



TELECOM REGULATORY AUTHORITY OF INDIA

*Operator Assisted Drive Test Report
Sawarga, Sulambar Cities
Dunagarapur to Sagwara Highway (NH-927A)
(Rajasthan LSA)
May 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

2.1 Drive test details

This report covers the findings of the OADT undertaken in Rajasthan License Service Area (LSA) during the month of May 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	Duration of drive test
1	Sagwarga	City	21 km	21.05.2026	21.05.2026	9AM TO 1PM 5PM TO 8PM
2	Sagwarga	Hotspot	1 location	21.05.2026	21.05.2026	9AM TO 1PM 5PM TO 8PM
3	Salumbar	City	20 Km	22.05.2026	22.05.2026	9AM TO 1PM 5PM TO 8PM
4	Salumbar	Hotspot	02 Location	22.05.2026	22.05.2026	9AM TO 1PM 5PM TO 8PM
5	Dungarpur to Sagwara	Highway	50 Km	21.05.2026	21.05.2026	9AM TO 1PM 5PM TO 8PM

Table-1: Drive test summary

2.2 Drive test routes

a) Sagwara City

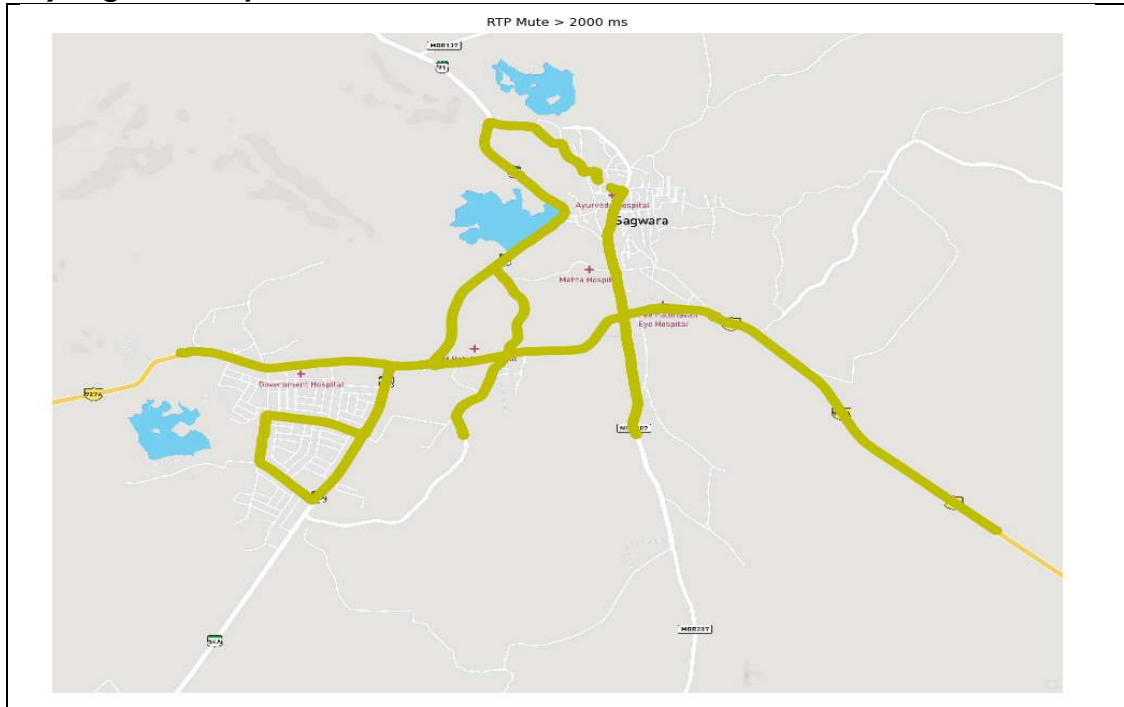


Figure-1: Drive test route- Sagwara city

b) Sulambar City

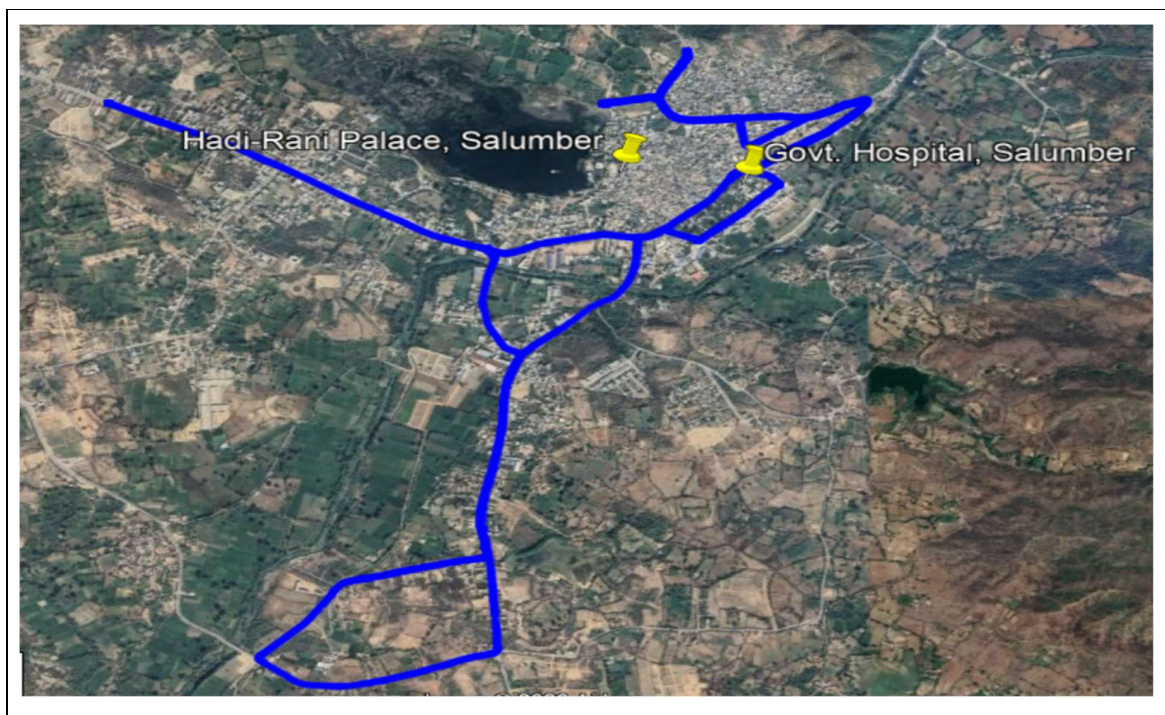


Figure-2: Drive test route- Silambar Cit

C) Dungaepur to Sagwara Highway



Figure-3: Drive test route- Dungaepur to Sagwara Highway

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

2.3 Summary of areas covered:

a) Sagwara City: Bus Stand-Galiyakot road-Mavita area-Sagwara lake area-Sagwara -Dungarpur road

b) Sulambar City: RTO Road, BSNL Exchange Road, Dal Chouraha, Old Bypass, Chungi Naka, Main Market, Govt. Guest House, Bus Stand, Govt. Hospital, Suraj Pol, Palace Road, Khatik Mohlla, Isarwas Road, Gangour Ghat, Open Gym Park, Banswara-Udaipur Road, Salumber Bypass.

c) Dungaepur to Sagwara Highway:

d) Hotspot-

Sawarga city:

1. Govt. Bus Stand Sawarga

Sulambar City:

1. Hadi Rani Palce Salumber
2. Govt. Hospital Salumber

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	1800
2	Bharti Airtel Ltd.	4G	900,1800,2100,2300
3	Bharti Airtel Ltd.	5G	3400
4	BSNL	2G	900
5	BSNL	3G	NA
6	BSNL	4G	700, 2100
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	L800,L900,L2100,L2500

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

2.5 Use of TRAI MY Speed App:

The TRAI My Speed App is a mobile application also used during the Drive test to measure and monitor the quality of mobile broadband services experienced by users at random static/hotspot locations in Sawarga, Sulambar City & Dungarpur to Sawarga Highway. It helps both consumers and TRAI assess the actual performance of telecom network of TSPs.

The actual results are summarized below and the screenshots of corresponding tests is attached at Annexure-I:

AIRTEL

Sr No	Hotspot Location	City	QoS parameter recorded at Hotspot location						Tech.
			Coverage	DL Speed	UL Speed	Latency	Jitter	Packet Loss	
1	Govt Bus Stand	Sagwara	-74	88.01	14.62	43.00	3.65	0.00	4G
2	Hada Rani Palace	Sulambar	-76	104.9	16.03	43.00	3.84	0.00	4G
3	Civil Hospital	Sulambar	-83	207.8	13.23	39.00	3.51	0.00	5G

BSNL

Sr No	Hotspot Location	City	QoS parameter recorded at Hotspot location						Tech.
			Coverage	DL Speed	UL Speed	Latency	Jitter	Packet Loss	
1	Govt Bus Stand	Sagwara	-87	18.24	11.51	53.00	5.11	0.00	4G
2	Hada Rani Palace	Sulambar		17.72	2.13	60.00	6.17	2.50	
3	Civil Hospital	Sulambar		17.72	2.13	60.00	2.17	2.50	

RJIL

Sr No	Hotspot Location	City	QoS parameter recorded at Hotspot location						Tech.
			Coverage	DL Speed	UL Speed	Latency	Jitter	Packet Loss	
1	Govt Bus Stand	Sagwara		653.1	96.38	42.71	8.90	0.00	5G
2	Hada Rani Palace	Sulambar	-78	75.22	21.02	77.00	7.20	0.00	4G
3	Civil Hospital	Sulambar	-78	264.7	32.20	39.00	4.50	0.00	5G

VIL

Sr No	Hotspot Location	City	QoS parameter recorded at Hotspot location						Tech.
			Coverage	DL Speed	UL Speed	Latency	Jitter	Packet Loss	
1	Govt Bus Stand	Sagwara	-104	23.71	2.04	84.00	5.63	0.00	4G
2	Hada Rani Palace	Sulambar	-106	14.59	5.04	71.00	5.11	0.00	4G
3	Civil Hospital	Sulambar	-106	14.59	5.04	71.00	5.11	0.00	4G

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 21st May 2026 to 22nd May 2026.
(refer Table-1)

3.2.1 Drive test route

a) Sagwara City

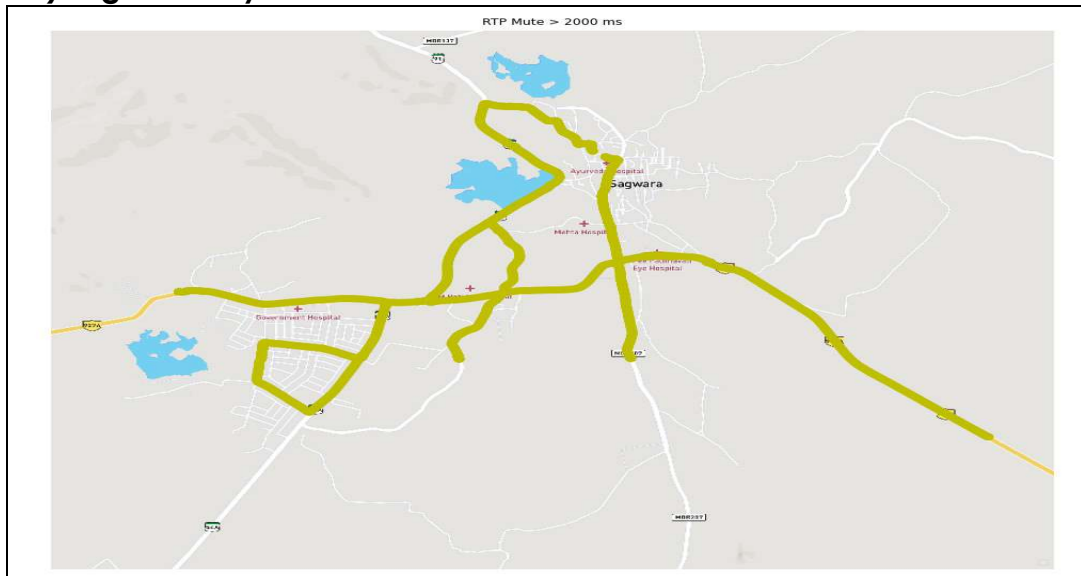


Figure- 4: Drive test routes- Sagwara city

b) Sulambar City



Figure- 5: Drive test routes-Sulambar Cit

C) Dungaepur to Sagwara Highway



Figure- 6: Drive test routes. -Dungarpur to Sagwara Highway

3.2.2 Areas covered

a) Sagwara City: Bus Stand-Galiyakot road-Mavita area-Sagwara lake area-Sagwara -Dungarpur road

b) Sulambar City: RTO Road, BSNL Exchange Road, Dal Chouraha, Old Bypass, Chungi Naka, Main Market, Govt. Guest House, Bus Stand, Govt. Hospital, Suraj Pol, Palace Road, Khatik Mohlla, Isarwas Road, Gangour Ghat, Open Gym Park, Banswara-Udaipur Road, Salumber Bypass.

Sagawara City:-

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	42	54	33
Call Setup Success Rate %	100.00	96.30	100.00
Drop Call Rate %	0.00	1.80	2.9
Call Setup Time-Average (Second)	2.87	4.94	NA
Handover Success Rate %	100.00	100	84

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	12	NA
2G	21	15	12

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	43	26	46	32
Call Setup Success Rate %	100.00	76.92	100	100%
Drop Call Rate %	0.00	7.69	0.00	0.00%
Call Setup Time Average (Second)	1.79	2.5	0.73	1.04
Handover Success Rate %	100.00	100	100.00	100%

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

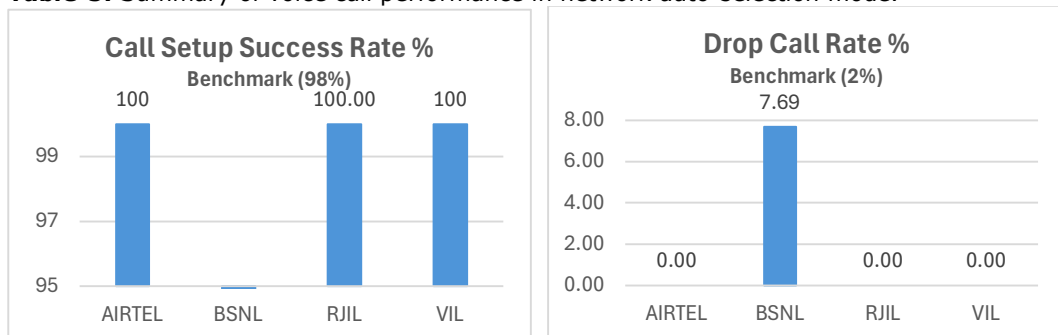


Figure-7: Performance for call setup success rate and Call drop rate.

Parameter	Service Provider Mobile-to-Mobile (5G/4G - Open Mode)			
	AIRTEL	BSNL	RJIL	VIL
Call Established (within service provider Network)	43	NA*	23	100
Call Silence Rate %	0.00	NA*	0.00	0.00
Number of silence instances for >2 sec	0.00	NA*	0.00	0.00
Packet drop Rate Downlink %	0.07	NA*	1.71	0.00
Packet drop Rate Uplink %	0.13	NA*	2.37	0.00

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

***The Call silence rate not captured by BSNL due to unviability of Test Kit.**

(d) 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/3G/2G). 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	251	NA*	190	169
Speech Quality (Average MOS Score)	4.11	NA*	4.30	4.11

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

***MOS Test not performed by BSNL due to Test Kit issue.**

(e) 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	19	NA
4G	37	16	16	12
3G	NA	3	NA	NA
2G	0	2	NA	0

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

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	148.10	19.65	212.87	17.78
	80th Percentile	190.34	23.75	259.37	20.94
	20th Percentile	100.34	15.10	118.33	10.29
Upload Throughput (Mbits/s)	Average	27.58	8.80	59.08	6.48
	80th Percentile	41.79	10.26	91.25	11.54
	20th Percentile	14.92	4.20	30.05	1.73
Latency (ms)	50th Percentile	16.50	54.80	25.0	53.00

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

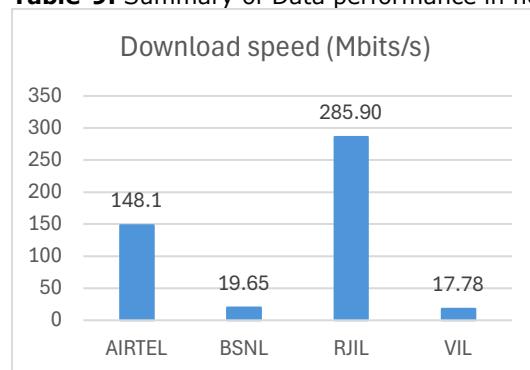


Figure- 8: Download throughput.

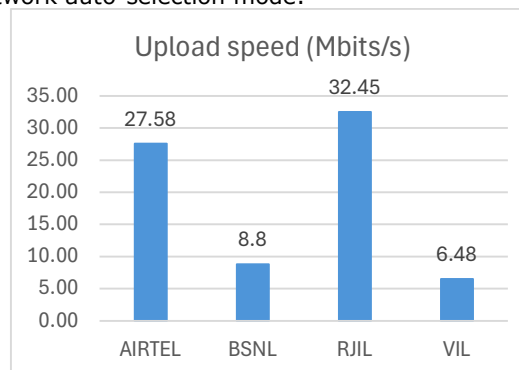


Figure- 9: Upload throughput

(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	25	NA
4G	37	13	2	12
3G	NA	02	NA	NA
2G	0	01	NA	0

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

Sulambar City:-

3.2.5 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	37	19	22
Call Setup Success Rate %	100.00	100.00	10.00
Drop Call Rate %	0.00	0.00	0.00
Call Setup Time-Average (Second)	2.24	3.26	3.16
Handover Success Rate %	100.00	100.00	100.00

Table-11: Summary of voice call performance in 3G/2G network mode only.

(c) 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	NA	NA
2G	21	6	6

Table-12: 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.
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(d) 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	38	22	35	18
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 (Second)	1.95	1.60	0.66	0.98
Handover Success Rate %	100.00	100.00	100.00	100.00

Table-13: Summary of voice call performance in network auto-selection mode.

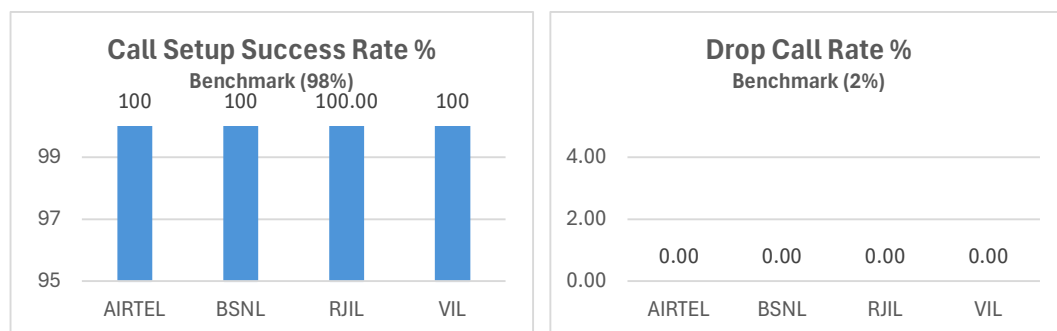


Figure-10: Performance for call setup success rate and Call drop rate.

Parameter	Service Provider			
	Mobile-to-Mobile (5G/4G - Open Mode)			
	AIRTEL	BSNL	RJIL	VIL
Call Established (within service provider Network)	38	NA	27	100
Call Silence Rate %	0.00	NA	0.00	0.00
Number of silence instances for >2 sec	0	NA	1	0
Packet drop Rate Downlink %	0.16	NA	2.48	0.00
Packet drop Rate Uplink %	0.50	NA	2.48	0.00

Table-14: Summary of silence instances & packet loss rate for mobile to mobile call.

***The Call silence rate not captured by BSNL due to Test Kit issue.**

(d) 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/3G/2G). 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	198	NA	135	119
Speech Quality (Average MOS Score)	4.13	NA	4.26	4.06

Table-15: Summary of speech quality (MOS) samples.

***MOS Test not performed by BSNL due to Test Kit issue.**

(e) 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	NA	NA	23	NA
4G	0	6	16	6
3G	46	NA	NA	NA
2G	0	6	NA	0

Table-16: Technology wise number of network cell id's latched during drive test.

3.2.6 Data performance

(b) 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 (Mbps/s)	Average	112.97	24.60	181.53	30.46
	80th Percentile	149.38	26.02	260.76	43.95
	20th Percentile	55.57	14.68	87.64	13.99
Upload Throughput (Mbps/s)	Average	33.99	6.38	25.90	5.19
	80th Percentile	51.91	7.12	36.10	7.73
	20th Percentile	2.50	4.08	11.63	1.71
Latency (ms)	50th Percentile	12.50	45.00	28.00	81.00

Table-17: Summary of Data performance in network auto-selection mode.

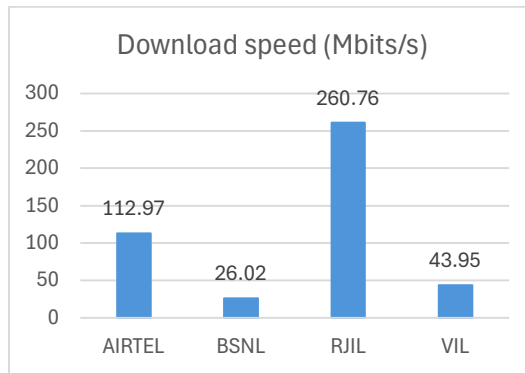


Figure- 11: Download throughput.

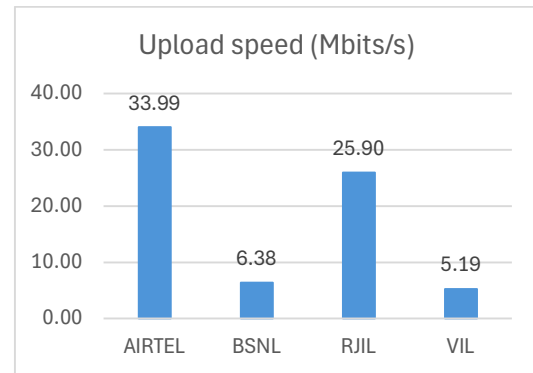


Figure-12: Upload throughput

(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	NA	NA	13	NA
4G	0	06	0	6
3G	46	NA	NA	NA
2G	0	0	NA	0

Table-18: Technology wise number of network cell id's latched during drive test.

3.3 Hotspots

Hotspot testing has been done on 21st & 22nd May 2026. Three locations were tested in the city.

3.3.1 Locations

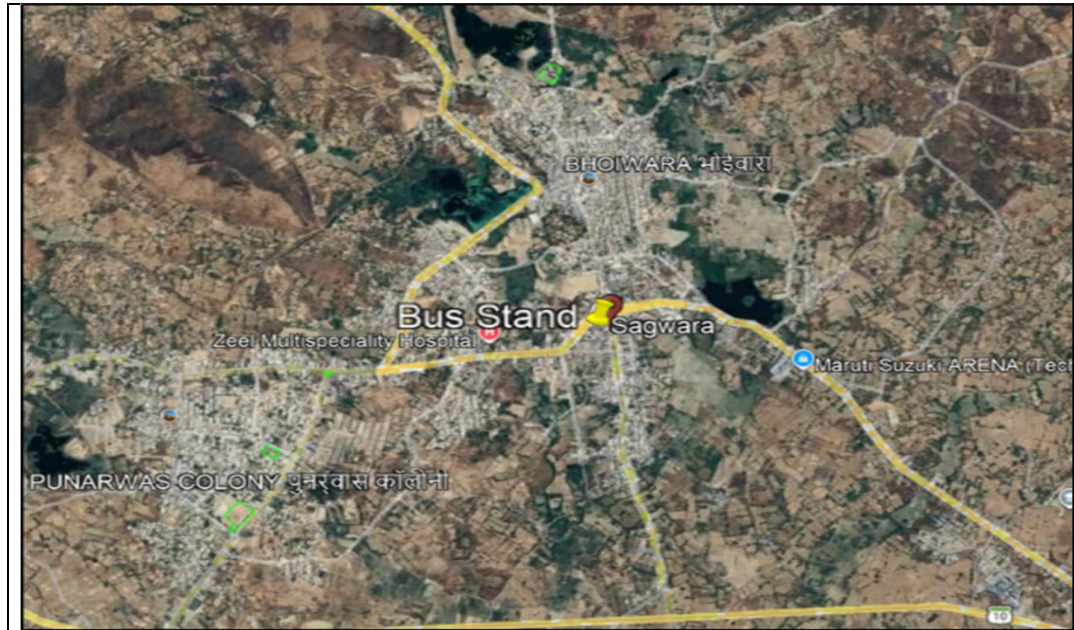


Figure-13: Hotspot locations Sagwara

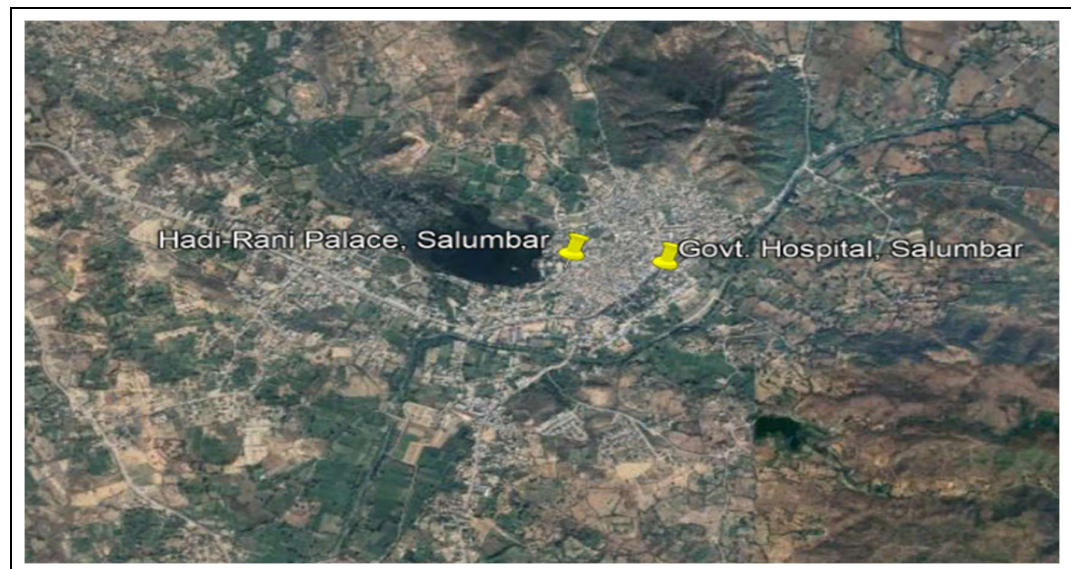


Figure-14: Hotspot Location- Sulambar

3.3.2 Hotspot covered

1. Hadi Rani Palace , Sulambar
2. Govt,. Hospital,Sulamabar
- 3.Govt. Bus Stand, Sawarga

3.3.3 Voice performance

Overall Voice Performance (Sulambar)				
Parameters	Service Provider			
	Auto-selection mode (5G/4G/3G/2G)			
	AIRTEL	BSNL	RJIL	VIL
Call Attempt	20	20	20	20
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)	0.57	1.59	0.62	0.89

Table-19: Overall summary of voice call performance in network auto-selection mode (5G/4G/3G/2G).

Hada Rani Palace, Sulambar				
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
Drop Call Rate %	00.00	0.00	0.00	0.00
Call Setup Time-Average (Sec)	0.56	1.71	0.65	0.81

Table-20: Summary of voice call performance in network auto-selection mode 5G/4G/3G/2G).

Govt. Hospital, Sulambar				
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)	0.57	1.47	0.58	0.91

Table-21: Summary of voice call performance in network auto-selection mode 5G/4G/3G/2G).

Govt Bus Stand Sagwara				
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)	1.74	1.46	0.64	1.04

Table-22: 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 (Sulambar)				
Parameters	Service Provider			
	Auto-selection mode (5G/4G/3G/2G)			
	AIRTEL	BSNL	RJIL	VIL
Download Throughput Average (Mbits/s)	150.55	20.02	213.53	35.12
Download Session Setup Success Rate %	100.00	100.00	100.00	100.00
Upload Throughput Average (Mbits/s)	27.24	4.25	41.50	8.99
Upload Session Setup Success Rate %	100.00	100.00	100.00	100.00
Web Browsing Delay (Second)	2.24	36.50	4.78	1.28
Latency (ms)-50th Percentile	16.00	47.00	20.75	46.00
Jitter (ms)	1.90	5.68	8.08	4.71
Packet Loss Rate%	0.00	0.50	0.40	0.00

Table-23: Overall Summary of Data performance in network auto-selection mode (5G/4G/3G/2G).

Hada Rani Palace, Sulambar				
Parameters	Service Provider			
	Auto-selection mode (5G/4G/3G/2G)			
	AIRTEL	BSNL	RJIL	VIL
Download Throughput Average (Mbits/s)	59.84	21.83	195.32	40.55
Download Session Setup Success Rate %	10.00	100.00	100.00	100.00
Upload Throughput Average (Mbits/s)	19.30	5.22	89.12	12.52
Upload Session Setup Success Rate %	100.00	100.00	100.00	100.00
Web Browsing Delay (Second)	2.83	35.00	4.14	1.20
Latency (ms)-50th Percentile	16.00	47.00	13.50	46.00
Jitter (ms)	1.90	5.56	4.69	5.64
Packet Loss Rate%	0.00	0.00	0.10	0.00

Table-24: Summary of Data performance in network auto-selection mode (5G/4G/3G/2G)

Govt. Hospital, Sulambar				
Parameters	Service Provider			
	Auto-selection mode (5G/4G/3G/2G)			
	AIRTEL	BSNL	RJIL	VIL
Download Throughput Average (Mbits/s)	328.70	18.20	231.74	29.68
Download Session Setup Success Rate %	100.00	100.00	100.00	100.00
Upload Throughput Average (Mbits/s)	44.42	3.28	32.49	5.46
Upload Session Setup Success Rate %	100.00	100.00	100.00	100.00
Web Browsing Delay (Second)	1.65	38.00	5.41	1.36
Latency (ms)-50th Percentile	16.00	47.00	28.00	46.00
Jitter (ms)	0.00	5.79	11.47	3.77
Packet Loss Rate%	0.00	1.00	0.7	0.00

Table-25: Summary of Data performance in network auto-selection mode (5G/4G/3G/2G).

Govt Bus Stand Sagwara				
Parameters	Service Provider			
	Auto-selection mode (5G/4G/3G/2G)			
	AIRTEL	BSNL	RJIL	VIL
Download Throughput Average (Mbits/s)	258.01	12.57	465.23	25.50
Download Session Setup Success Rate %	100.00	100	100.00	100.00
Upload Throughput Average (Mbits/s)	51.18	11.65	179.98	21.33
Upload Session Setup Success Rate %	100.00	100.00	100.00	100.00
Web Browsing Delay (Second)	1.46	11.12	3.55	1.14
Latency (ms)-50th Percentile	14.50	63.00	13.50	49.00
Jitter (ms)	1.49	5.92	6.58	4.19
Packet Loss Rate%	0.00	0.00	0.4	0.00

Table-26: Summary of Data performance in network auto-selection mode (5G/4G/3G/2G)

3.4 Dungarpur to Sulambar Highway NH-927A

3.4.1 Overview

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

3.4.2 Highway

Drive test has been conducted on 21st May 2026 covering one Highway route. (Refer table-1)

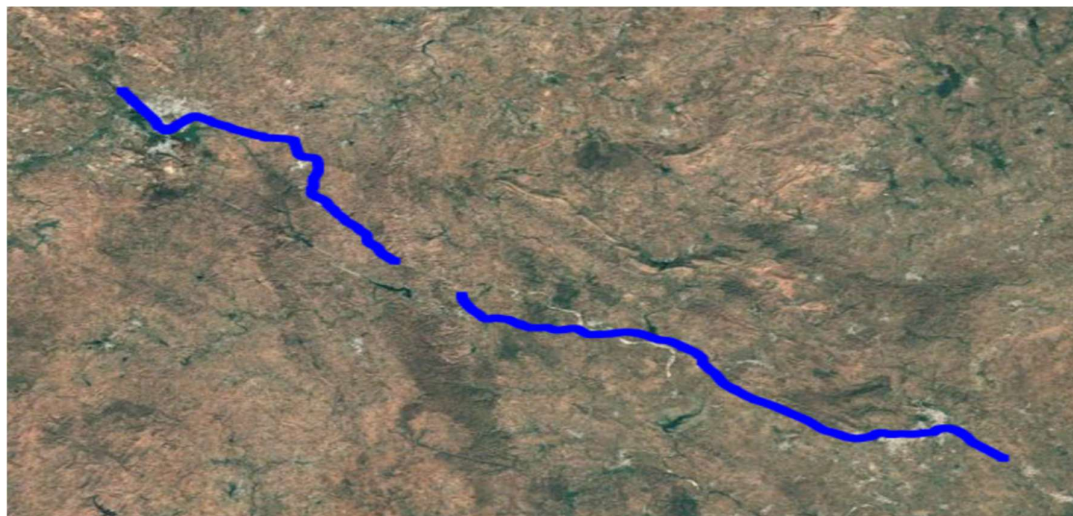


Figure-15: Drive test routes Dungarpur to Sagwara Highway

3.4.3 Routes Covered

Drive test conducted on National highway NH-927A between Dungarpur to Sahwara

3.4.4 Voice performance

(a) Voice Call Performance in 3G/2G network mode only: 3G/2G network mode testing has been done to reflect the 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	26	29	22
Call Setup Success Rate %	100.00	96.55	100.00
Drop Call Rate %	0.00	0.00	0.00
Call Setup Time-Average (Second)	2.08	5.05	3.98
Handover Success Rate %	98.72	100	100.00

Table-27: Summary of voice call performance in 3G/2G network mode only

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	5	NA
2G	46	12	36

Table-28: Technology wise number of network cell id's latched during drive test.

(b) 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	26	19	31	22
Call Setup Success Rate %	100.00	94.73	100	100.00
Drop Call Rate %	0.00	5.26	0.00	0.00
Call Setup Time Average (Second)	1.88	2.44	1.45	1.15
Handover Success Rate %	100.00	100.00	99.37	100.00

Table-29: Summary of voice call performance in network auto-selection mode

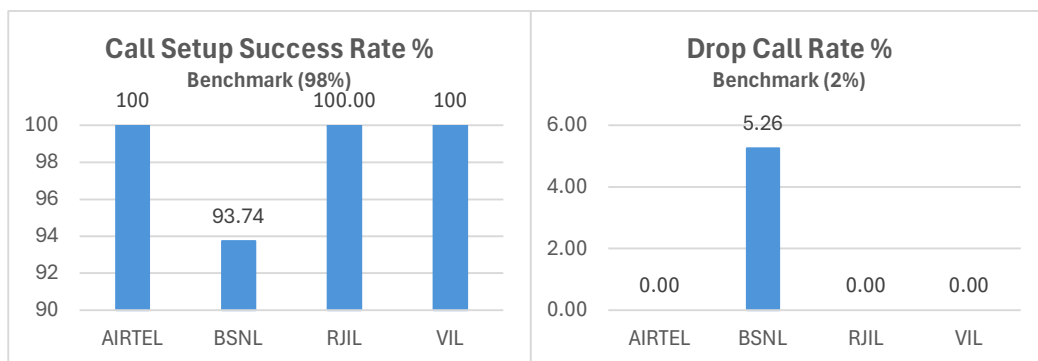


Figure-16: Performance for call setup success rate and call drop rate

Parameter	Service Provider Mobile-to-Mobile (5G/4G - Open Mode)			
	AIRTEL	BSNL	RJIL	VIL
Call Established (within service provider Network)	26	NA*	30	100
Call Silence Rate %	0.00	NA*	0.00	0.00
Number of silence instances for >2 sec	0	NA*	0	0
Packet drop Rate Downlink %	0.85	NA*	2.35	0.00
Packet drop Rate Uplink %	1.61	NA*	2.02	0.00

Table-30: Summary of silence instances & packet loss rate for mobile to mobile call.

***The Call silence rate not captured by BSNL due to Test Kit issue.**

(c) 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/3G/2G). 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	321	NA*	299	259
Speech Quality (Average MOS Score)	4.07	NA*	4.35	4.04

Table-31: Summary of speech quality (MOS) samples.

***MOS Test not performed by BSNL due to Test Kit issue.**

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	NA	NA	10	NA
4G	79	31	93	37
3G	0	0	NA	NA
2G	0	3	NA	0

Table-32: Technology wise number of network cell id's latched during drive test.

3.4.5 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	29.96	13.50	285.90	42.08
	80th Percentile	41.77	16.89	453.93	58.30
	20th Percentile	8.65	8.60	117.61	20.43
Upload Throughput (Mbits/s)	Average	10.91	7.30	32.45	20.06
	80th Percentile	17.17	10.17	47.05	22.67
	20th Percentile	5.24	2.65	16.90	18.21
Latency (ms)	50th Percentile	15.50	61.52	26.50	48.00

Table-33: Summary of Data performance in network auto-selection mode

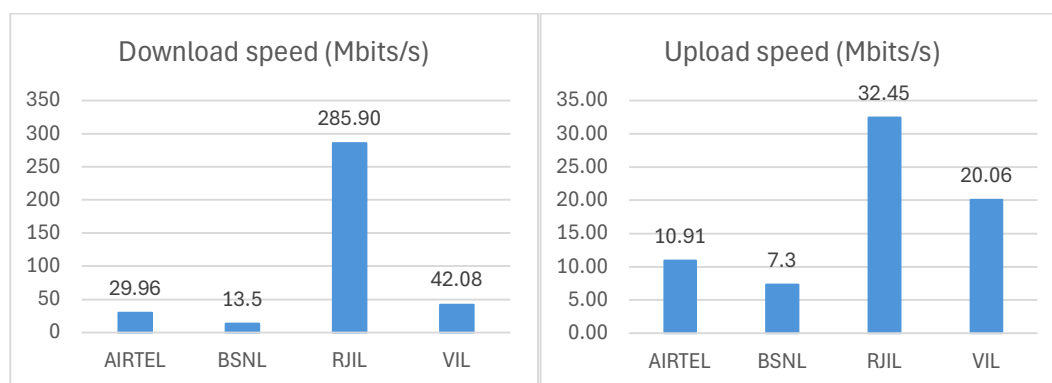


Figure- 16: Download throughput.

Figure-17: Upload throughput

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	84	NA
4G	79	32	0	37
3G	NA	4	NA	NA
2G	46	1	NA	0

Table-34: Technology wise number of network cell id's latched during drive test.

4. TSP wise signal strength(Dahod):

Technology	Parameter	Range	Color
2G	Rx Level	≥ -85 dBm	
		< -85 dBm	
3G	RSCP	≥ -90 dBm	
		< -90 dBm	
4G	RSRP	≥ -110 dBm	
		< -110 dBm	
5G	RSRP	≥ -110 dBm	
		< -110 dBm	

Table:35: Signal strength legend format

4.1 AIRTEL

4.1.1 Sagwara City

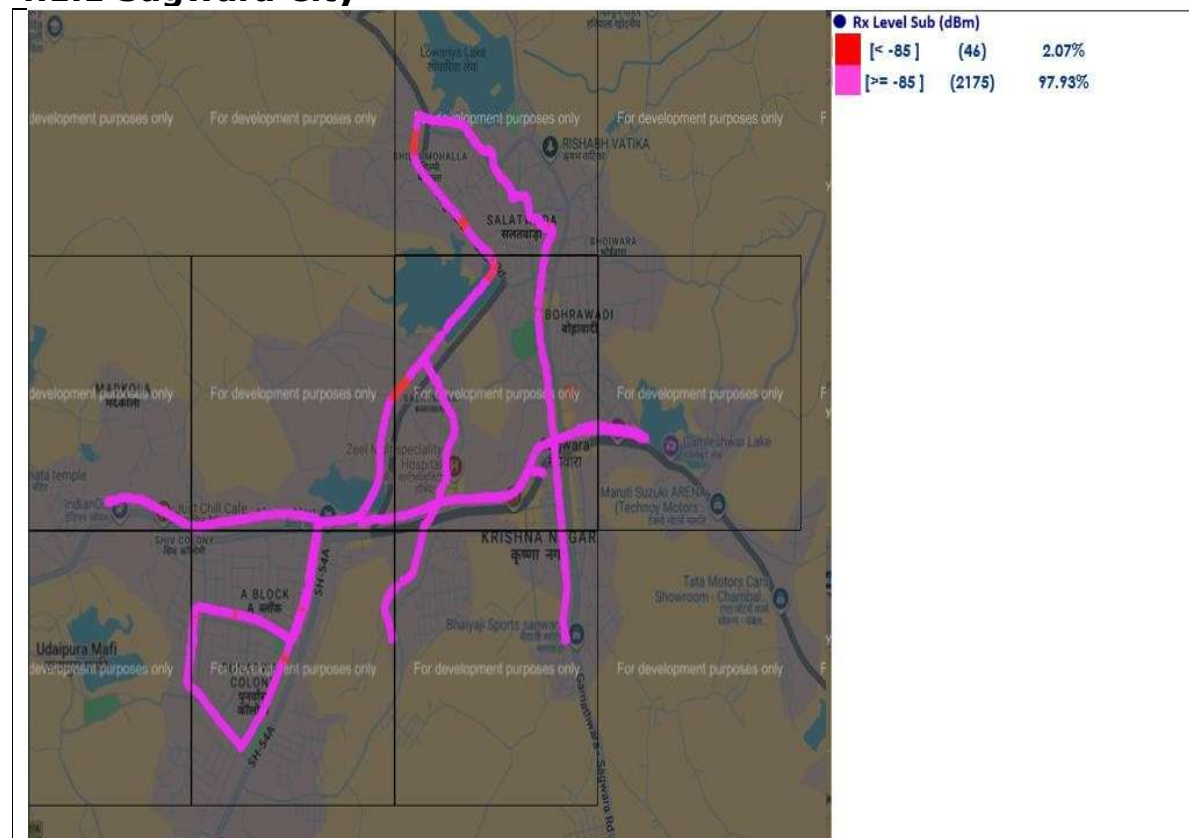


Figure-18: Signal strength network-selection mode 2G/3G – AIRTEL (Sagwara)



Figure-19: Signal strength auto-selection mode 5G/4G/3G/2G – AIRTEL (Sagwara)

4.1.2 Sulambar City

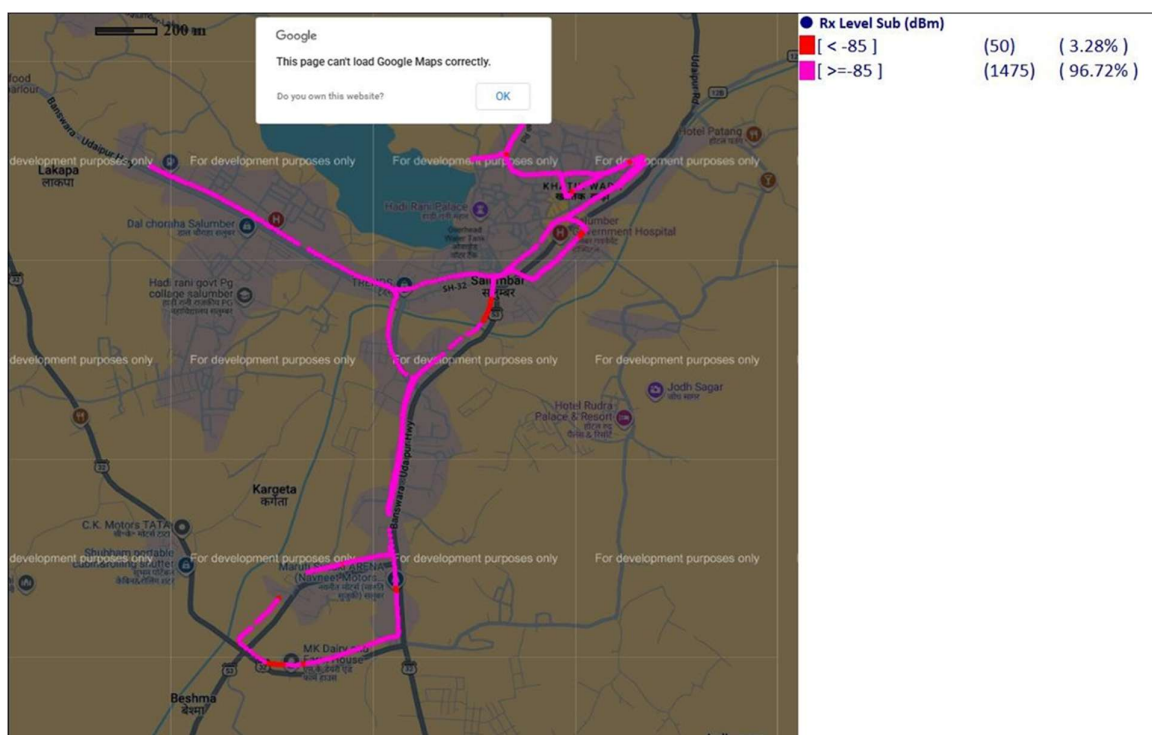


Figure-20: Signal strength network-selection mode 2G/3G – AIRTEL (Sulambar)



Figure-21: Signal strength auto-selection mode 5G/4G/3G/2G – AIRTEL (Sulambar)

4.1.3 Dungarpur to Sagwara Highway (NH-927A)

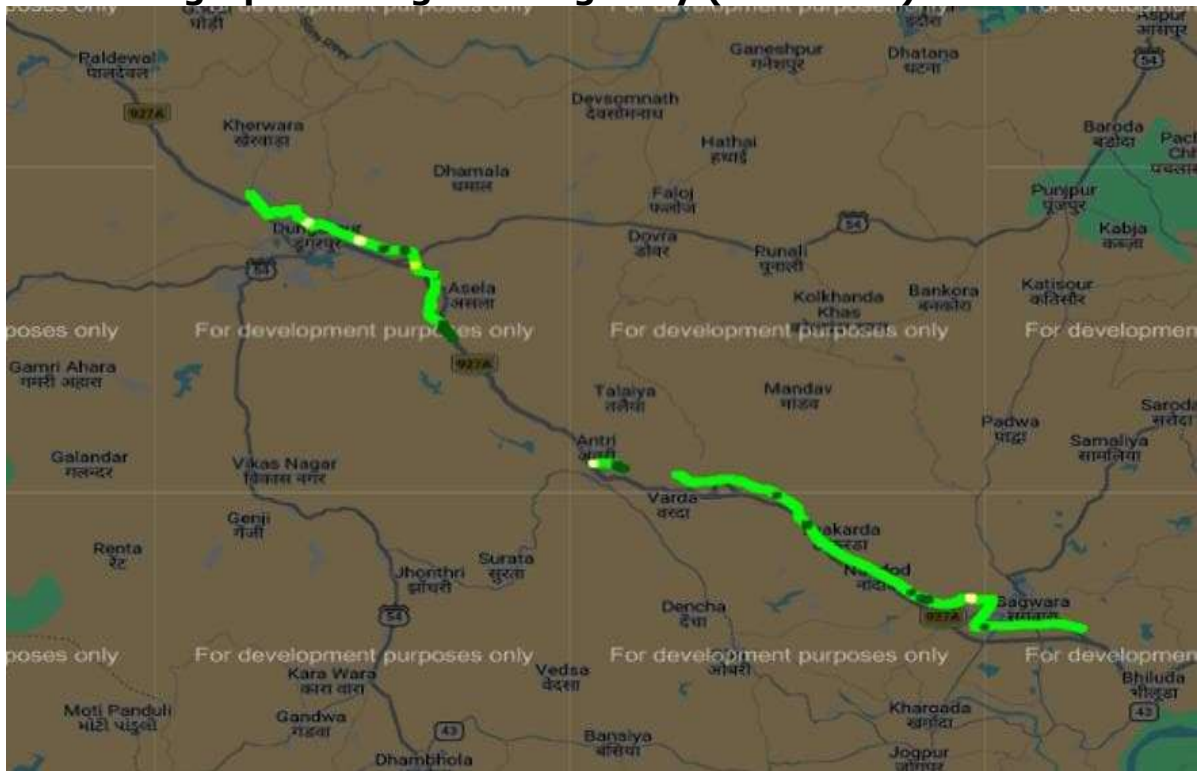


Figure-22: Signal strength auto-selection mode 5G/4G/3G/2G- AIRTEL Dungarpur- Sagwara NH-927A

4.2 BSNL

4.2.1 Sagwara City

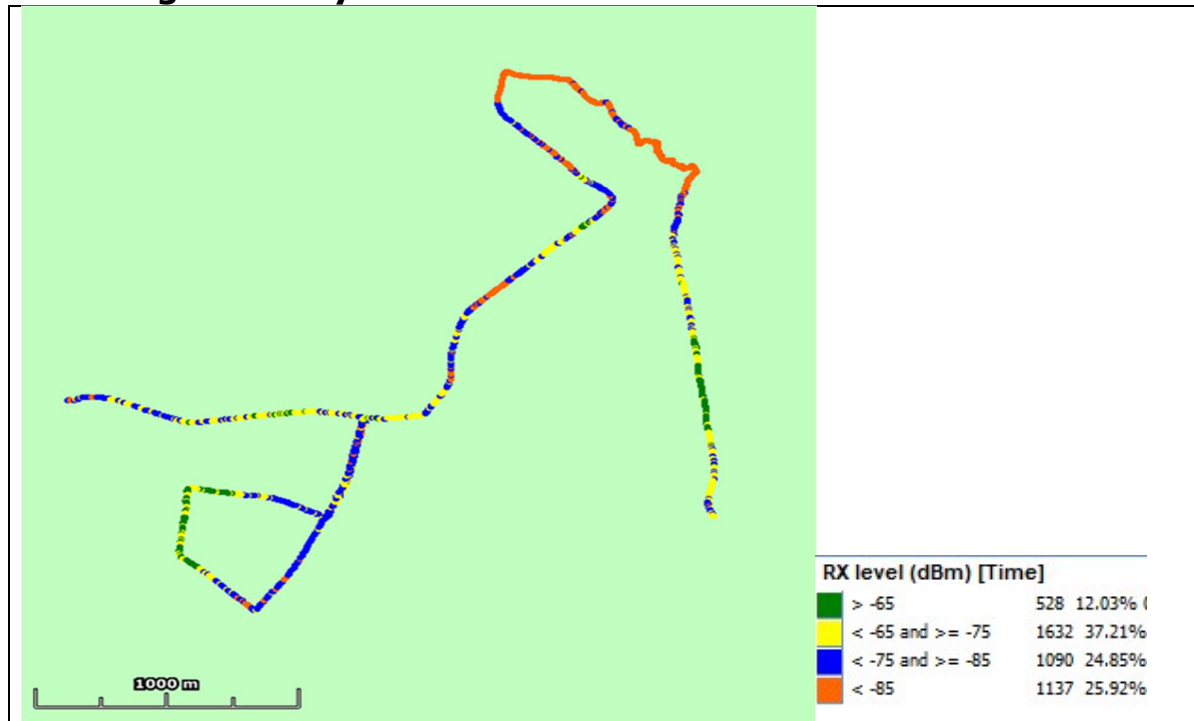


Figure-23: Signal strength network-selection mode 2G/3G – BSNL (Sagwara)

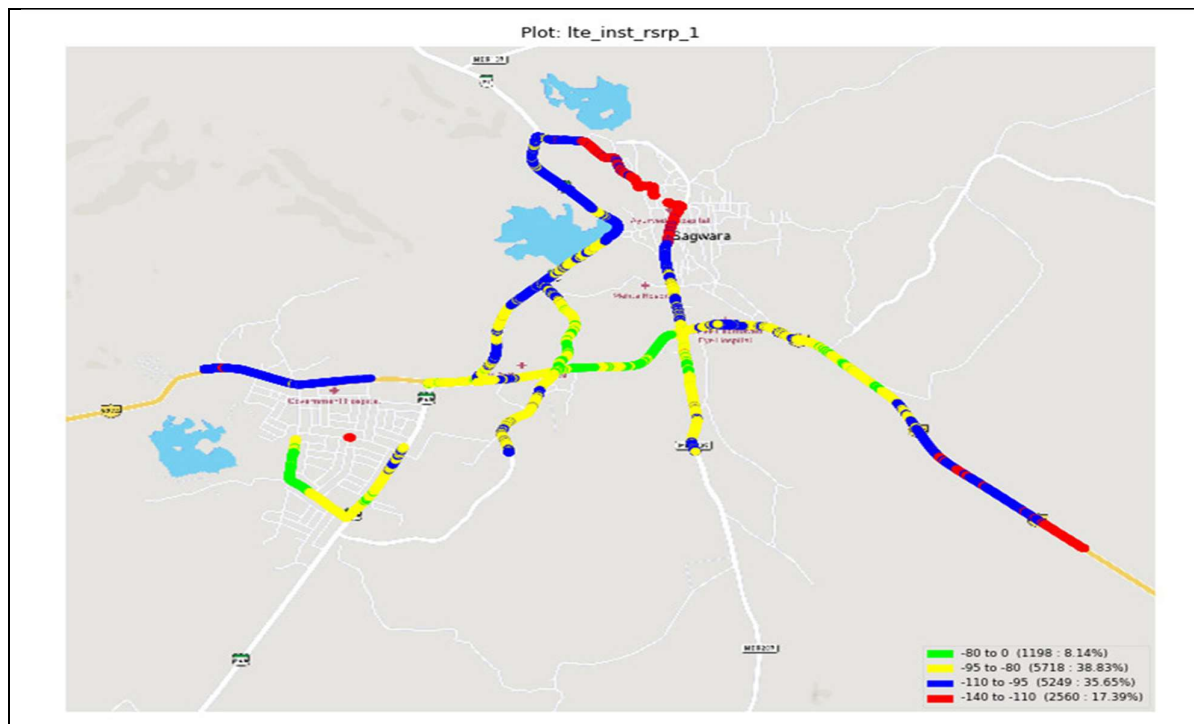


Figure-24: Signal strength auto-selection mode 5G/4G/3G/2G – BSNL (Sagwara)

4.2.2 Sulambar City

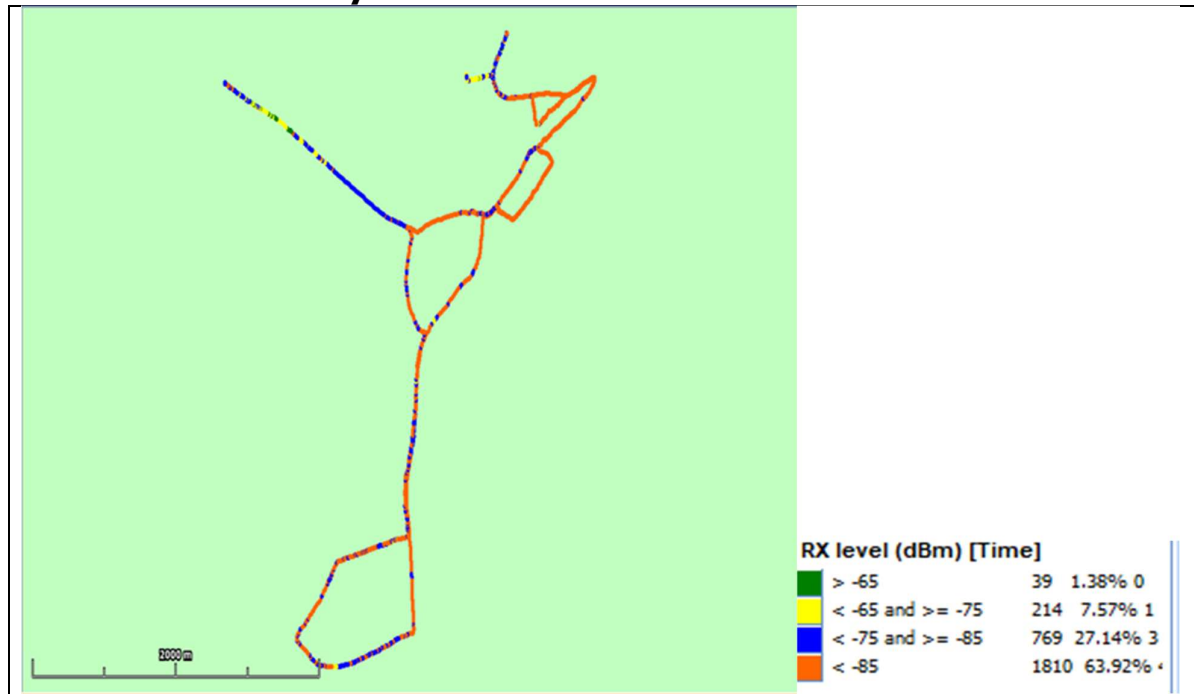


Figure-25: Signal strength network-selection mode 2G/3G – BSNL (Sulambar)

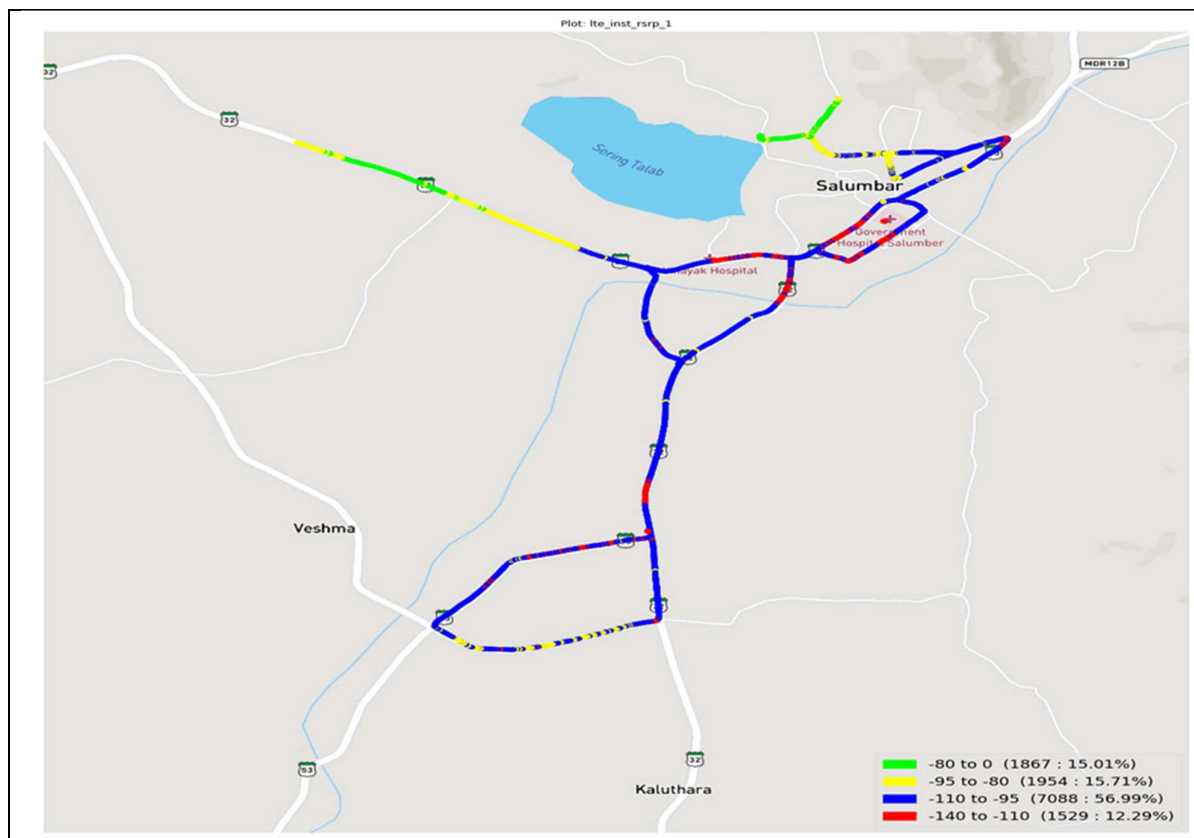


Figure-26: Signal strength auto-selection mode 5G/4G/3G/2G – BSNL (Sulambar)

4.2.3 Dungarpur to Sagwara Highway (NH-927A)

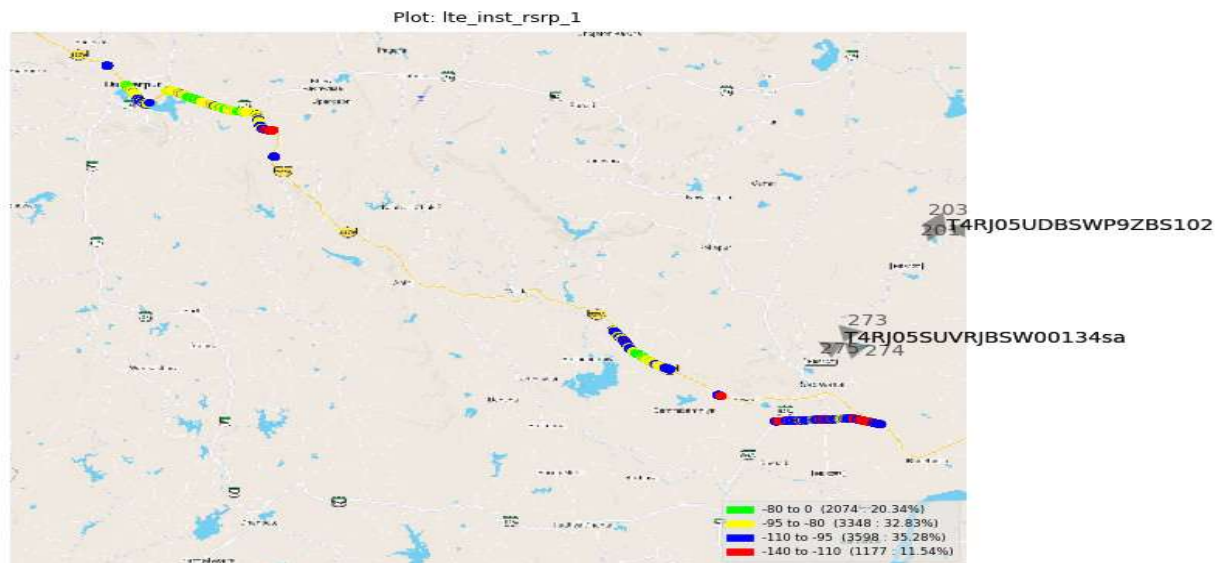


Figure-27: Signal strength auto-selection mode 5G/4G/3G/2G- AIRTEL Dungarpur- Sagwara NH-927A

4.3 RJIL

4.3.1 Sagwara City

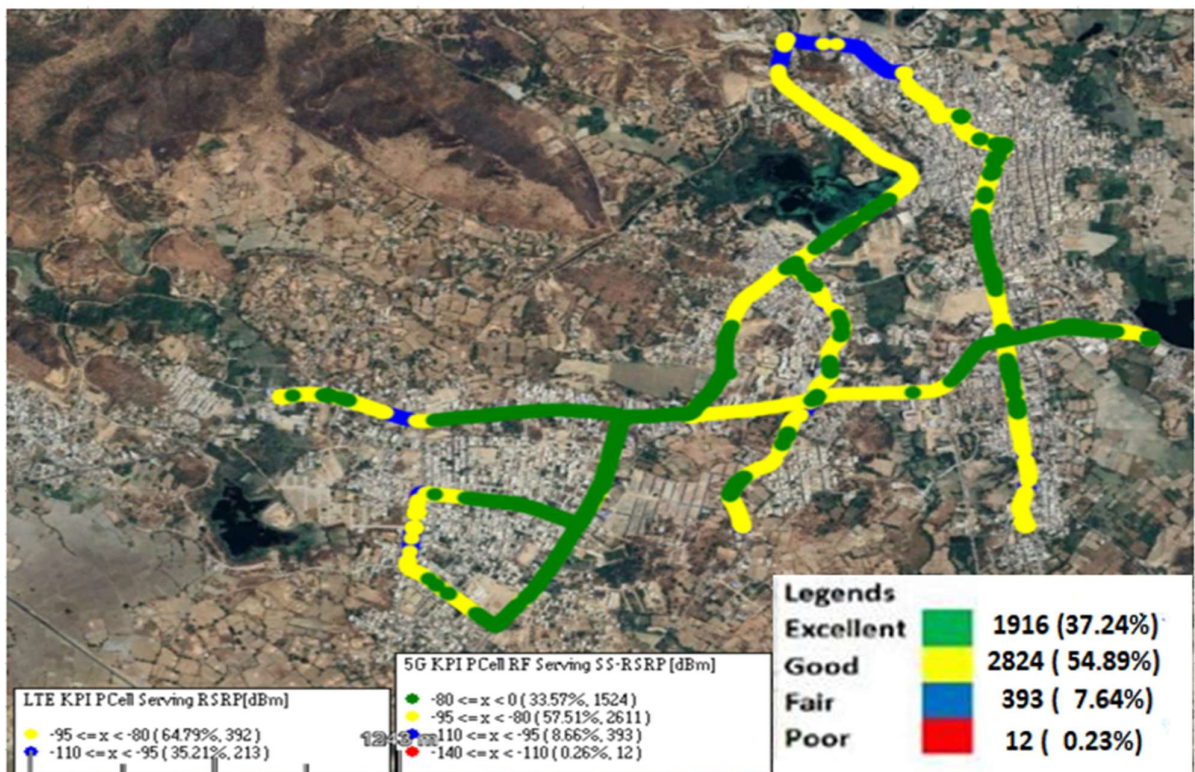


Figure-28: Signal strength auto-selection mode 5G/4G/3G/2G – RJIL (Sagwara)

4.3.2 Sulambar City

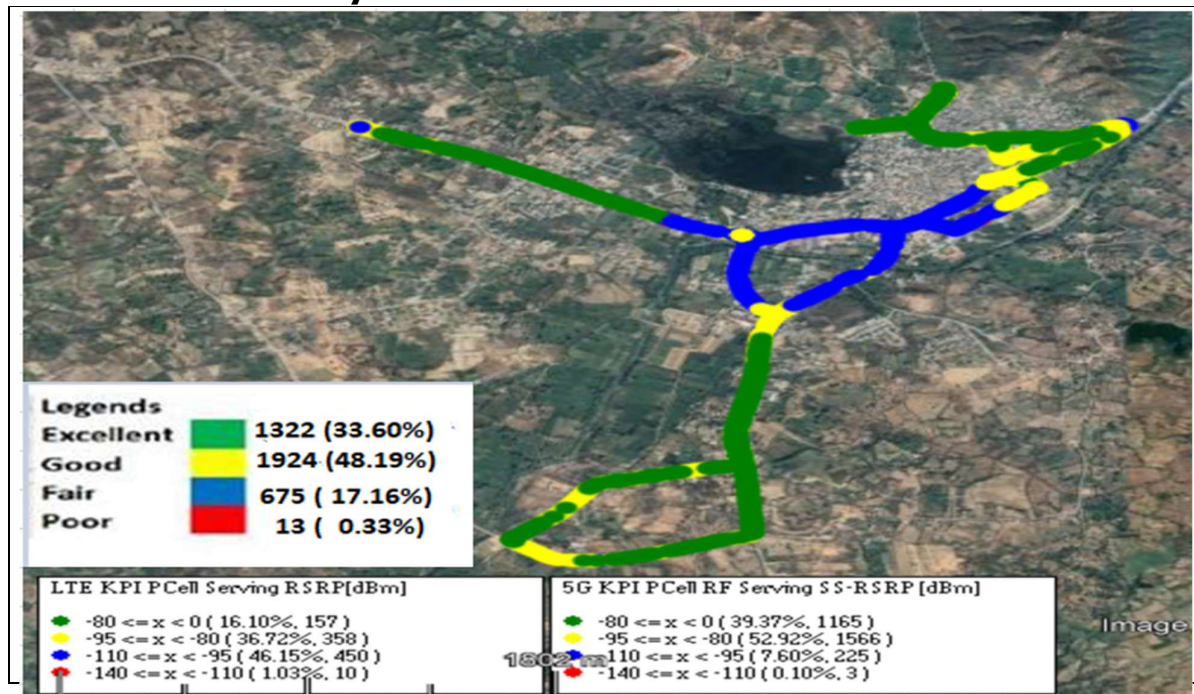


Figure-29: Signal strength auto-selection mode 5G/4G/3G/2G – RJIL (Sulambar)

4.3.3 Dungarpur to Sagwara Highway (NH-927A)

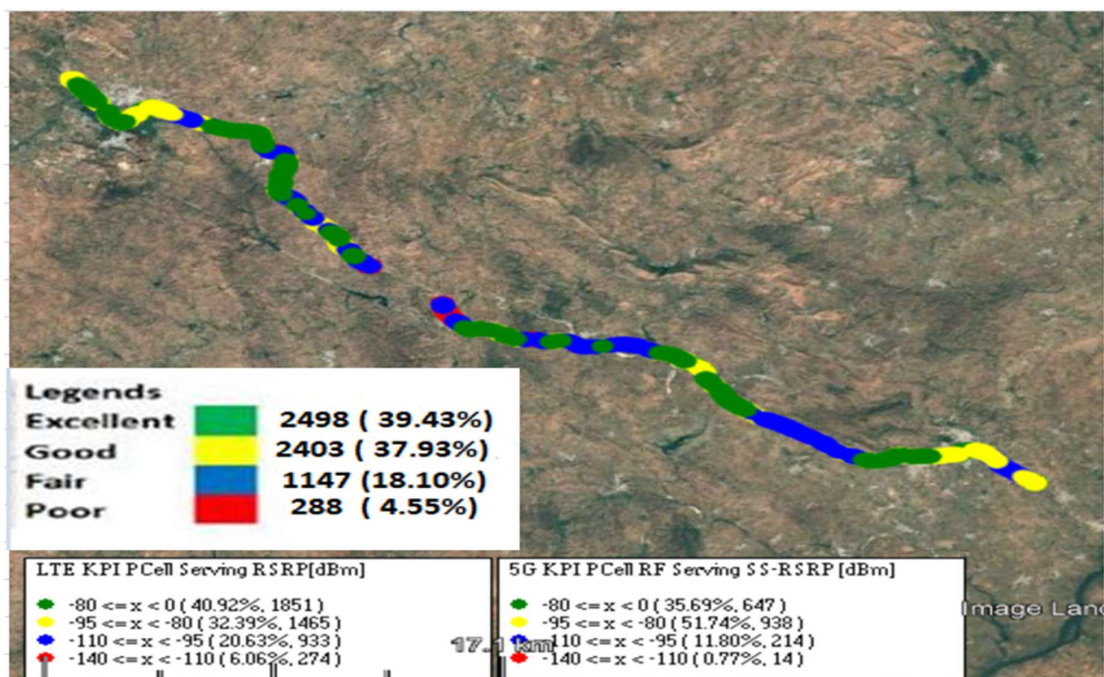


Figure-30: Signal strength auto-selection mode 5G/4G/3G/2G- AIRTEL Dungarpur- Sagwara NH-927A

4.4 VIL

4.4.1 Sagwara City

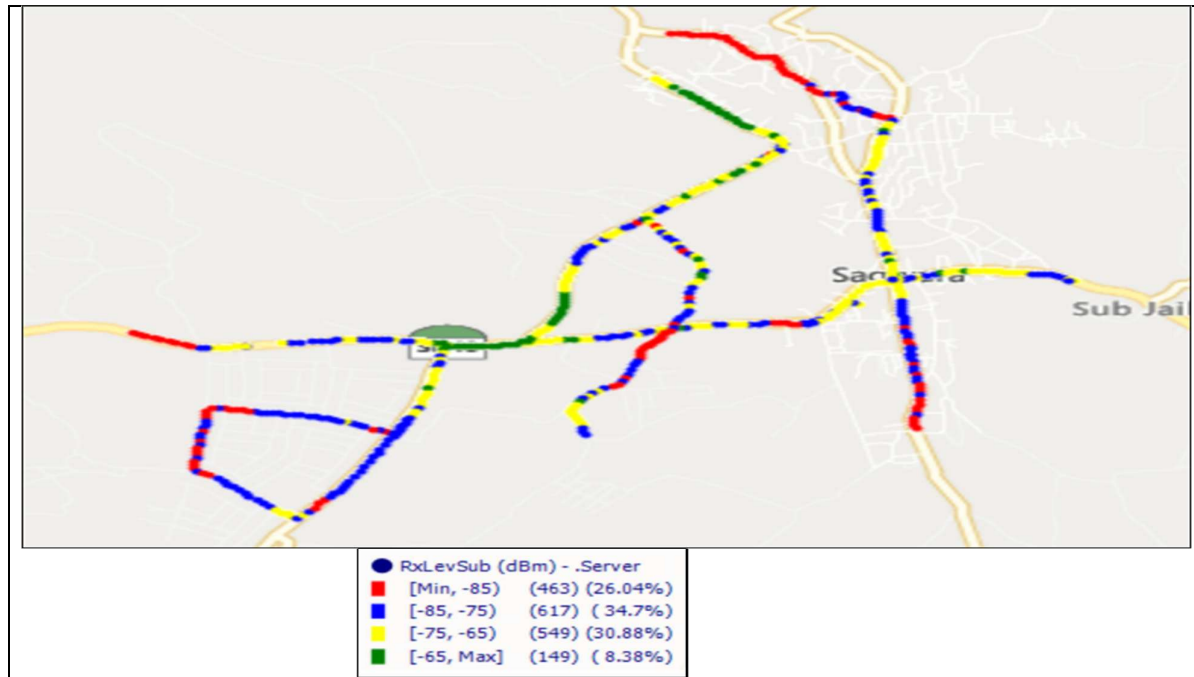


Figure-31: Signal strength network-selection mode 2G/3G – VIL. (Sagwara)

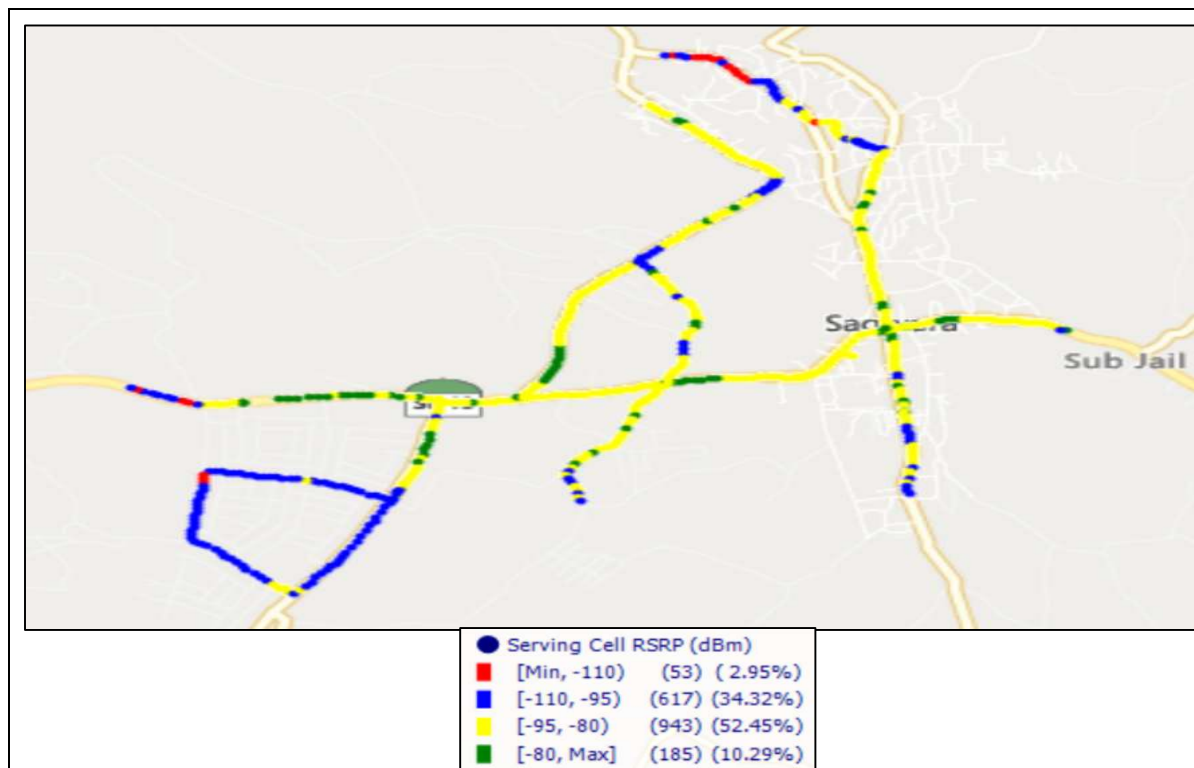


Figure-32: Signal strength auto-selection mode 5G/4G/3G/2G – VIL (Sagwara)

4.4.2 Sulambar City

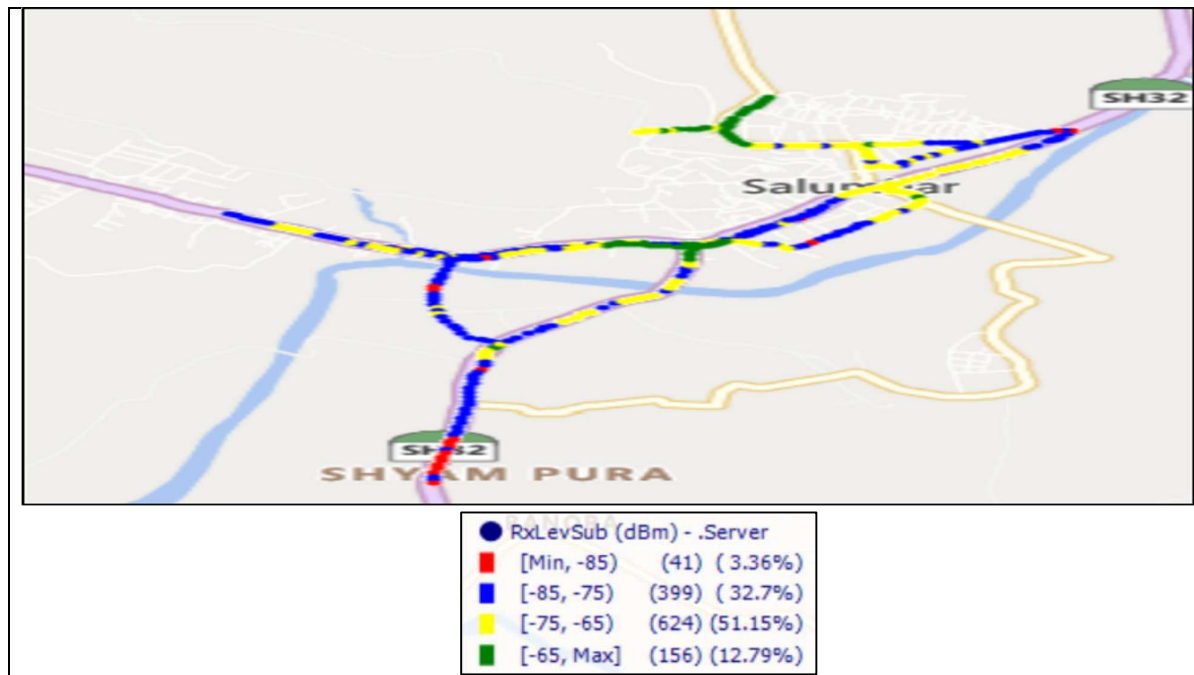


Figure-33: Signal strength network-selection mode 2G/3G – VIL. (Sulambar)

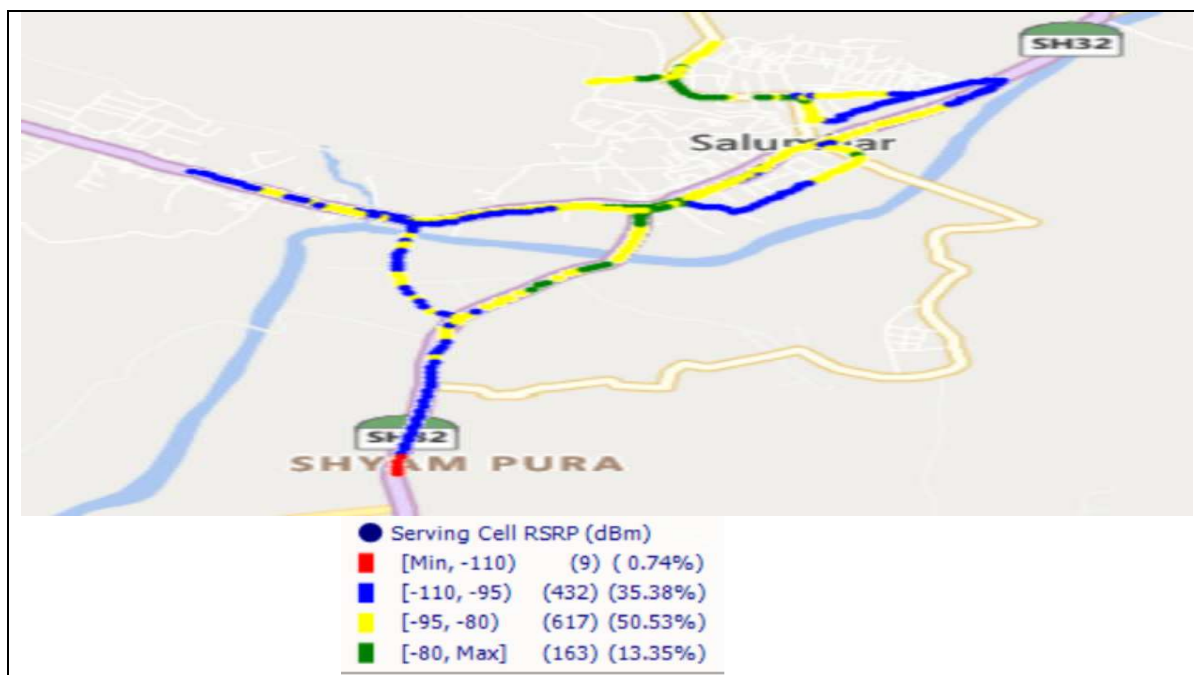


Figure-34: Signal strength auto-selection mode 5G/4G/3G/2G – VIL (Sulambar)

4.4.3 Dungarpur to Sagwara Highway (NH-927A)

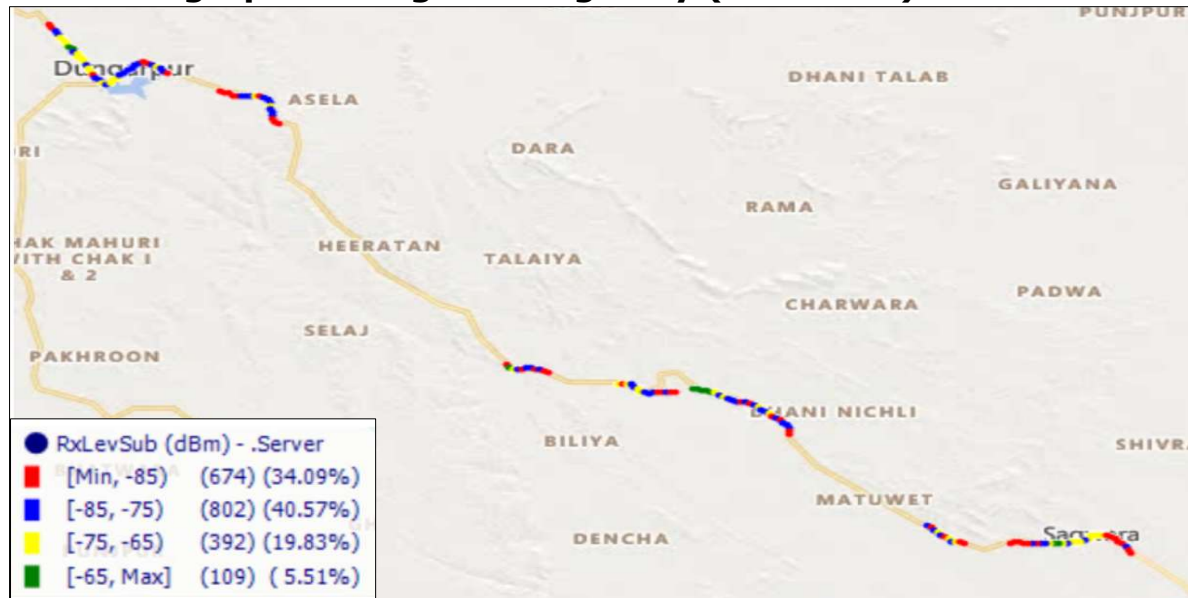


Figure-35: Signal strength auto-selection mode 5G/4G/3G/2G- VIL Dungarpur- Sagwara NH-927A

5. Conclusion:

The operator wise comparative Analysis of various key parameters (5G/4G/3G/2G Open Mode) is given in table below for Sagwara & Sulambar Cities and Dungarpur to Sagwara Highway:

5.1 Sagwara City

Parameters	Service Provider			
	Auto-selection mode (5G/4G/3G/2G)			
	AIRTEL	BSNL	RJIL	VIL
Call Setup Success Rate %	100.00	76.92	100	100%
Drop Call Rate %	0.00	7.69	0.00	0.00%
Call Setup Time Average (Second)	1.79	2.5	0.73	1.04
Silence Call Rate %	0.00	NA*	0.00	0.00
Average MOS score	4.11	NA*	4.30	4.11
Packet Drop Rate (Downlink) %	0.07	NA*	1.71	0.00
Packet Drop Rate (Uplink)%	0.13	NA*	2.37	0.00
Download Throughput (Declared)	18.00	8.00	15.00	15.00
Download Throughput (Average)	148.10	19.65	212.87	17.78
Upload Throughput (Declared)	8.00	3.00	7.00	8.00
Upload Throughput (Average)	27.58	8.80	59.08	6.48
Latency in ms (50 th percentile)	16.50	54.80	25.00	53.00

Table:36: Operator wise comparative analysis of QoS parameters (Sagwara)

***MOS Test not performed by BSNL due to unavailability Test Kit**

TSPs response:

1. Call setup success rate (CSSR) as 76.92% (benchmark >=98%), Drop call rate as 7.69% (benchmark: <2%) (Table 5 Page 9) & Latency 54.80 ms (benchmark: <= 50 ms) (Table-9 Page-11)

BSNL Response: Only 3 sites working in Sagwara city, additional 3 sites are required to improve coverage & quality. Same is proposed for the next roll out phase and can be done by 31.01.2027.

3. Packet drop rate (Uplink)- 2.37% (Benchmark <=2%) (Table-6 Page-10)

RJIL Response: Response awaited

4. Upload throughput (Average) as 6.48 Mbps having less than declared upload throughput (8Mbps) & Latency 53.00 ms (benchmark: <= 50 ms) (Table-9 Page-11)

VIL Response: Soft optimization planned with timeline 05.08.2026 (details at Annexure-III)

5.2 Sulamabr City

Parameters	Service Provider			
	Auto-selection mode (5G/4G/3G/2G)			
	AIRTEL	BSNL	RJIL	VIL
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 (Second)	1.95	1.60	0.66	0.98
Silence Call Rate %	0.00	NA*	0.00	0.00
Average MOS score	4.13	NA*	4.26	4.06
Packet Drop Rate (Downlink) %	0.16	NA*	2.48	0.00
Packet Drop Rate (Uplink)%	0.50	NA*	2.48	0.00
Download Throughput (Declared)	18.00	8.00	15.00	15.00
Download Throughput (Average)	112.97	24.60	181.53	30.46
Upload Throughput (Declared)	8.00	3.00	7.00	8.00
Upload Throughput (Average)	33.99	6.38	25.90	5.19
Latency in ms (50 th percentile)	12.50	45.00	28.00	81.00

Table:37: Operator wise comparative analysis of QoS parameters (Sulamabar)

***MOS Test not performed by BSNL due to un availability of Test Kit issue.**

TSPs response:

1. Packet drop rate (Downlink & Uplink)- 2.48% (Benchmark <=2%) (Table-14 Page-13)

RJIL Response: Response awaited

2. Upload throughput (Average) as 5.19 Mbps having less then declared upload throughput (8Mbps) & Latency 81 ms (benchmark: <= 50 ms) (Table-17 Page-13)

VIL Response: New site required. New site subjected to commercial feasibility (details at Annexure-III)

5.3 Dungarpur to Sagwara NH-927A: -

Parameters	Service Provider			
	Auto-selection mode (5G/4G/3G/2G)			
	AIRTEL	BSNL	RJIL	VIL
Call Setup Success Rate %	100.00	19	100	100.00
Drop Call Rate %	0.00	94.73	0.00	0.00
Call Setup Time Average (Second)	1.88	5.26	1.45	1.15
Silence Call Rate %	0.00	NA*	0.00	0.00
Average MOS score	4.07	NA*	4.35	4.04
Packet Drop Rate (Downlink) %	0.85	NA*	2.35	0.00
Packet Drop Rate (Uplink)%	1.61	NA*	2.02	0.00
Download Throughput (Declared)	18.00	8.00	15.00	15.00
Download Throughput (Average)	29.96	13.50	285.90	42.08
Upload Throughput (Declared)	8.00	3.00	7.00	8.00
Upload Throughput (Average)	10.91	7.30	32.45	20.06
Latency in ms (50 th percentile)	15.50	61.52	26.50	48.00

Table:38: Operator wise comparative analysis of QoS parameters (Dungarpur to Sagwara NH-927A)

***MOS Test not performed by BSNL due to un availability Test Kit**

TSPs response:

1. Call setup success rate (CSSR) as 94.73% (benchmark >=98%), Drop call rate as 5.26% (benchmark: <2%) (Table 29 Page :19)

BSNL Response: Only one 2G site working on this 44 KM highway. Some coverage from Dungarpur and Sagwara city BTS received on this highway. also this highway pass through mountain valleys for nearby 15 KM. Five new sites proposed for proper coverage.

2. Latency 61.52 ms (benchmark: <= 50 ms) (Table-33 Page-21)

BSNL Response: Only one 2G site working on this 44 KM highway. Some coverage from Dungarpur and Sagwara city BTS received on this highway. also this highway pass through mountain valleys for nearby 15 KM. Five new sites proposed for proper coverage.

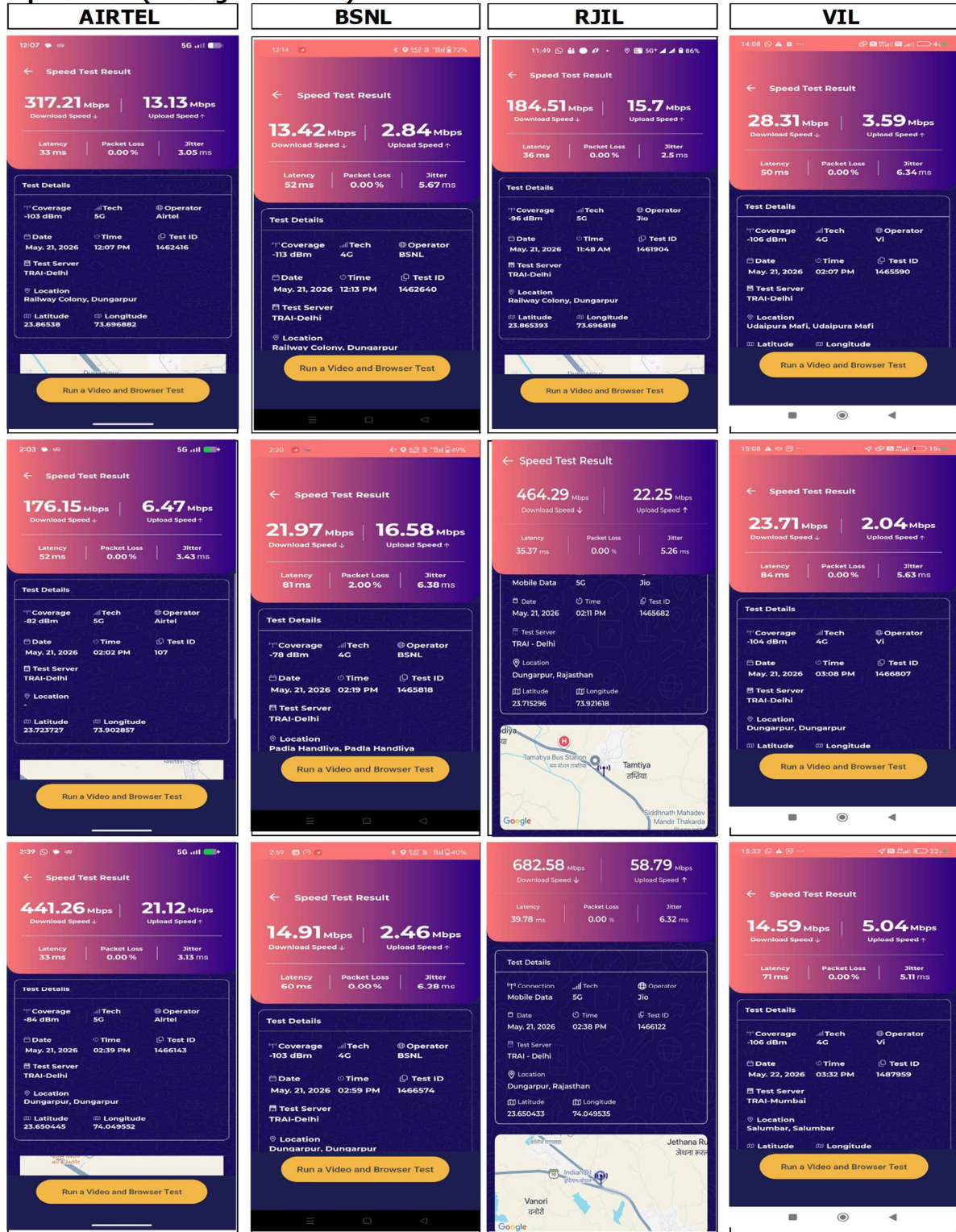
3. Packet drop rate (Downlink & Uplink)- 2.35% & 2.02% (Benchmark <=2%) (Table-30 Page-20)

RJIL Response: Response awaited

TRAI My Speed App:

Speed test with TRAI My Speed App is carried out for all TSPs randomly during the drive test as well as at each hotspot location.

Speed Test (During Drive Test)



Speed Test at Hotspot Locations

AIRTEL	BSNL	RJIL	VIL
Govt. Bus Stand (sagwara)	Govt. Bus Stand (sagwara)	Govt. Bus Stand (sagwara)	Govt. Bus Stand (sagwara)
Hada Rani Palace (Sulambar)	Hada Rani Palace (Sulambar)	Hada Rani Palace (Sulambar)	Hada Rani Palace (Sulambar)
Civil Hospital (Sulambar)	Civil Hospital (Sulambar)	Civil Hospital (Sulambar)	Civil Hospital (Sulambar)

Observations on my speed measurement: -

1. Airtel

- The download speed recorded was between 88.01 Mbps and 207.78 Mbps at hotspot locations having higher values as compared to declared speed for Haryana LSA as 18 Mbps.
- Upload speeds varied between 13.23 Mbps and 16.03 Mbps. At two hotspot locations down load speed recorded is less than as declared for Haryana LSA as 8 Mbps.
- Packet loss was 0% in all Airtel measurements.
- Latency at all hotspot test recorded between 39 ms and 43 ms and jitter between 3.51 ms and 3.84 ms.
- Coverage strength ranged from -74 dBm to -83 dBm.

2. BSNL

- The download speed recorded was between 17.72 Mbps and 18.24 Mbps at hotspot locations having lesser values as compared to declared speed for Haryana LSA as 8.00 Mbps.
- Upload speeds varied between 2.13 Mbps and 11.51 Mbps. at hotspot locations having higher values as compared to declared speed for Haryana LSA as 3.00 Mbps.
- Packet loss is found 2.50% for two locations in BSNL measurements.
- Latency at all hotspot test recorded between 53 ms and 60 ms and jitter between 2.17 ms and 6.17 ms.
- Coverage strength captured at only one hotspot location

3. Reliance Jio (RJIL):

- The download speed recorded was between 75.22 Mbps and 653.09 Mbps at hotspot locations having higher values as compared to declared speed for Haryana LSA as 15 Mbps.
- Upload speeds varied between 32.20 Mbps and 96.38 Mbps. at hotspot locations having higher values as compared to declared speed for Haryana LSA as 7Mbps.
- Packet loss recorded 0% for all locations.
- Higher Latency value recorded as 77.00 ms, while jitter was 8.90 ms.
- Coverage strength ranged from -78 at two hotspots location & at one hotspot location coverage value not captured.

4. Vodafone Idea (VIL)

- The download speed recorded was between 14.59 Mbps and 23.71 Mbps at hotspot locations having higher values as compared to declared speed for Haryana LSA as 15 Mbps.
- Upload speeds varied between 2.04 Mbps and 5.04 Mbps. upload speed recorded is less than as declared for Haryana LSA as 8Mbps.
- Packet loss recorded 0% at all locations
- Higher Latency value recorded as 84.00 ms, while jitter was 5.63 ms.
- Coverage strength ranged from -104 dBm to -106 dBm.
- VIL captured speed test at two hotspot locations only.

BSNL Action taken Report/Action Plan: -

BSNL Submitted action plan along with final OADT report vide e-mail dated 27.07.2026

Please find final OADT reports of Salumber , Dungarpur, Sagwara and NH-47 (attached) along with the action Plan for resolving KPIs issues observed during OADT.

1. **Dungarpur city** : - No KPI deficiencies observed
2. Salumber city :- No KPI deficiencies observed
3. Sagwara City : action plan - Only 3 sites working in Sagwara city, additional 3 sites are required to improve coverage & quality. Same is proposed for next roll out phase.
4. NH-471 :- action plan - Only one 2G site working on this 44 KM highway. Some coverage from Dungarpur and Sagwara city BTS received on this highway. also this highway pass through mountain valleys for nearby 15 KM. Five new sites proposed for proper coverage.

Annexure-III

VIL Action taken Report/Action Plan: -

VIL Submitted action plan along with final OADT report vide e-mail dated 22.07.2026

Sagwara City:

S N	Category	Time	Date	Latitude	Longitude	HTTP_Upload_Service_Average_Throughput	Unique ID	Action Plan	Reason	Action Required	Date	Remarks
1	UL Tpt Low	08:54:01.156	5/22/2026	23.6646626	74.0086439	1485.80005	UL Tpt Low-1	Soft Optimization Planned	NA	Soft Optimization Planned	05-Aug-26	Open
2	UL Tpt Low	08:55:28.216	5/22/2026	23.6649832	74.0168803	2220.80005	UL Tpt Low-2	Soft Optimization Planned	NA	NA	NA	UL Speed >2 Mbps
3	UL Tpt Low	08:56:53.942	5/22/2026	23.6663083	74.0230540	1	UL Tpt Low-3	Soft Optimization Planned	NA	Soft Optimization Planned	05-Aug-26	Open
4	UL Tpt Low	08:58:29.492	5/22/2026	23.6676039	74.0241446	115.900002	UL Tpt Low-4	Soft Optimization Planned	NA	Soft Optimization Planned	05-Aug-26	Open
5	UL Tpt Low	09:58:02.229	5/22/2026	23.6780838	74.0205873	2409.69995	UL Tpt Low-5	Soft Optimization Planned	NA	NA	NA	UL Speed >2 Mbps
8	UL Tpt Low	10:04:12.612	5/22/2026	23.6754450	74.0233050	7073.7002	UL Tpt Low-8	Soft Optimization Planned	NA	NA	NA	UL Speed >2 Mbps
9	UL Tpt Low	10:05:34.232	5/22/2026	23.6752478	74.0239436	3248.8999	UL Tpt Low-9	Soft Optimization Planned	NA	NA	NA	UL Speed >2 Mbps
10	UL Tpt Low	10:07:05.393	5/22/2026	23.6738826	74.0234433	1851.09998	UL Tpt Low-1	Soft Optimization Planned	NA	Soft Optimization Planned	05-Aug-26	Open
11	UL Tpt Low	10:23:41.470	5/22/2026	23.6607680	74.0101190	2972.3999	UL Tpt Low-1	Soft Optimization Planned	NA	NA	NA	UL Speed >2 Mbps
12	UL Tpt Low	10:26:52.694	5/22/2026	23.6613618	74.0057445	7967.1001	UL Tpt Low-1	Soft Optimization Planned	NA	NA	NA	UL Speed >2 Mbps
15	UL Tpt Low	10:33:28.481	5/22/2026	23.6784579	74.0164468	2818.6001	UL Tpt Low-1	Soft Optimization Planned	NA	NA	NA	UL Speed >2 Mbps

Salumber City :

SN	Category	Time	Date	Latitude	Longitude	HTTP_Upload_Service_Average_Throughput	Unique ID	Reason	Action Required	Date	Remarks
1	UL tpt low	16:14:01.04	5/22/2026	24.1305213	74.0389130	2613.800049	UL tpt low-1	NA	NA	NA	UL Speed >2Mbps
2	UL tpt low	16:15:55.44	5/22/2026	24.1257441	74.0384665	1573.599976	UL tpt low-2	High intersite distance	New site Required	NA	New site subjected to commercial feasibility
3	UL tpt low	16:23:28.30	5/22/2026	24.1380692	74.0469288	7926.600098	UL tpt low-3	NA	NA	NA	UL Speed >2Mbps
4	UL tpt low	16:26:37.69	5/22/2026	24.1405151	74.0496141	2307.699951	UL tpt low-4	NA	NA	NA	UL Speed >2Mbps
5	UL tpt low	16:51:00.95	5/22/2026	24.1405109	74.0456695	5634.200195	UL tpt low-5	NA	NA	NA	UL Speed >2Mbps
6	UL tpt low	16:53:13.25	5/22/2026	24.1406434	74.0496453	1962.099976	UL tpt low-6	Transmission HW Malfunctioning	Tx HW Replacement	23-May-26	HW Replaced
7	UL tpt low	16:54:37.08	5/22/2026	24.1394675	74.0477230	1157.099976	UL tpt low-7	Transmission HW Malfunctioning	Tx HW Replacement	23-May-26	HW Replaced
8	UL tpt low	17:01:07.99	5/22/2026	24.1374098	74.0484140	3949.5	UL tpt low-8	NA	NA	NA	UL Speed >2Mbps
9	UL tpt low	17:02:27.02	5/22/2026	24.1354213	74.0460826	1601	UL tpt low-9	Intermittent Issue	NA	NA	NA
10	UL tpt low	17:03:46.04	5/22/2026	24.1357737	74.0445151	2608.800049	UL tpt low-10	NA	NA	NA	UL Speed >2Mbps
11	UL tpt low	17:05:07.96	5/22/2026	24.1355317	74.0425836	7899	UL tpt low-11	NA	NA	NA	UL Speed >2Mbps
12	UL tpt low	17:06:27.35	5/22/2026	24.1350585	74.0376094	2846.800049	UL tpt low-12	NA	NA	NA	UL Speed >2Mbps
13	UL tpt low	17:07:54.85	5/22/2026	24.1371687	74.0329576	1627.199951	UL tpt low-13	High intersite distance	New site Required	NA	New site subjected to commercial feasibility
14	UL tpt low	17:23:58.50	5/22/2026	24.1312895	74.0383178	2253.600098	UL tpt low-14	NA	NA	NA	UL Speed >2Mbps
15	UL tpt low	17:25:58.99	5/22/2026	24.1337190	74.0433304	5884.799805	UL tpt low-15	NA	NA	NA	UL Speed >2Mbps

Note: VIL has done the soft optimisation for all sites on 05-08-2026, but for new site there are no plan has intimated hence issue is open.