



TELECOM REGULATORY AUTHORITY OF INDIA

Operator Assisted Drive Test Report

Jalore city (Rajasthan LSA)

March 2026

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1. Introduction

TRAI Act, 1997 mandates the Authority to ensure the services delivered through various telecommunications networks meet required quality standards prescribed, to protect the interest of the consumers of telecommunication services. TRAI is also 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.

Accordingly, TRAI with help of TSPs teams undertake assessment of Quality of Service of mobile service through Operator Assisted Drive Test (OADT).

In OADT, the performance of all service providers providing service in a Licensed Service Area (LSA) through various technologies (like 2G/ 3G/ 4G/ 5G) for voice and data are measured by conducting drive test. The drive test routes are finalised based on various objective criteria like reported network performance, consumer complaints etc.

2. Executive Summary (LSA)

2.1 Drive test details

This report covers the findings of the OADT undertaken in Rajasthan License Service Area (LSA) during the month of March 2026 under the supervision of TRAI Regional Office (RO), Jaipur. Details of route/area covered during the OADT is as given below:

Sl. No	Drive test route	Type of route	Distance covered (KMs)/ Locations	From date	To date
1	Jalore	City	43 KM	23-3-2026	23-3-2026
2	Jalore	Hotspot	03 Locations	25-3-2026	25-3-2026

Table-1: Drive test summary

2.2 Drive test routes



Figure-1: Drive test routes

The map provides overview of drive test routes indicating city drive & hotspots.

2.3 Summary of areas covered

a) **City**- Sayla Chauraha, Geetco, Sire mandir road, Godiji mandir, Badi pol, Tilak Dwar, Panchayat Samiti, Chamunda Garden, FCI Road, Railway Station, Sundhela Talab, Head Post office, Ahore Circle, Govt college, Leta Fatak, Veda Restaurant Ahore Road, Bhinmal Bypass Road, DTO, Industrial Area Bhinmal Road, Giltz cinema, Suraj Pol, Hospital Chauraha, One way Road, Rajendra Nagar, Dawla Road.

b) Hotspot

1. Bus Stand, Jalore
2. Railway Station, Jalore
3. Hospital Choraha , Jalore

2.4 Telecom service providers detected frequency bands

Technologies covered during the OADT and frequency bands in use are summarised in below table.

S.No.	Name of TSP	Technology	Frequency Bands (In MHz)
1	Bharti Airtel Ltd.	2G	900
2	Bharti Airtel Ltd.	4G	1800,2100,2300
3	Bharti Airtel Ltd.	5G	3500
4	BSNL	2G	900
5	BSNL	3G	2100
6	BSNL	4G	700,850,2500
7	Reliance JIO Infocomm Ltd.	4G	850,1800,2300
8	Reliance JIO Infocomm Ltd.	5G	700,3500
9	Vodafone Idea Ltd.	2G	900
10	Vodafone Idea Ltd.	4G	900,1800.2100.2500

Table 2: Telecom service provider (TSP) covered in OADT.

Detailed QoS Performance Analysis

3. Detailed QoS performance analysis

3.1 Overview

This section covers analysis on performance of various categories of drives like city, hotspots and walk test for all telecom service providers, the results of drive tests conducted are shown individually for respective areas/locations.

3.2 City

Drive test has been conducted on 23rd March 2026 in Jalore. (refer table-1)

3.2.1 Drive test route



Figure- 2: Drive test routes.

3.2.2 Areas covered

Sayla Chauraha, Geetco, Sire mandir road, Godiji mandir, Badi pol, Tilak Dwar, Panchayat Samiti, Chamunda Garden, FCI Road, Railway Station, Sundhela Talab, Head Post office, Ahore Circle, Govt college, Leta Fatak, Veda Restaurant Ahore Road, Bhinmal Bypass Road, DTO, Industrial Area Bhinmal Road, Giltz cinema, Suraj Pol, Hospital Chauraha, One way Road, Rajendra Nagar, Dawla Road.

3.2.3 Voice performance

(a) Voice Call Performance in 3G/2G network mode only: 3G/2G network mode testing has been done to reflect experience for respective users as they have only 3G/2G compatible handsets.

Parameters	Service Provider		
	3G/2G network mode only		
	AIRTEL	BSNL	VIL
Call Attempts	83	122	73
Call Setup Success Rate %	98.11	100.00	100.00
Drop Call Rate %	0.00	0.00	0.00
Call Setup Time-Average (Second)	3.11	3.91	3.44
Handover Success Rate %	99.40	100.00	100.00

Table-3: Summary of voice call performance in 3G/2G network mode only.

(b) Technology wise Unique cell id's covered in voice test: This section represents technology wise Number of unique cell id's covered in Voice test.

Number of unique cell id's covered in Voice test- Technology wise			
Technology	Service Provider		
	3G/2G network mode only		
	AIRTEL	BSNL	VIL
3G	NA	16	NA
2G	43	27	33

Table-4: Technology wise number of network cell id's latched during drive test.

Note-

- RJIL does not have 3G/2G network.
- NA- Service provider doesn't provide services in respective technology.

(c) Voice Call Performance in auto network selection mode (5G/4G/3G/2G)

Parameters	Service Provider			
	Auto-selection mode (5G/4G/3G/2G)			
	AIRTEL	BSNL	RJIL	VIL
Call Attempts	84	206	86	77
Call Setup Success Rate %	100.00	98.55	100.00	100.00
Drop Call Rate %	0.00	0.00	0.00	0.00
Call Setup Time Average (Second)	1.93	5.10	0.68	1.52
Handover Success Rate %	100.00	100.00	99.74	100.00

Table-5: Summary of voice call performance in network auto-selection mode.

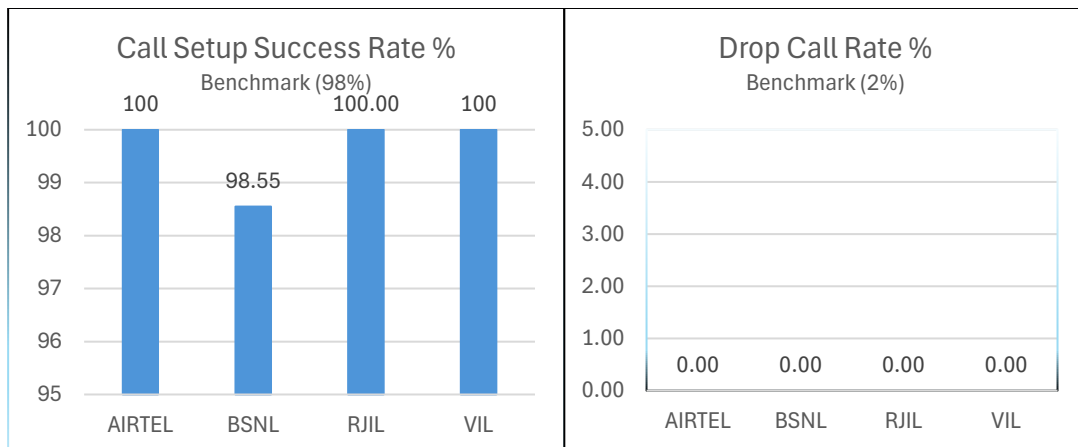


Figure-3: Performance for call setup success rate and call drop rate.

Parameter	Service Provider			
	Mobile-to-Mobile (5G/4G - Open Mode)			
	AIRTEL	BSNL	RJIL	VIL
Call Established (within service provider Network)	84	*	81	100
Silence Call Rate %	1.43	*	0.00	0.00
Number of silence instances for >2 sec	1	*	3	0
Packet loss Rate Downlink %	0.77	*	2.94	0.34
Packet loss Rate Uplink %	0.75	*	2.46	0.27

Table-6: Summary of silence instances & packet loss rate for mobile to mobile call.

*The BSNL drive test tool kit does not provide silence call rate/instances, packet loss rate, or downlink and uplink data.

(e) Mean Opinion Score (MOS) performance for speech quality:

Mean opinion score indicate quality of speech observed during the drive test across different technologies. This parameter has been calculated for mobile to mobile calls made within same operator network in auto mode (5G/4G). As per ITU-T Recommendation P.863.1, MOS score values means: 5-Excellent, 4-Good, 3-Fair, 2-Poor, 1-Bad.

Speech Quality (MOS) distribution	Service Provider			
	AIRTEL	BSNL	RJIL	VIL
Total Number of MOS Samples for calls in table-6	257	*	413	490
Speech Quality (Average MOS Score)	4.08	*	4.23	4.09

Table-7: Summary of speech quality (MOS) samples.

*The BSNL drive test tool kit does not provide silence call rate/instances, packet loss rate, or downlink and uplink data.

(f) Technology wise Unique cell id's covered in voice test: This section represents technology wise Number of unique cell id's covered in Voice test.

Number of unique cell id's covered in Voice test- Technology wise				
Technology	Service Provider			
	Auto-selection mode (5G/4G/3G/2G)			
	AIRTEL	BSNL	RJIL	VIL
5G	0	NA	41	NA
4G	63	26	28	37
3G	0	16	NA	NA
2G	43	27	NA	0

Table-8: Technology wise number of network cell id's latched during drive test.

NA- Service provider doesn't provide services on respective technology.

3.2.4 Data performance

(a) Data Parameters (Auto-selection mode- 5G/4G/3G/2G)

Parameters		Service Provider			
		Auto-selection mode (5G/4G/3G/2G)			
		AIRTEL	BSNL	RJIL	VIL
Download Throughput (Mbits/s)	Average	159.40	22.83	306.92	27.31
	80th Percentile	206.75	18.10	424.45	42.47
	20th Percentile	102.24	15.05	182.97	10.61
Upload Throughput (Mbits/s)	Average	39.95	2.15	53.09	19.81
	80th Percentile	57.33	1.85	67.16	26.41
	20th Percentile	19.65	2.08	30.05	12.80
Latency (ms)	50th Percentile	12.50	35	25.5	28.5

Table-9: Summary of Data performance in network auto-selection mod

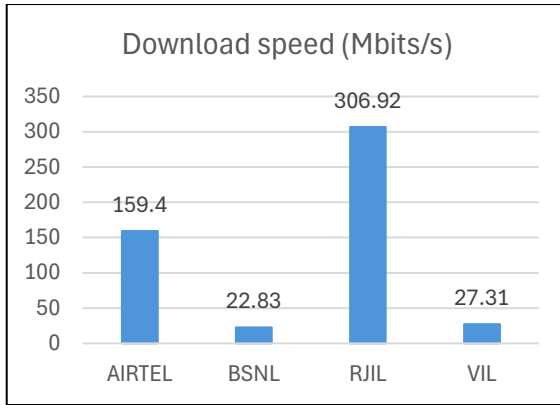


Figure- 4: Download throughput.

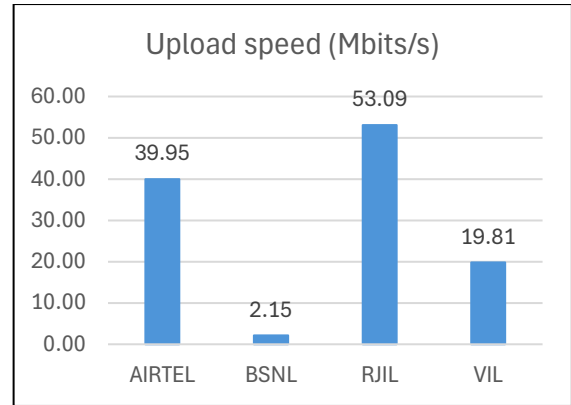


Figure- 5: Upload throughput

(b) Technology wise Unique cell id's covered in data test: This section represents technology wise Number of unique cell id's covered in Voice test.

Number of unique cell id's covered in Data test- Technology wise				
Technology	Service Provider			
	Auto-selection mode (5G/4G/3G/2G)			
	AIRTEL	BSNL	RJIL	VIL
5G	0	NA	44	NA
4G	63	32	0	37
3G	NA	16	NA	NA
2G	0	NA	NA	0

Table-10: Technology wise number of network cell id's latched during drive test.

NA- Service provider doesn't provide services in respective technology.

3.3 Hotspots

Hotspot testing has been done on 24th March 2026. Two locations have been tested in the city.

3.3.1 Locations



Figure- 6: Hotspot locations

3.3.2 Hotspot covered

1. Bus stand, Jalore
2. Railway Station, Jalore
3. Hospital Choraha, Jalore

3.3.3 Voice performance

Overall Voice Performance				
Parameters	Service Provider			
	Auto-selection mode (5G/4G/3G/2G)			
	AIRTEL	BSNL	RJIL	VIL
Call Attempt	30	30	30	30
Call Setup Success Rate %	100.00	100.00	100.00	100.00
Drop Call Rate %	0.00	0.00	0.00	0.00
Call Setup Time-Average (Sec)	1.75	1.82	0.62	1.47

Table-11: Overall summary of voice call performance in network auto-selection mode 5G/4G/3G/2G

Voice Performance-Bus Stand , Jalore				
Parameters	Service Provider			
	Auto-selection mode (5G/4G/3G/2G)			
	AIRTEL	BSNL	RJIL	VIL
Call Attempt	10	10	10	10
Call Setup Success Rate %	100.00	100.00	100.00	100.00
Drop Call Rate %	0.00	0.00	0.00	0.00
Call Setup Time-Average (Sec)	1.81	1.96	0.56	1.54

Table-12: Summary of voice call performance in network auto-selection mode 5G/4G/3G/2G

Voice Performanc- Railway Station , Jalore				
Parameters	Service Provider			
	Auto-selection mode (5G/4G/3G/2G)			
	AIRTEL	BSNL	RJIL	VIL
Call Attempt	10	10	10	10
Call Setup Success Rate %	100.00	100.00	100.00	100.00
Drop Call Rate %	0.00	0.00	0.00	0.00
Call Setup Time-Average (Sec)	1.83	1.75	0.68	1.23

Table-13: Summary of voice call performance in network auto-selection mode 5G/4G/3G/2G).

Voice Performanc- Hospital Choraha , Jalore				
Parameters	Service Provider			
	Auto-selection mode (5G/4G/3G/2G)			
	AIRTEL	BSNL	RJIL	VIL
Call Attempt	10	10	10	10
Call Setup Success Rate %	100.00	100.00	100.00	100.00
Drop Call Rate %	0.00	0.00	0.00	0.00
Call Setup Time-Average (Sec)	1.62	1.77	0.63	1.63

Table-14: Summary of voice call performance in network auto-selection mode 5G/4G/3G/2G).

3.3.4 Data performance (Auto-selection mode 5G/4G/3G/2G)

Overall Data Performance				
Parameters	Service Provider			
	Auto-selection mode (5G/4G/3G/2G)			
	AIRTEL	BSNL	RJIL	VIL
Download Throughput Average (Mbits/s)	116.88	22.83	405.40	37.57
Download Throughput 80th Percentile (Mbit/s)	138.59	18.10	491.26	46.00
Download Throughput 20th Percentile (Mbit/s)	59.3	15.05	294.80	28.95
Download Session Setup Success Rate %	100.00	100.00	100.00	100.00
Upload Throughput Average (Mbits/s)	30.80	2.15	158.38	23.53
Upload Throughput 80th Percentile (Mbit/s)	33.64	1.85	186.54	16.99
Upload Throughput 20th Percentile (Mbit/s)	31.53	2.08	134.96	9.60
Upload Session Setup Success Rate %	100.00	100	100.00	100.00
Web Browsing Delay (Second)	5.38	38.00	3.11	1.76
Youtube Initial Buffer Delay (Second)	1.32	2.4	0.51	0.85
Latency (ms)-50th Percentile	17.67	82	19.00	46.33
Jitter (ms)	4.16	10.91	5.69	5.04
Packet Loss Rate%	0.00	0.00	0.13	0.00
Packet Loss Rate- 90th percentile	0.00	0.00	0.26	0.00

Table-15: Overall Summary of Data performance in network auto-selection mode (5G/4G/3G/2G).

Data Performance-Bus Stand , Jalore				
Parameters	Service Provider			
	Auto-selection mode (5G/4G/3G/2G)			
	AIRTEL	BSNL	RJIL	VIL
Download Throughput Average (Mbits/s)	141.81	26.84	458.85	36.59
Download Session Setup Success Rate %	100.00	100.00	100.00	100.00
Upload Throughput Average (Mbits/s)	66.11	6.81	139.23	18.46
Upload Session Setup Success Rate %	100.00	80.00	100.00	100.00
Web Browsing Delay (Second)	5.68	1.92	3.07	0.92
Youtube Initial Buffer Delay (Second)	0.74	1.24	0.66	0.71
Latency (ms)-50th Percentile	14.00	38.00	21.00	46.00
Jitter (ms)	2.56	11.00	6.33	3.73
Packet Loss Rate%	0.00	0.00	0.30	0.00

Table-16: Summary of Data performance in network auto-selection mode (5G/4G/3G/2G)

Data Performance-Railway Station , Jalore				
Parameters	Service Provider			
	Auto-selection mode (5G/4G/3G/2G)			
	AIRTEL	BSNL	RJIL	VIL
Download Throughput Average (Mbits/s)	61.38	19.39	285.22	52.28
Download Session Setup Success Rate %	100.00	60.00	100.00	100.00
Upload Throughput Average (Mbits/s)	11.67	3.73	193.99	6.14
Upload Session Setup Success Rate %	100.00	80.00	100.00	100.00
Web Browsing Delay (Second)	5.20	1.88	3.10	1.21
Youtube Initial Buffer Delay (Second)	1.14	1.04	0.38	0.74
Latency (ms)-50th Percentile	24.00	40.00	18.50	47.00
Jitter (ms)	3.83	15.00	5.27	5.65
Packet Loss Rate%	0.00	0.00	0.00	0.00

Table-17: Summary of Data performance in network auto-selection mode (5G/4G/3G/2G)

Data Performance-Hospital Choraha , Jalore				
Parameters	Service Provider			
	Auto-selection mode (5G/4G/3G/2G)			
	AIRTEL	BSNL	RJIL	VIL
Download Throughput Average (Mbits/s)	147.45	26.85	472.13	23.85
Download Session Setup Success Rate %	100.00	60.00	100.00	100.00
Upload Throughput Average (Mbits/s)	14.64	5.55	141.92	14.79
Upload Session Setup Success Rate %	100.00	80.00	100.00	100.00
Web Browsing Delay (Second)	5.27	2.51	3.15	0.39
Youtube Initial Buffer Delay (Second)	2.09	1.91	0.48	0.90
Latency (ms)-50th Percentile	15.00	38.00	17.50	46.00
Jitter (ms)	6.09	10.00	5.46	5.75
Packet Loss Rate%	0.00	0.00	0.1	0.00

Table-18: Summary of Data performance in network auto-selection mode (5G/4G/3G/2G)

4. TSP wise signal strength(Jalore City):

4.1 AIRTEL

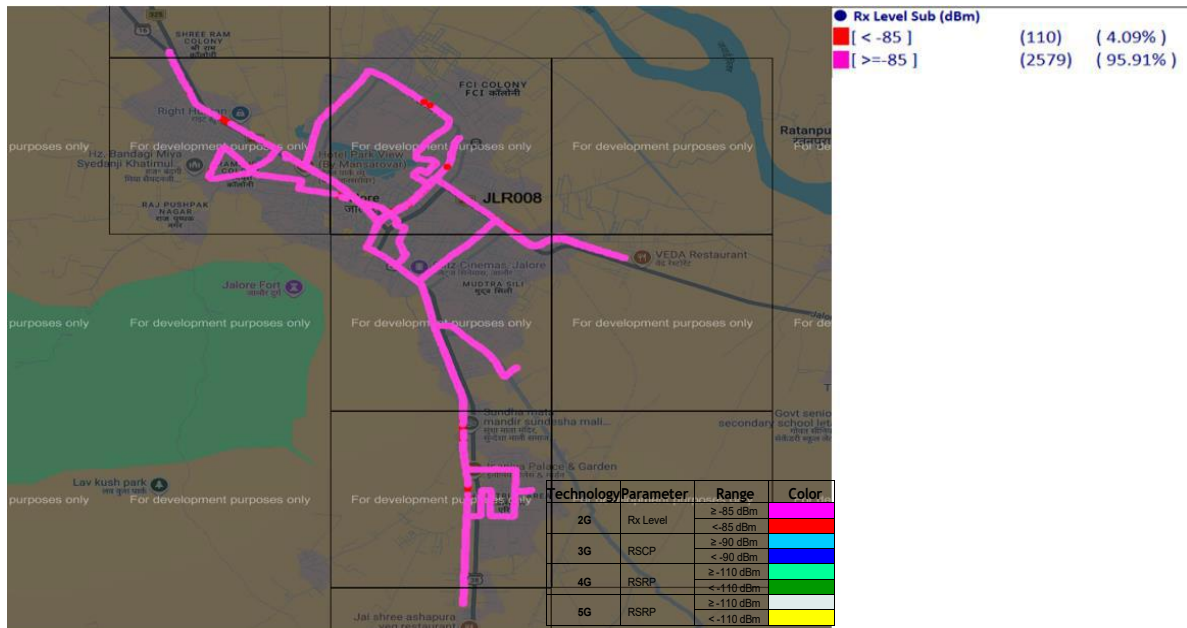


Figure-7: Signal strength 3G/2G network mode –AI

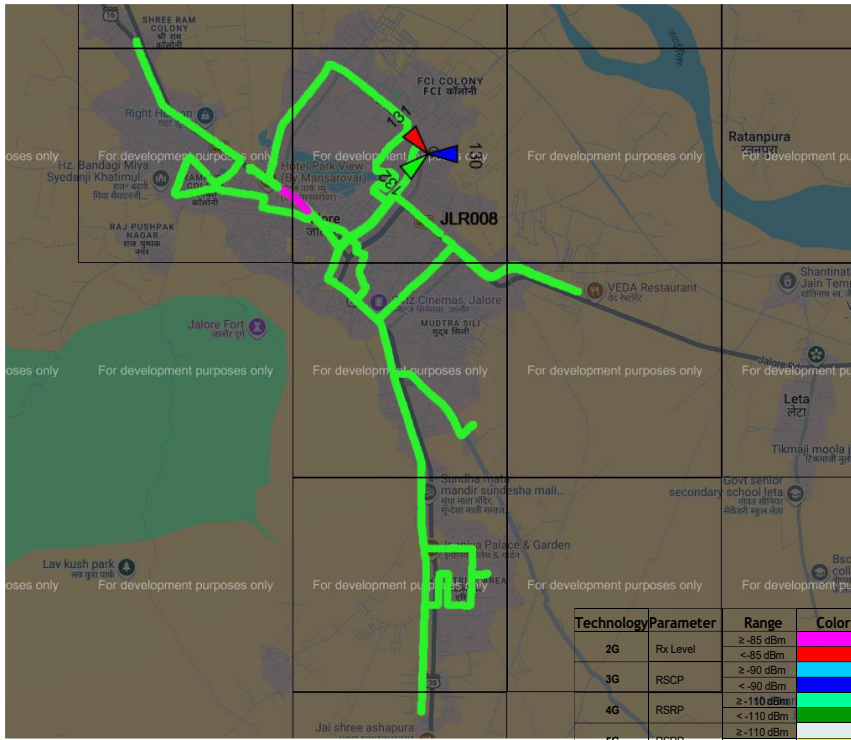


Figure-8: Signal strength auto-selection mode 5G/4G/3G/2G – AIRTEL

4.2 BSNL

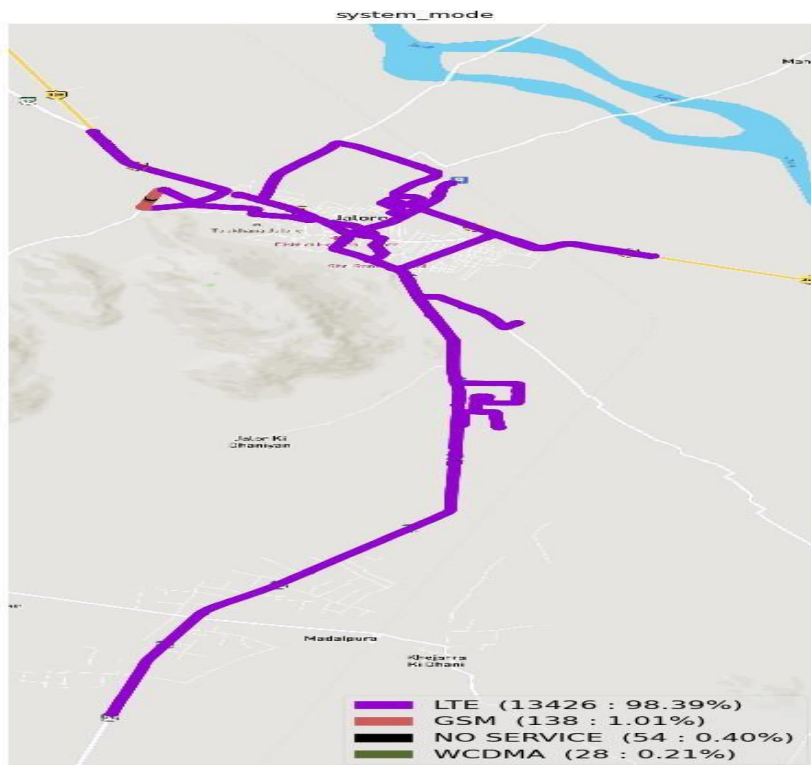


Figure-9: Signal strength 3G/2G network mode – BSNL

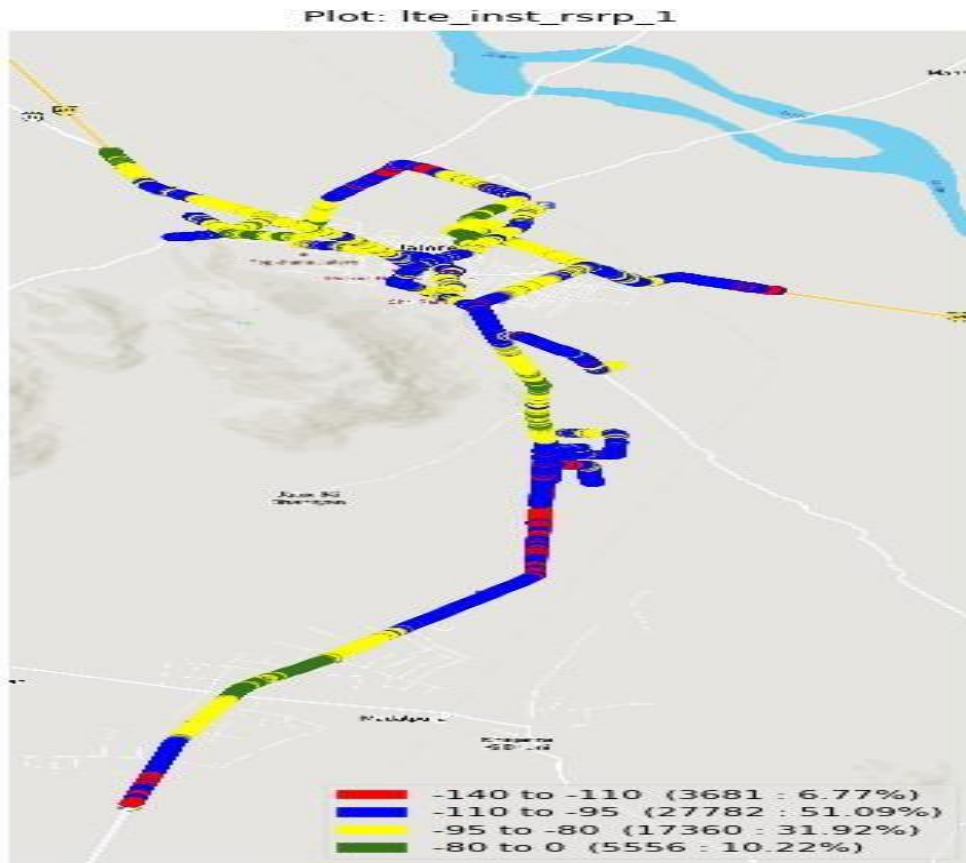


Figure-10: Signal strength auto-selection mode 5G/4G/3G/2G – BSNL

4.3 RJIL

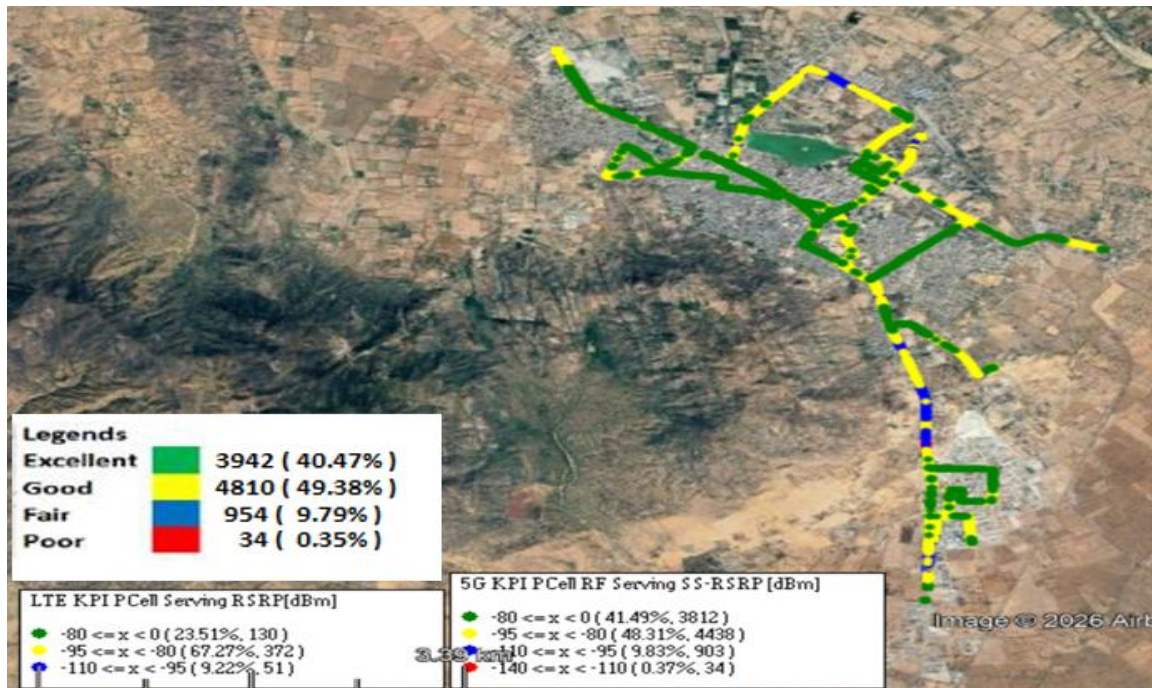


Figure-11: Signal strength auto-selection mode 5G/4G/3G/2G – RJIL.

4.4 VIL

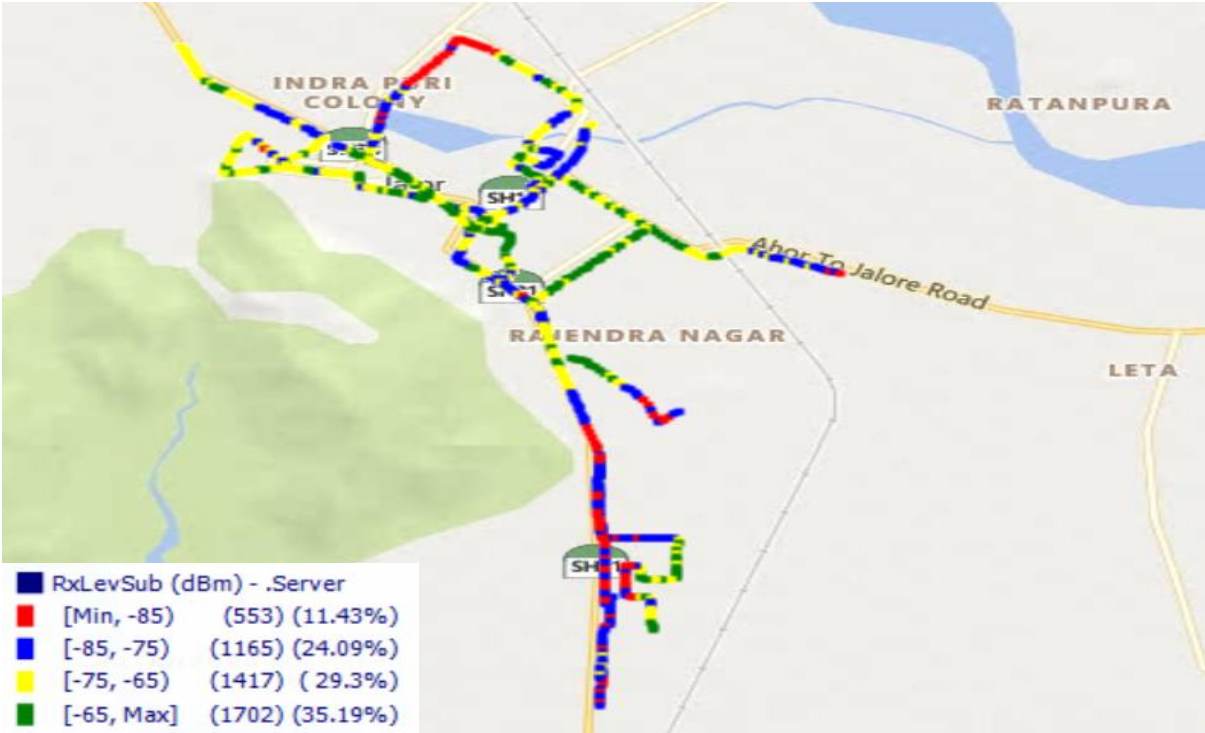


Figure-12: Signal strength 3G/2G network mode -VIL

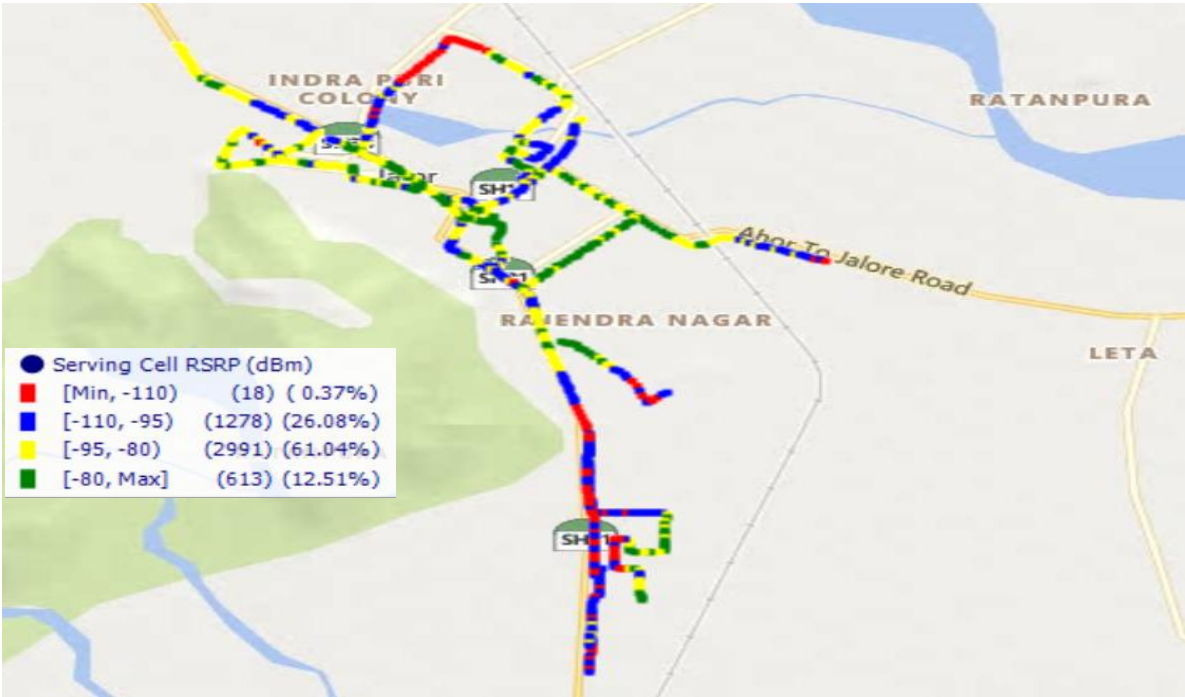


Figure-13: Signal strength auto-selection mode 5G/4G/3G/2G - VIL

5. Conclusion:

The operator wise comparative Analysis of various key parameters is given in table below:

Parameters	Service Provider			
	Auto-selection mode (5G/4G/3G/2G)			
	AIRTEL	BSNL	RJIL	VIL
Call Setup Success Rate %	100.00	98.55	100.00	100.00
Drop Call Rate %	0.00	0.00	0.00	0.00
Call Setup Time Average (Second)	1.93	5.55	0.68	1.52
Silence Call Rate %	0.00	*	0.00	0.00
Average MOS score	4.08	*	4.23	4.09
Download Throughput (Declared)	18.14	5.0	15.0	15.0
Download Throughput (Average)	159.40	22.83	306.92	27.31
Upload Throughput (Declared)	9.26	3.0	7.0	8.0
Upload Throughput (Average)	39.95	2.15	53.09	19.81
Latency in m sec (50 th percentile)	12.50	82	25.5	28.5

Table:19: Operator wise comparative analysis of QoS parameters

*The BSNL drive test tool kit does not provide silence call rate/instances, packet loss rate, or downlink and uplink data

BSNL :

Average Upload Throughput (2.15 Mbps) of BSNL is less than the declared upload throughput for the month of Feb. 2026.

BSNL Reply: Matter taken up with M/s TCS team for further rectification for low Average upload throughput.

Latency in m sec (50th percentile) of BSNL is higher than 75 ms (as prescribed in regulation)

BSNL Reply: Matter taken up with M/s TCS team for further rectification for low Average upload throughput.