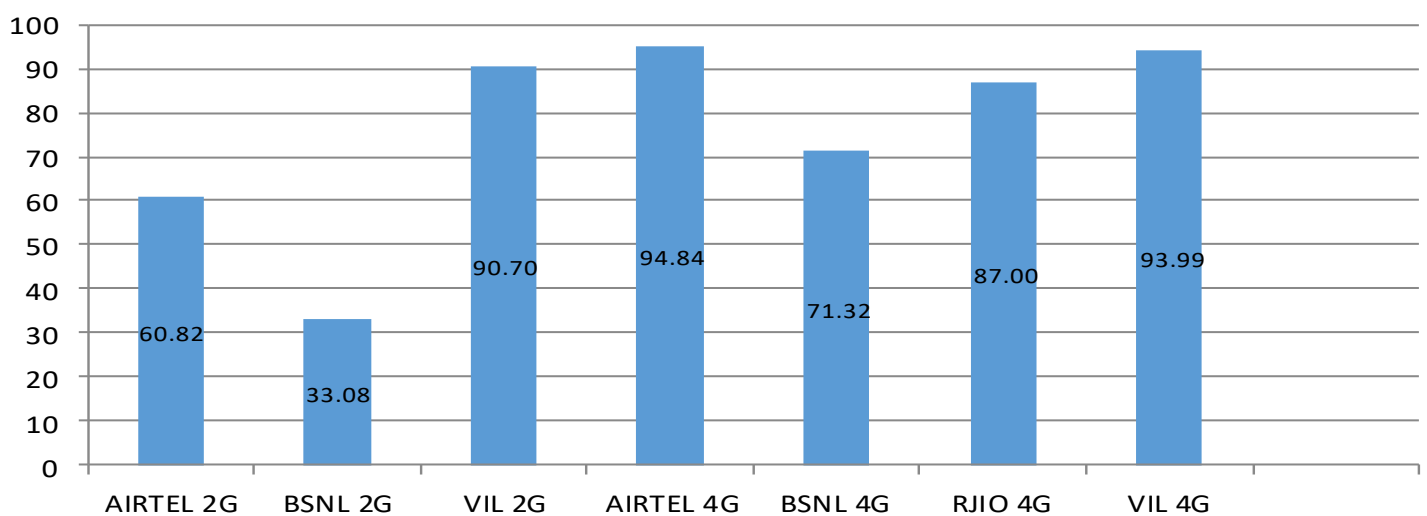
Note- Coverage is the percentage of samples having signal strength more than the threshold value (2G >= -85 dbm, 3G>= -90 dbm and 4G >= -110 dbm). However, these samples are only for the portion of the OADT routes where TSPs have coverage i.e 'no coverage' routes have been excluded.

AIRTEL

Technology	Coverage Rate %
2G	60.82
4G	94.84

2G
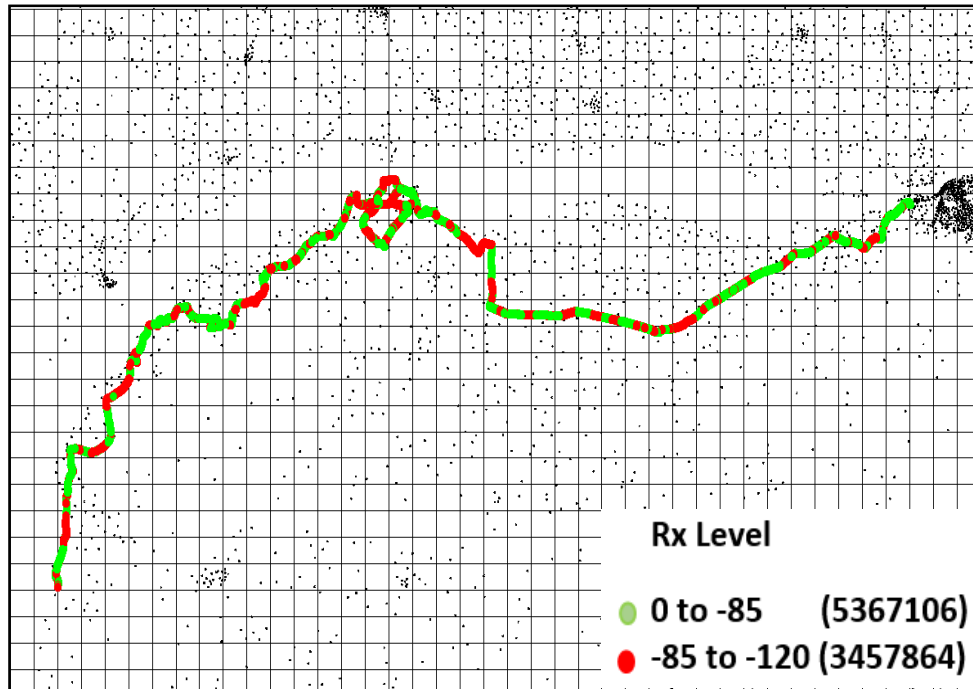
Overall Rx Level	Sample %
[Max >=-75]	23.98
[-75 >=-85)	36.83
[-85 >=-95)	28.04
[-95 >=Min)	11.15
Total	**100**

Rx Level

● 0 to -85   (5367106)
● -85 to -120 (3457864)

4G
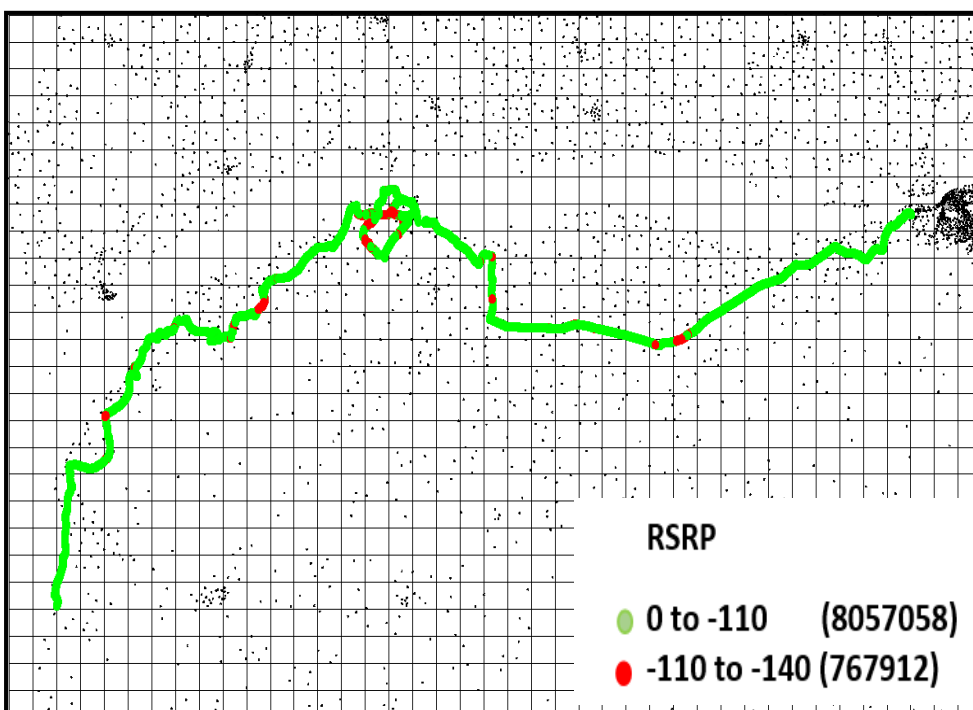
Overall RSRP	Sample %
[Max >=-80]	13.05
[-80 >=-90)	24.82
[-90 >=-110)	56.97
[-110 >=Min)	5.16
Total	**100**

RSRP

● 0 to -110   (8057058)
● -110 to -140 (767912)

BSNL

Technology	Coverage Rate %
2G	33.08
4G	71.32

2G
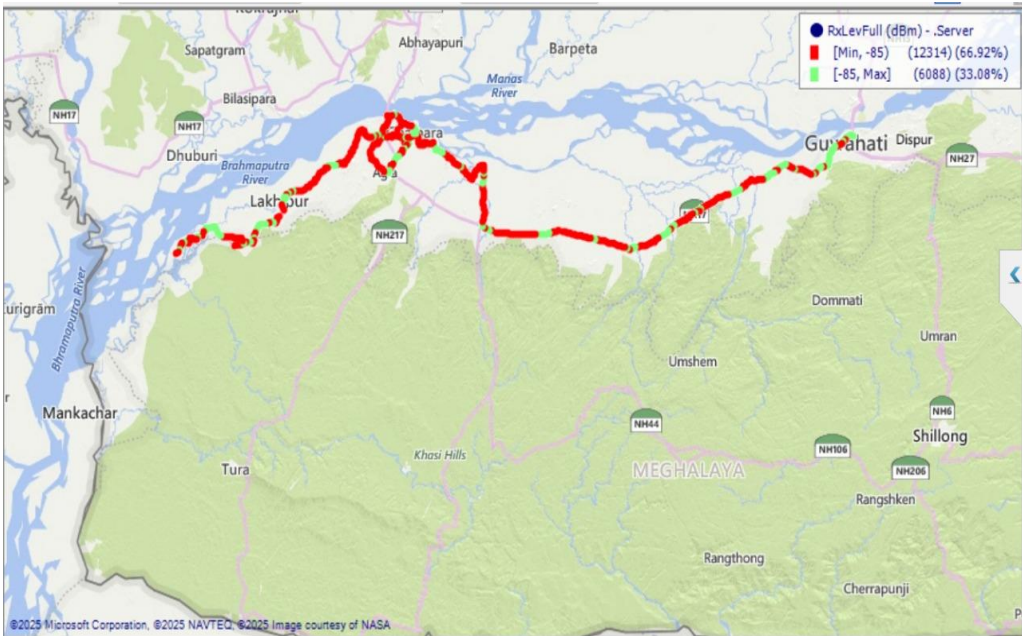
Overall Rx Level	Sample %
[Max >=-75]	20.61
[-75 >=-85)	19.88
[-85 >=-95)	32.19
[-95 >=Min)	27.32
Total	**100**

4G
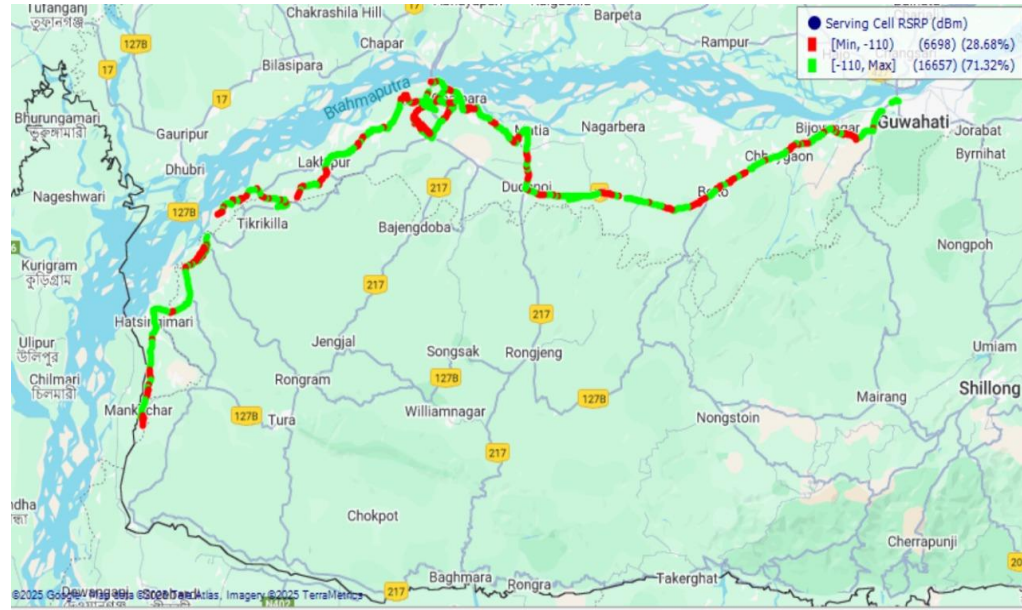
Overall RSRP	Sample %
[Max >=-80]	12.11
[-80 >=-90)	17.47
[-90 >=-110)	41.74
[-110 >=Min)	28.68
Total	**100**

RJIO

Technology	Coverage Rate %
4G	87.00
4G	
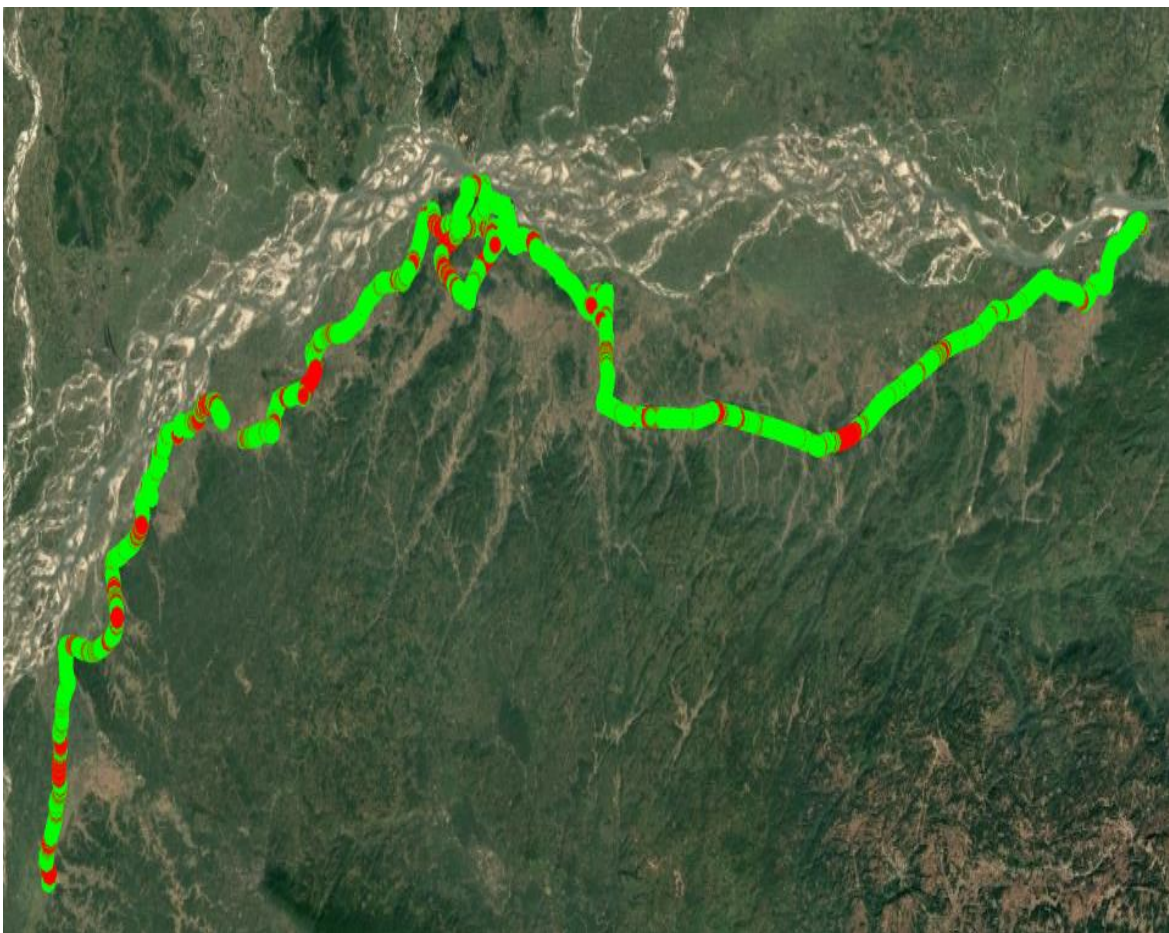
Overall RSRP	Sample %
[Max >=-80]	19.00
[-80 >=-90)	22.00
[-90>=-110)	46.00
[-110 >=Min)	12.00
Total	**100**

VIL

Technology	Coverage Rate %
2G	90.70
4G	93.99

2G
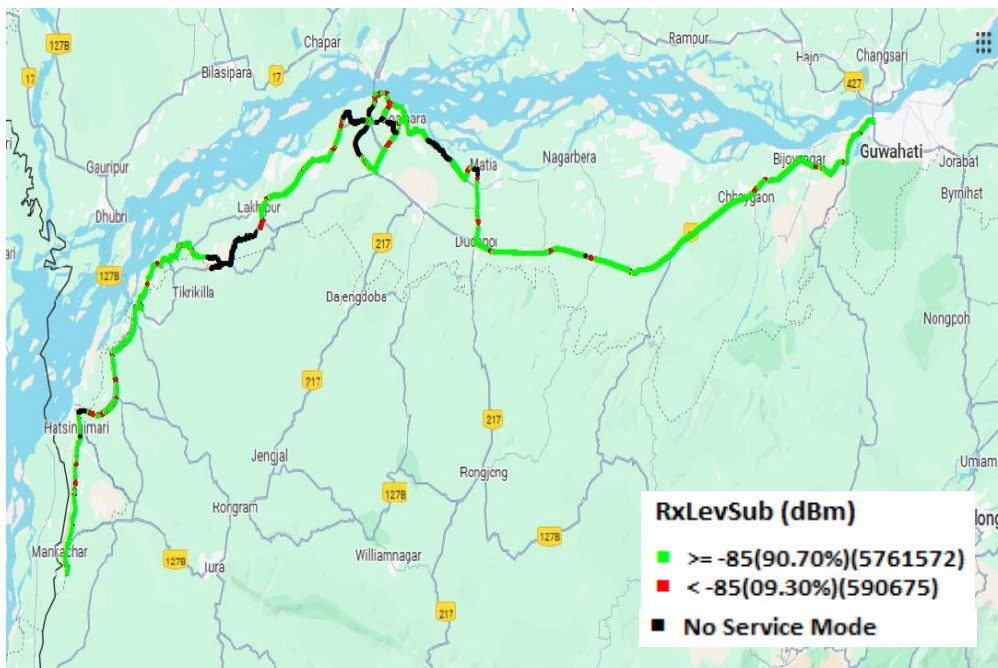
Overall Rx Level	Sample %
[Max >=-75]	50.26
[-75 >=-85)	40.44
[-85 >=-95)	5.78
[-95 =Min)	3.52
Total	**100**

4G
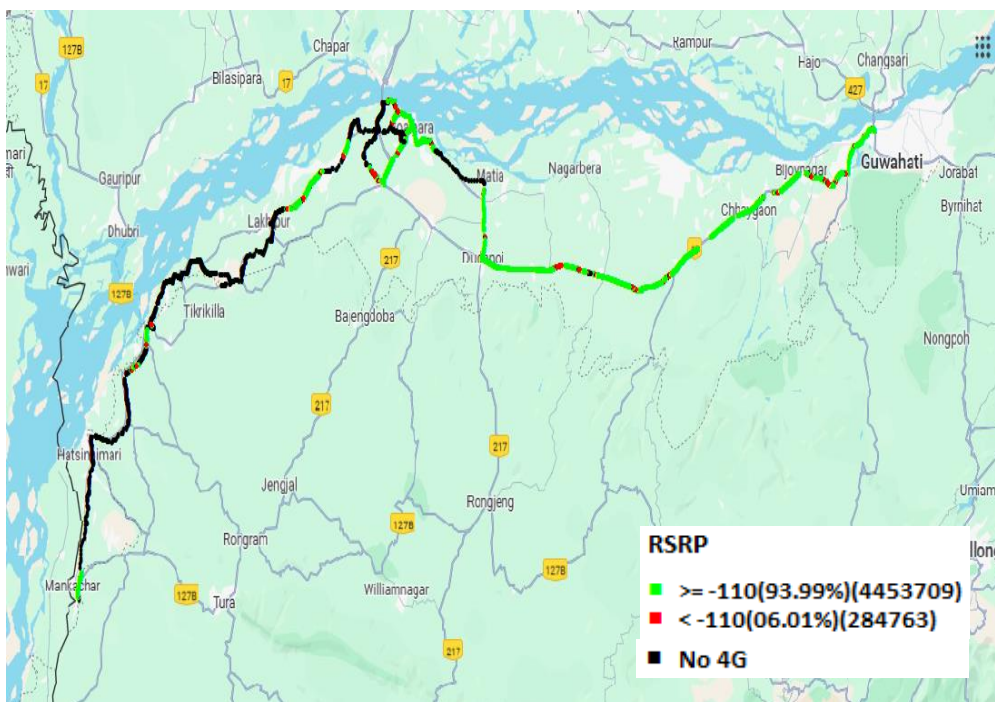
Overall RSRP	Sample %
[Max >=-80]	21..32
[-80 >=-90)	18..28
[-90>=-110)	54.39
[-110 >=Min)	6.01
Total	**100**

For measuring voice quality, as per the QoS norms, Rx Quality<=5 for GSM, Ec/No >= -14 dBm for 3G 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 ≥ 95%.

TSP	Rx Quality %
AIRTEL 2G	92..34
BSNL 2G	97.59
VIL 2G	94.49
AIRTEL 4G	94.65
BSNL 4G	93.70
RJIO 4G	88.00
VIL 4G	95.96

Rx Quality %
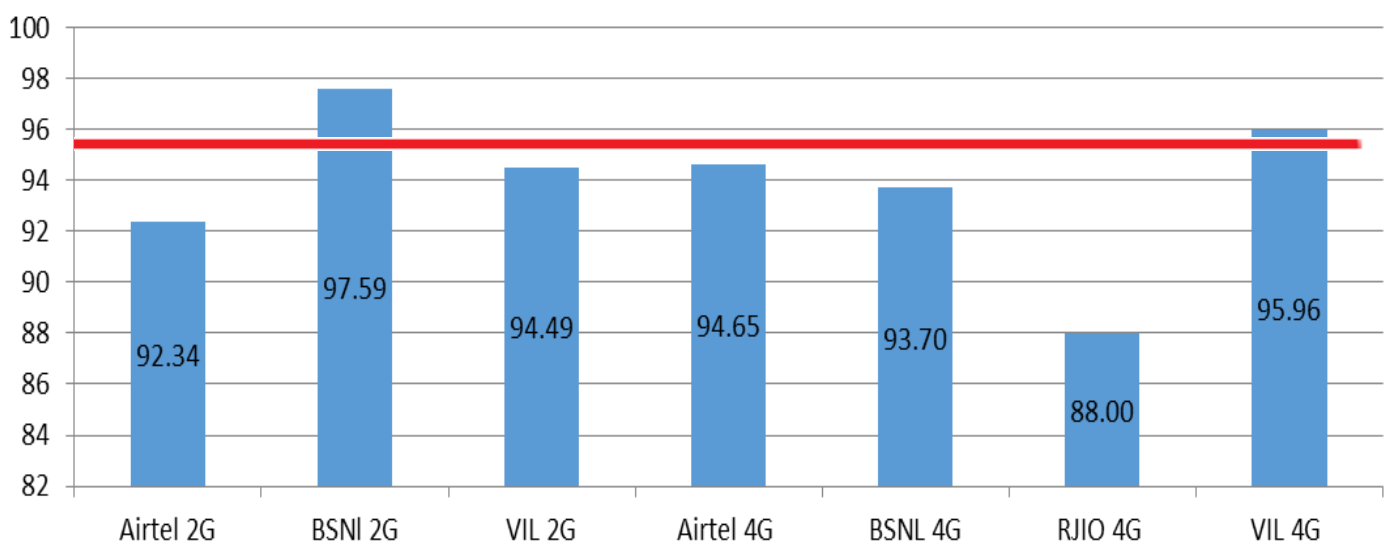
AIRTEL

Technology	Rx Quality %
2G	92.34
4G	94.65

2G
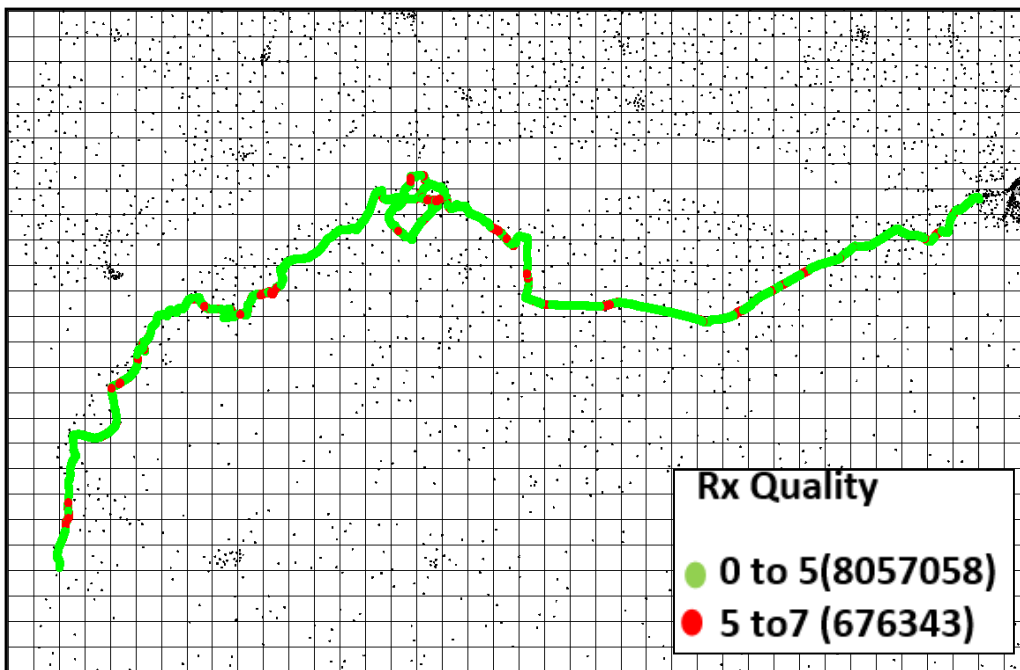
Overall Rx Quality	Sample %
(Min <=2)	83.26
(2 <=3)	2.73
(3 <=4)	5.30
(4 <=5)	1.04
(5 <=Max)	7.67
Total	100

4G
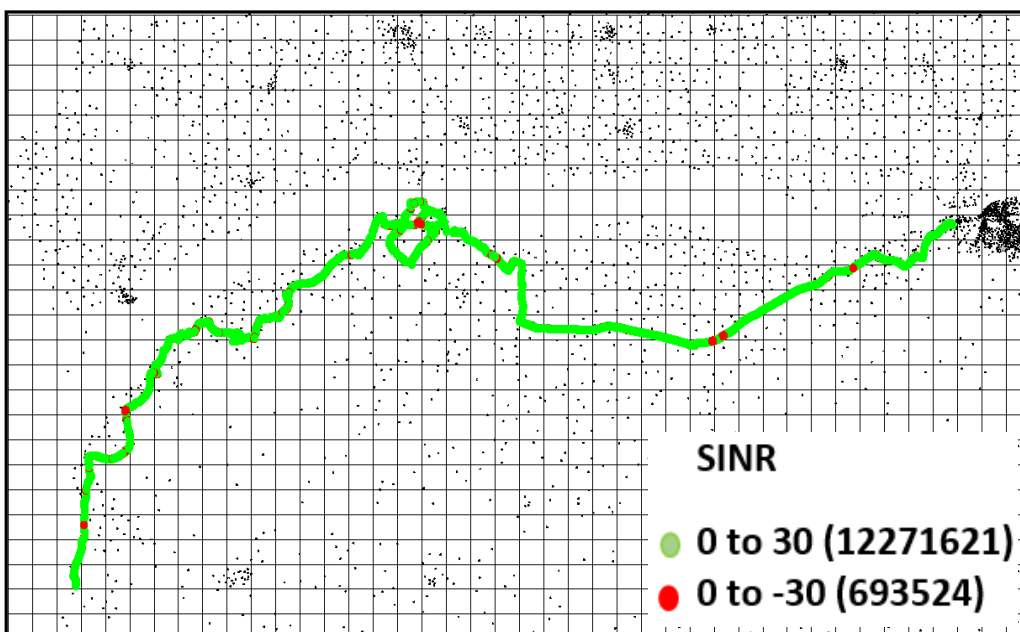
Overall SINR	Sample %
(Min <=0)	5.35
(0 <=5)	17.11
(5 <=10)	23.90
(10 <=15)	24.71
(15 <=Max)	28.93
Total	**100**

BSNL

Technology	Rx Quality %
2G	97.59
4G	93.70

2G
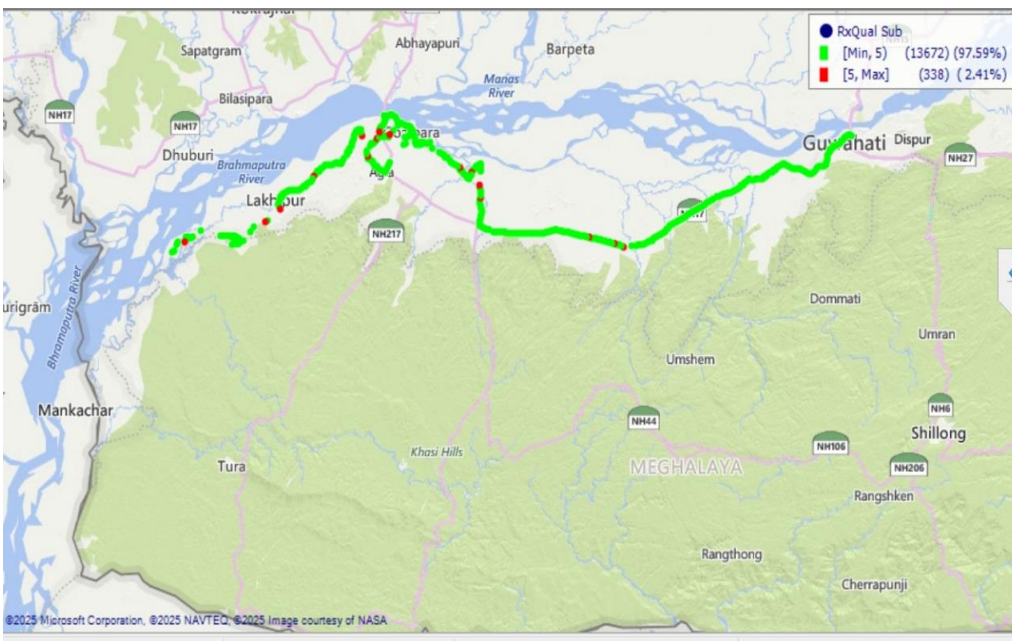
Overall Rx Quality	Sample %
(Min <=2)	83.82
(2 <=3)	2.95
(3 <=4)	3.29
(4 <=5)	2.86
(5 <=Max)	7.08
Total	100

4G

Overall SINR	Sample %
(Min <=0)	6.30
(0 <=5)	13.90
(5 <=10)	20.60
(10 <=15)	22.60
(15 <=Max)	36.60
Total	100

RJIO

Technology	Rx Quality %
4G	88.00

4G
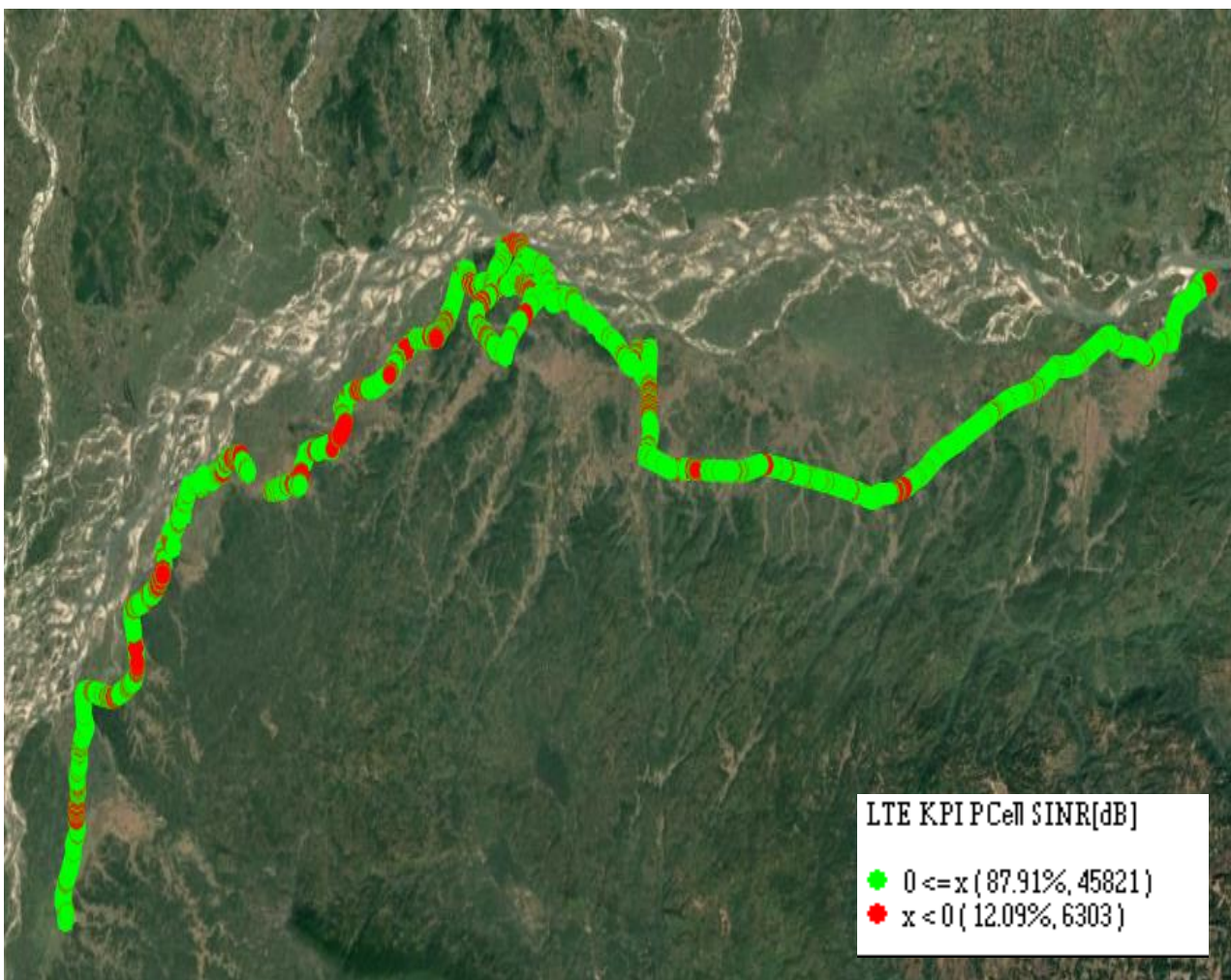
Overall SINR	Sample %
(Min <=0)	12.00
(0 <=5)	21.00
(5 <=10)	26.00
(10 <=15)	19.00
(15 <=Max)	22.00
Total	**100**

VIL

Technology	Rx Quality %
2G	94.49
4G	95.96

2G
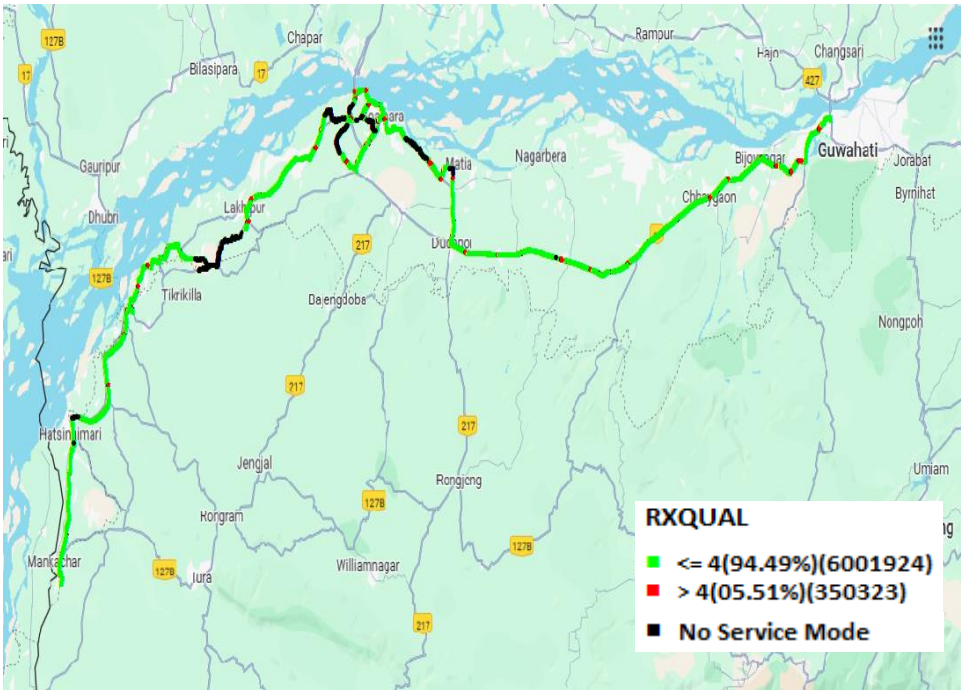
Overall Rx Quality	Sample %
(Min <=2)	79.16
(2 <=3)	8.42
(3 <=4)	6.91
(4 <=5)	4.03
(5 <=Max)	1.48
Total	100

RXQUAL
- <= 4(94.49%)(6001924)
- > 4(05.51%)(350323)
- No Service Mode

4G
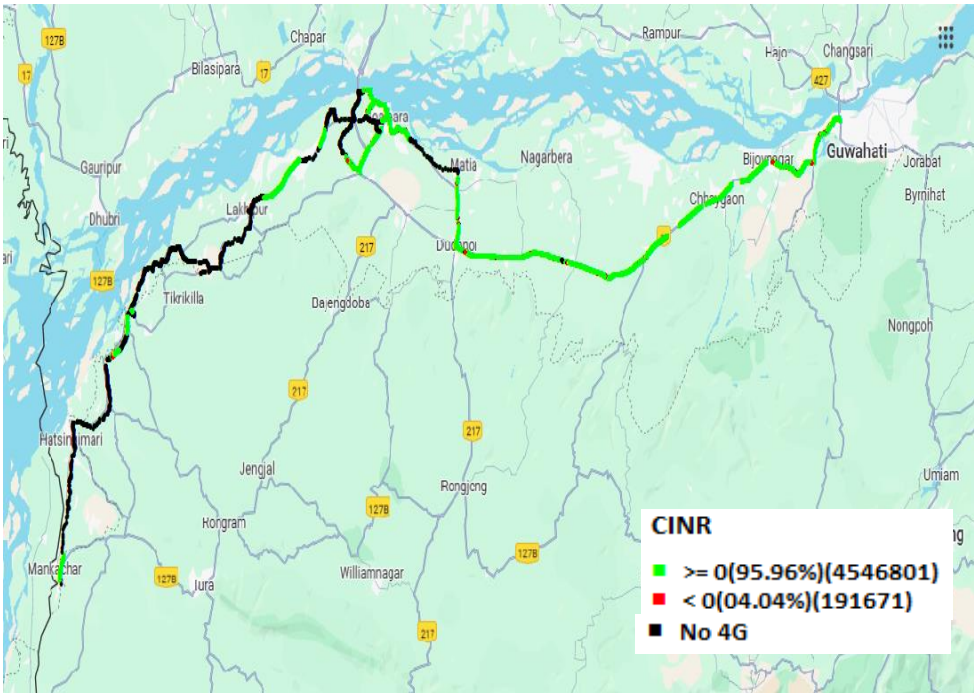
Overall SINR	Sample %
(Min <=0)	4.04
(0 <=5)	16.34
(5 <=10)	36.12
(10 <=15)	28.14
(15 <=Max)	15.36
Total	100

CINR
- >= 0(95.96%)(4546801)
- < 0(04.04%)(191671)
- No 4G

AIRTEL

Dynamic Data Testing Complete 330 Kms

Data KPIs - Overall	4G
Average Download Throughput (Mbps)	5.80

4G
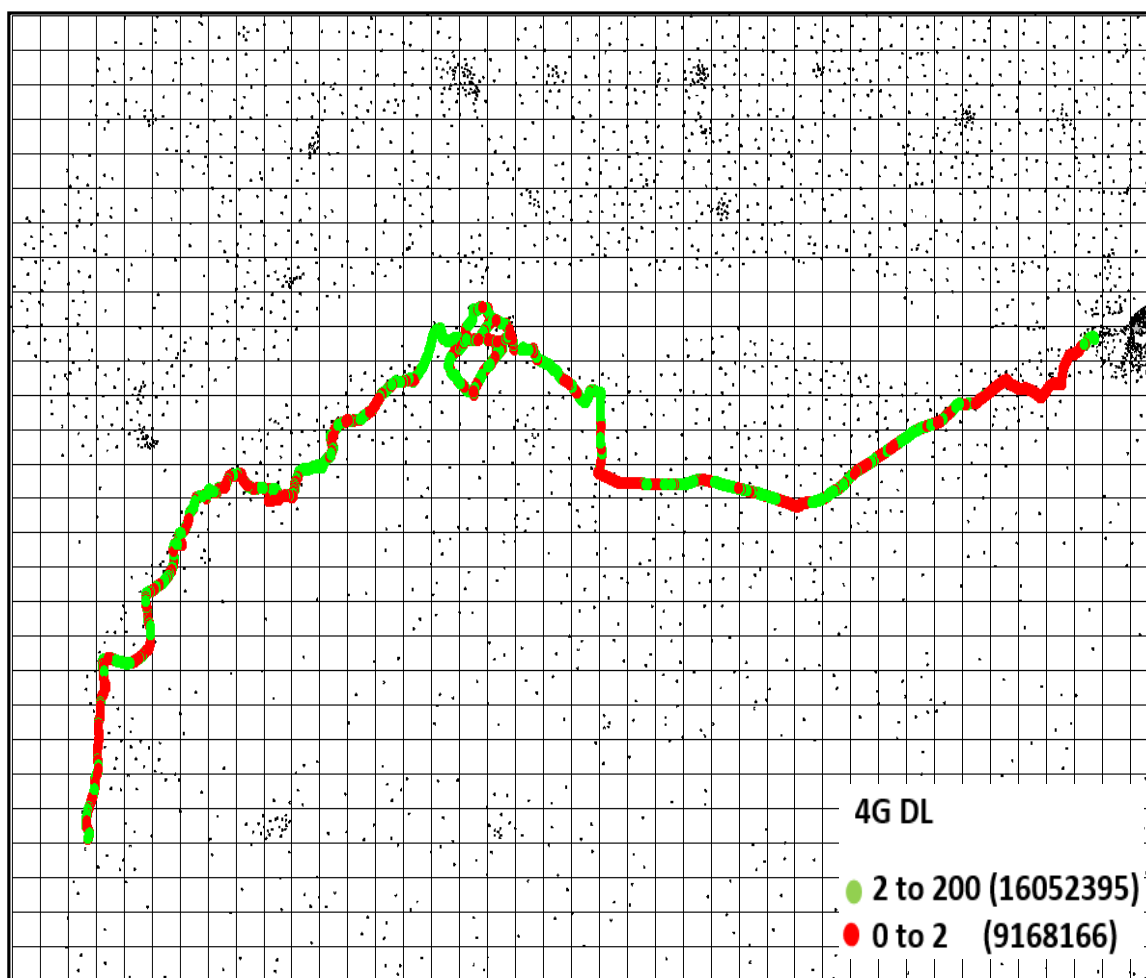
AVG. DOWNLOAD SPEED (Mbps)	5.80
DL throughput	Sample %
0 to <2 Mbps	36.35
2 to <10 Mbps	40.11
10 to <=30 Mbps	17.00
>30 Mbps	6.54
Total	100

AIRTEL

Dynamic Data Testing Complete 330 Kms

Data KPIs - Overall	5G
Average Download Throughput (Mbps)	36.9

5G

5G DL

2 to 500 (9397821)
0 to 2   (3013133)
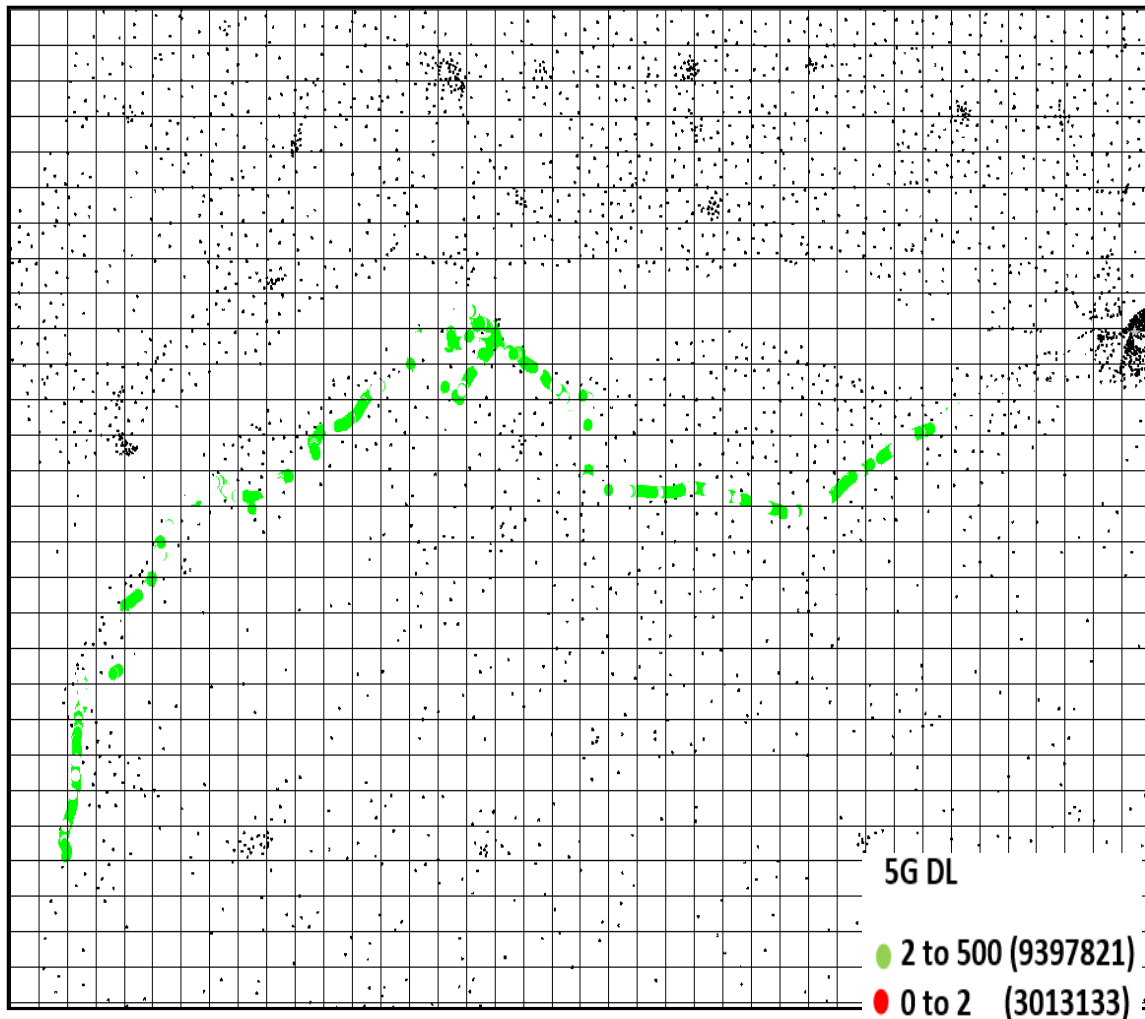
AVG. DOWNLOAD SPEED (Mbps)	36.9
DL throughput	Sample %
0 to <2 Mbps	24.28
2 to <10 Mbps	17.11
10 to <50 Mbps	24.44
> 50 Mbps	34.17
Total	100

BSNL

Dynamic Data Testing Complete 330 Kms

Data KPIs - Overall	4G
Average Download Throughput (Mbps)	19.99

4G
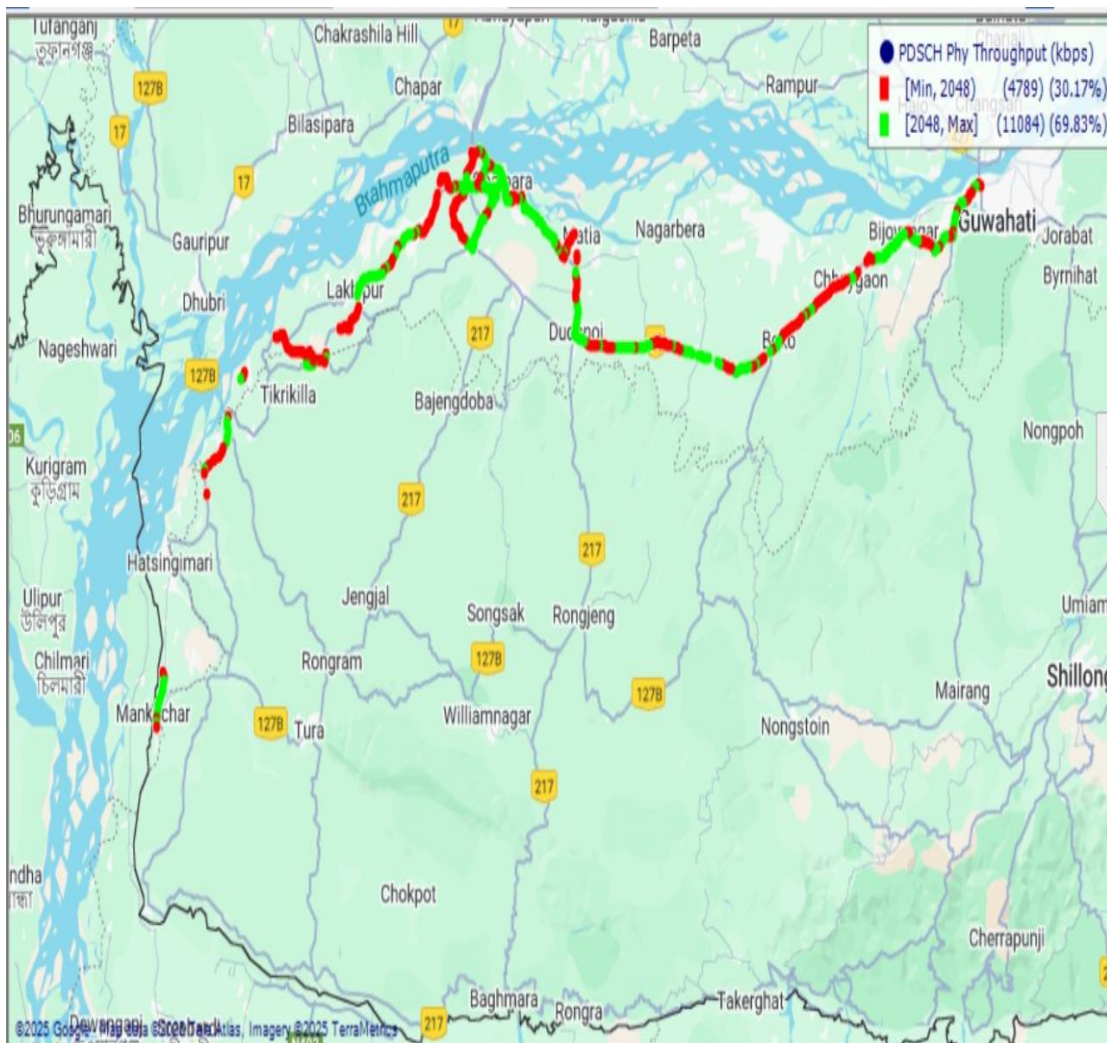
AVG. DOWNLOAD SPEED (Mbps)	19.99
DL throughput	Sample %
0 to 1 Mbps	4.09
1 to 2 Mbps	1.87
2 to 5 Mbps	3.41
5 to 10 Mbps	1.44
> 10 Mbps	89.19
Total	100

RJIO

Dynamic Data Testing Complete 330 Kms

Data KPIs - Overall	4G
Average Download Throughput (Mbps)	16.7

4G

2< =X Mbps (79.7% 48194)

X< 2 Mbps (20.3% 12255)
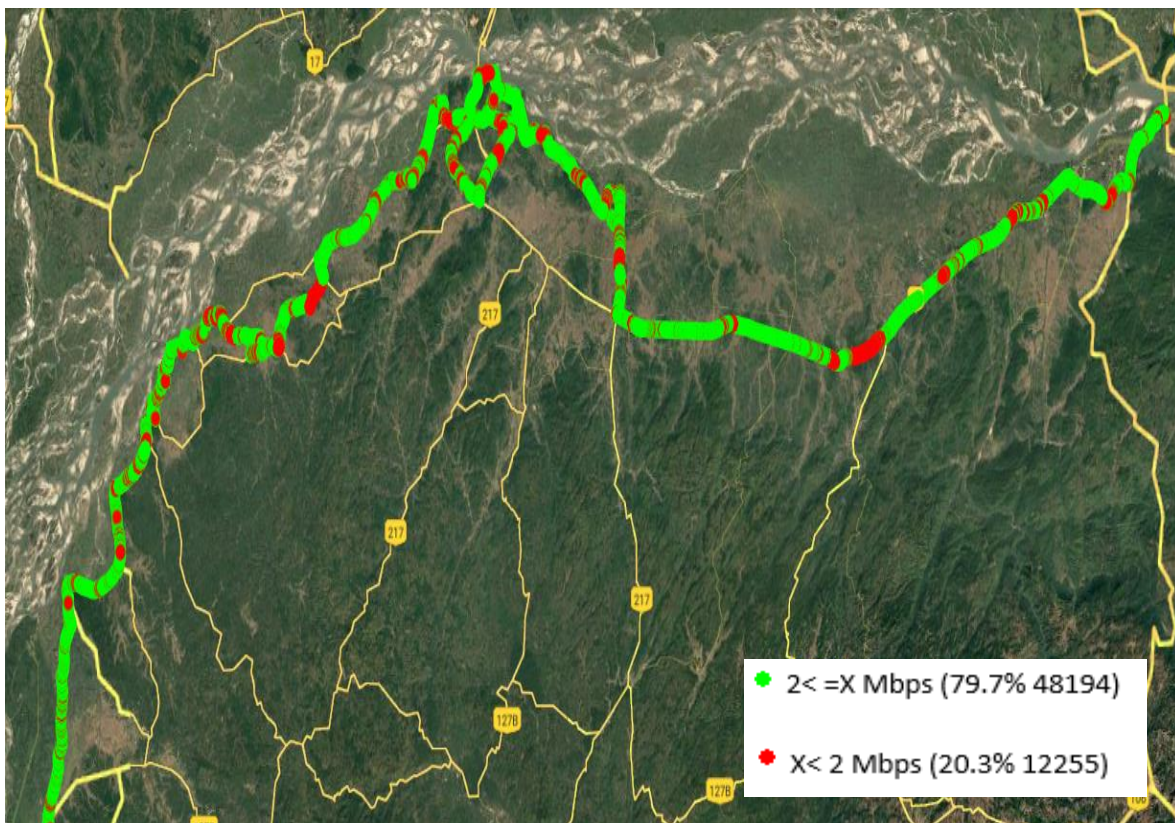
AVG. DOWNLOAD SPEED (Mbps)	16.7
DL throughput	**Sample %**
0 to <2 Mbps	31.80
2 to <10 Mbps	24.10
10 to <=30 Mbps	25.50
>30 Mbps	18.60
Total	**100**

RJIO

Dynamic Data Testing Complete 330 Kms

Data KPIs – Overall	5G
Average Download Throughput (Mbps)	258.3

5G

Legend:
- 2< =X Mbps (79.7% 48194)
- X< 2 Mbps (20.3% 12255)
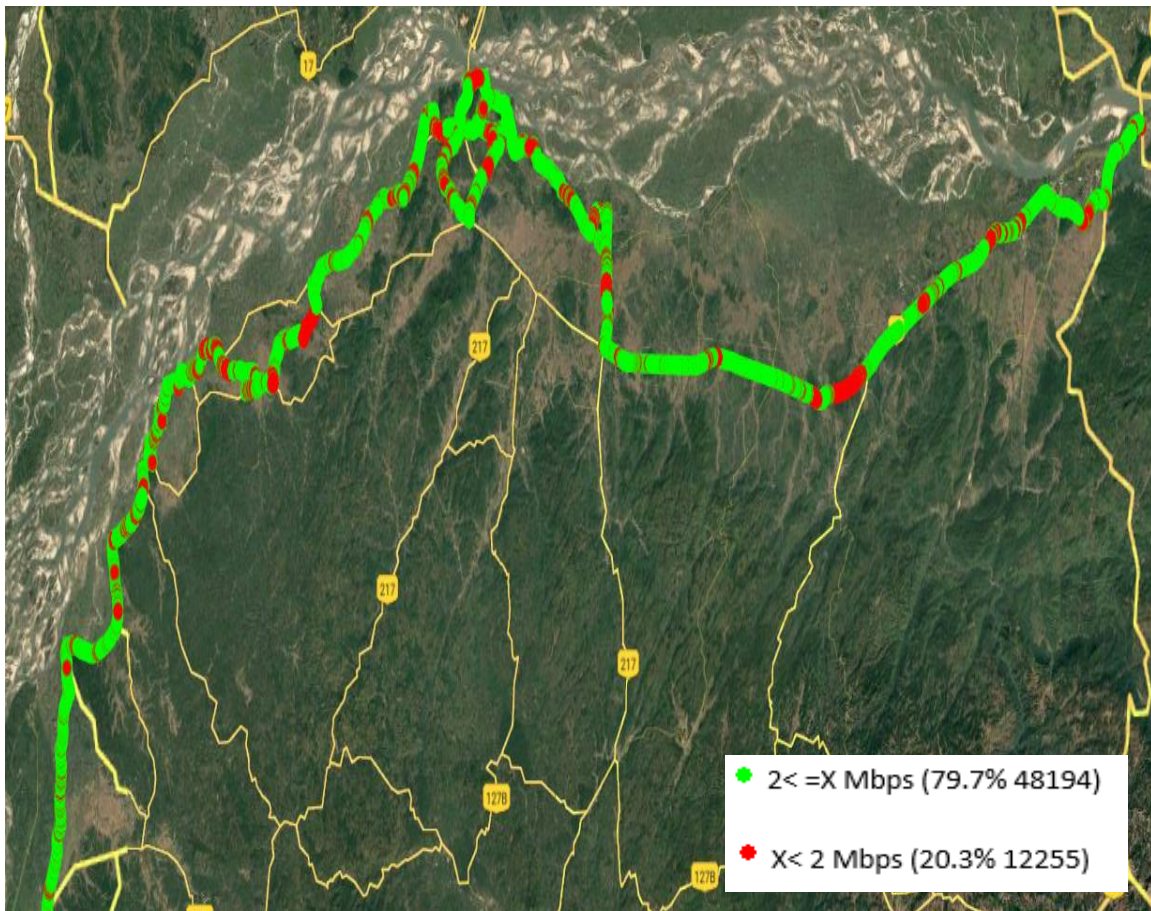
AVG. DOWNLOAD SPEED (Kbps)	258.3
DL throughput	Sample %
0 to <2 Mbps	17.00
2 to <10 Mbps	11.70
10 to <50 Mbps	14.20
> 50 Mbps	57.10
Total	**100**

VIL

Dynamic Data Testing Complete 330 Kms

Data KPIs – Overall	4G
Average Download Throughput (Mbps)	26.24

4G
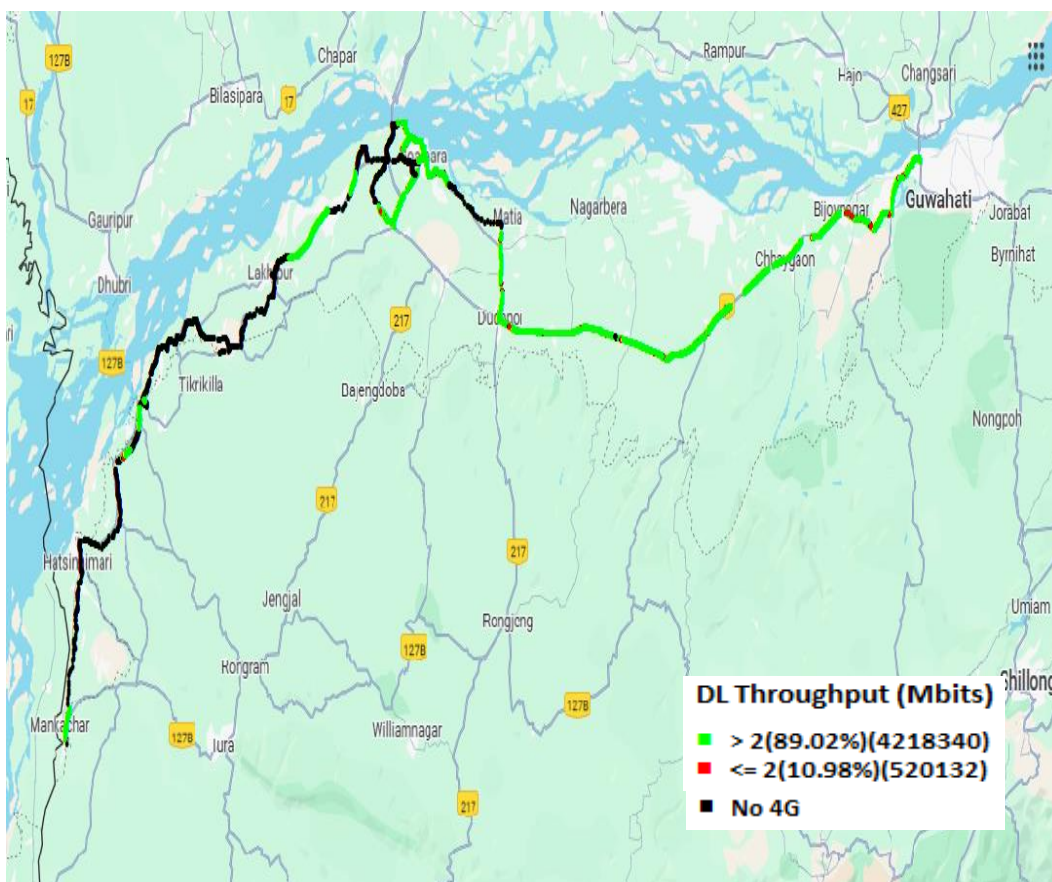
AVG. DOWNLOAD SPEED (Mbps)	26.24
DL throughput	Sample %
0 to <2 Mbps	8.62
2 to <10 Mbps	22.14
10 to <=30 Mbps	41.28
>30 Mbps	27.96
Total	100