



***TELECOM REGULATORY AUTHORITY OF INDIA***

**Operator Assisted Drive Test  
Jaipur-Tonk Highway & Tonk City  
Rajasthan LSA**

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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 finalized based on various objective criteria like reported network performance, consumer complaints etc.

## 2. Executive Summary

### 1. Drive test details

This report covers the findings of the OADT undertaken in Rajasthan License Service Area (LSA) during the month of June 2025 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      | Jaipur to Tonk   | Highway       | 100                               | 25/06/25  | 25/06/25 |
| 2      | Tonk             | City          | 47                                | 26/06/25  | 26/06/25 |
| 3      | Tonk             | Hotspot       | 05 Locations                      | 25/06/25  | 26/06/25 |

**Table-1:** Drive test summary

## 2.2 Drive test route

### (a) Jaipur-Tonk Highway



The map provides overview of drive test routes indicating Highway drive,

### (b) Tonk City

The map provides overview of drive test routes indicating city drive and hotspots as per the legends shown on the map.



## 2.3 Areas covered

**a) Jaipur-Tonk Highway:** - Jaipur to Tonk via Chaksu, Niwai, Mothuka town on highway

**b) Tonk City-** Adarsh Nagar, Ghanta Ghar, Kafila Bazar, Ahuja Colony, Purani Tonk, Shiv Nagar, Subhash Bazar etc.

### c) Hotspots

1. **Bus Stand, Tonk**
2. **Collectorate, Tonk**
3. **Govt. Hospital, Tonk**
4. **Govt PG College, Tonk**
5. **Kafila Bazar, Tonk**

## 2.4 Telecom service providers detected frequency bands

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

| S.No. | Name of TSP                | Technology | Frequency Bands (In MHz) |
|-------|----------------------------|------------|--------------------------|
| 1     | Bharti Airtel Ltd.         | 2G         | 900                      |
| 2     | Bharti Airtel Ltd.         | 4G         | 900,1800,2100,2300       |
| 3     | Bharti Airtel Ltd.         | 5G         | 3500                     |
| 4     | BSNL                       | 2G         | 900                      |
| 5     | BSNL                       | 3G         | 2100                     |
| 6     | BSNL                       | 4G         | 700,850,                 |
| 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

## 3.1 Jaipur-Tonk Highway

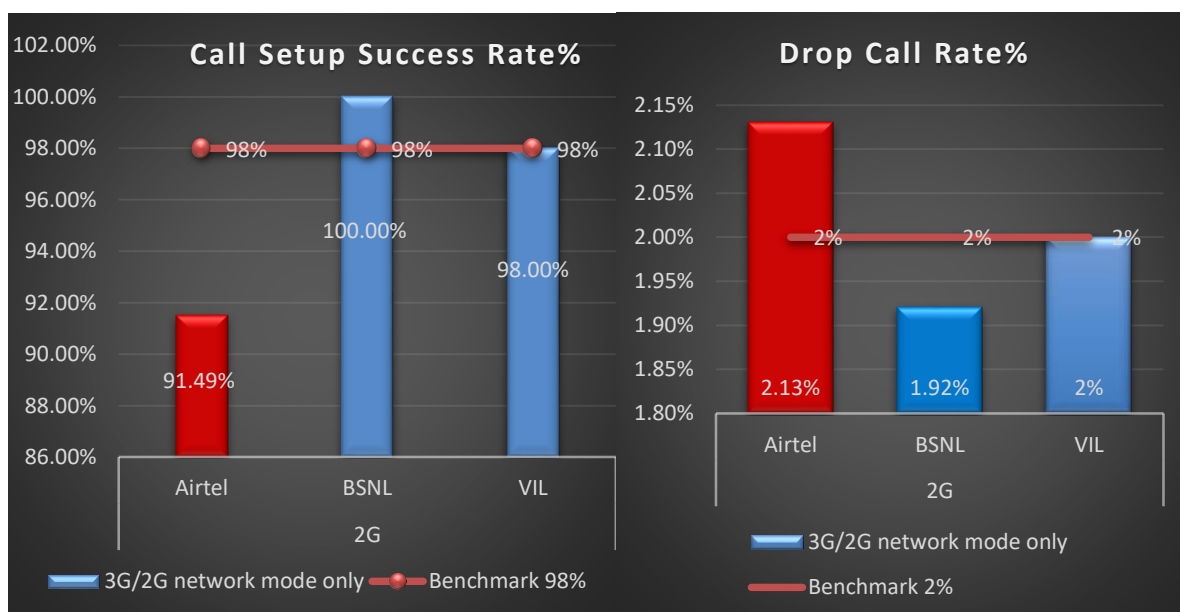
This section provides summary of overall QoS performance of the telecom service provider's network in the Jaipur –Tonk Highway route.

### (a) Voice performance

**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                    | 47                      | 52     | 51    |
| Call Setup Success Rate %        | 91.49                   | 100.00 | 98    |
| Drop Call Rate %                 | 2.13                    | 1.92   | 2     |
| Call Setup Time-Average (Second) | 3.95                    | 3.52   | 2.78  |
| Handover Success Rate %          | 97.24                   | 100    | 95.30 |

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



**Figure-2:** Call setup success rate and drop call rate performance.

| 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                      | 25   | NA  |
| 2G  | 142                     | 26   | 69  |

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

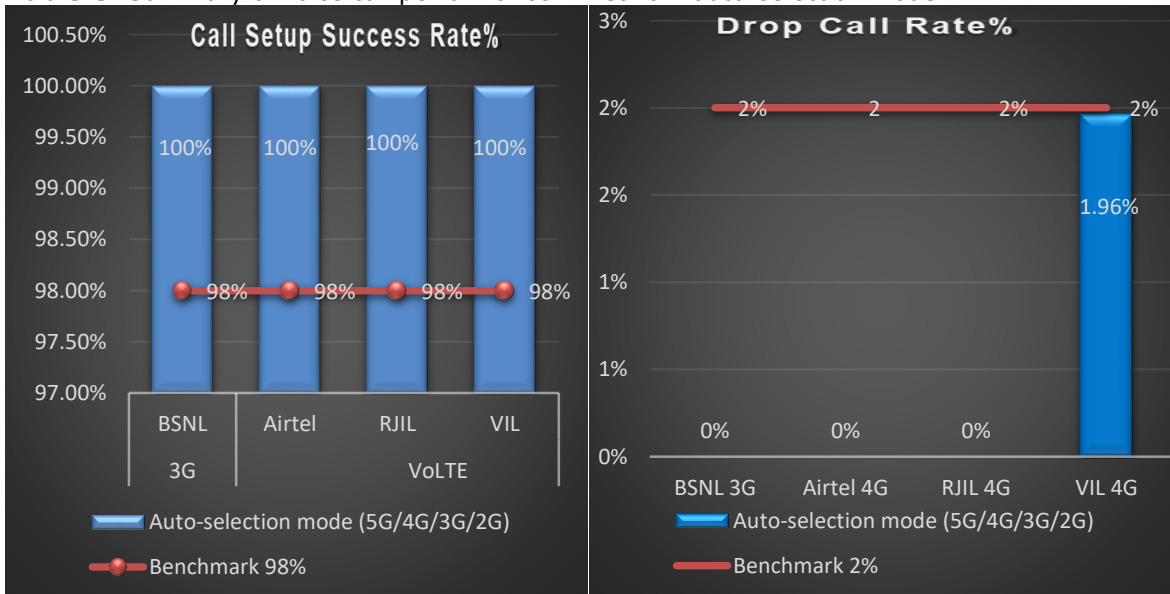
**Note-**

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

## 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                    | 54                                | 48   | 50     | 52     |
| Call Setup Success Rate %        | 100                               | 100  | 100.00 | 100.00 |
| Drop Call Rate %                 | 0.00                              | 0    | 0.00   | 1.96   |
| Call Setup Time-Average (Second) | 1.77                              | 2.22 | 0.71   | 0.29   |
| Handover Success Rate %          | 99.71                             | 100  | 99.23  | 99.35  |

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



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

| Parameter  | Service Provider                     |      |       |       |
|--|--------------------------------------|------|-------|-------|
|  | Mobile-to-Mobile (5G/4G - Open Mode) |      |       |       |
|  | AIRTEL                               | BSNL | RJIL  | VIL   |
| Call Established (within service provider Network) | 43                                   | NA   | 46    | 56    |
| Number of silence call for >4 Sec                  | 2                                    | NA   | 0     | 0     |
| Silence Call Rate %                                | 4.65                                 | NA   | 0.00  | 0.00  |
| Number of silence instances for >4 Sec             | 2                                    | NA   | 0     | 0     |
| Number of silence instances for >3 Sec             | 3                                    | NA   | 2     | 0     |
| Number of silence instances for >2 sec             | 3                                    | NA   | 8     | 0     |
| RTP Jitter (4G & 5G) in ms                         | 0.10                                 | NA   | 11.27 | 28.55 |
| Packet loss Rate Downlink %                        | 0.71                                 | NA   | 0.35  | 0.4   |
| Packet loss Rate Uplink %                          | 0.63                                 | NA   | 0.27  | 0.4   |

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

| <b>Note-</b> <ul style="list-style-type: none"> <li>NA- Due to unavailability of packet switched (VoLTE &amp; VoNR) network in BSNL, silence instances are not captured.</li> </ul> |                                   |      |      |     |
|---|-----------------------------------|------|------|-----|
| <b>Number of unique cell id's covered in Voice test- Technology wise</b>  |                                   |      |      |     |
| Technology  | Service Provider                  |      |      |     |
|   | Auto-selection mode (5G/4G/3G/2G) |      |      |     |
|   | AIRTEL                            | BSNL | RJIL | VIL |
| 5G  | 0                                 | NA   | 46   | NA  |
| 4G  | 193                               | 20   | 243  | 159 |
| 3G  | NA                                | 25   | NA   | NA  |
| 2G  | 0                                 | 26   | NA   | 1   |

**Table-7:** Technology wise number of network cell id's latched during drive test.

|  |
|--|
| <b>Note-</b> <ul style="list-style-type: none"> <li>NA- Service provider doesn't provide services on respective technology.</li> </ul> |
|--|

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

Mean opinion score indicates 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    |
| <b>Total Number of MOS Samples for calls in table-6</b>                                  | 1228             | NA   | 920    | 692    |
| <b>Speech Quality (Average MOS Score)</b>  | 4.01             | NA   | 4.20   | 4.01   |
| <b>Number of samples with MOS <math>\geq 4</math> to <math>&lt; 5</math> (Excellent)</b> | 1023             | NA   | 773    | 567    |
| <b>Number of samples with MOS <math>\geq 3</math> to <math>&lt; 4</math> (Good)</b>      | 161              | NA   | 69     | 90     |
| <b>Number of samples with MOS <math>\geq 2</math> to <math>&lt; 3</math> (Fair)</b>      | 23               | NA   | 43     | 18     |
| <b>Number of samples with MOS <math>\geq 1</math> to <math>&lt; 2</math> (Poor)</b>      | 21               | NA   | 35     | 17     |
| <b>%age of samples with MOS <math>\geq 4</math> to <math>&lt; 5</math> (Excellent)</b>   | 83.31%           | NA   | 84.02% | 81.94% |
| <b>%age of samples with MOS <math>\geq 3</math> to <math>&lt; 4</math> (Good)</b>        | 13.11%           | NA   | 7.50%  | 13.01% |
| <b>%age of samples with MOS <math>\geq 2</math> to <math>&lt; 3</math> (Fair)</b>        | 1.87%            | NA   | 4.68%  | 2.60%  |
| <b>%age of samples with MOS <math>\geq 1</math> to <math>&lt; 2</math> (Poor)</b>        | 1.71%            | NA   | 3.80%  | 2.46%  |

**Table-8:** Summary of speech quality (MOS) samples.

**(b) Data performance (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         | 54.84                             | 4.8  | 316.22 | 27   |
|                               | 80th Percentile | 90.42                             | 8.54 | 469.59 | 47.7 |
|                               | 20th Percentile | 19.66                             | 1.3  | 140.11 | 9.13 |
| Upload Throughput (Mbits/s)   | Average         | 19.96                             | 1.2  | 71.44  | 13.7 |
|                               | 80th Percentile | 28.08                             | 2.6  | 106.74 | 22.2 |
|                               | 20th Percentile | 10.63                             | 0.3  | 37.06  | 5.16 |
| Latency (ms)                  | 50th Percentile | 39.5                              | 38   | 20     | 21   |

**Table-11:** Summary of data performance in network auto-selection mode.

| 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   | 149  | NA  |
| 4G   | 223                               | 20   | 1    | 161 |
| 3G   | NA                                | 25   | NA   | NA  |
| 2G   | 0                                 | 26   | NA   | 2   |

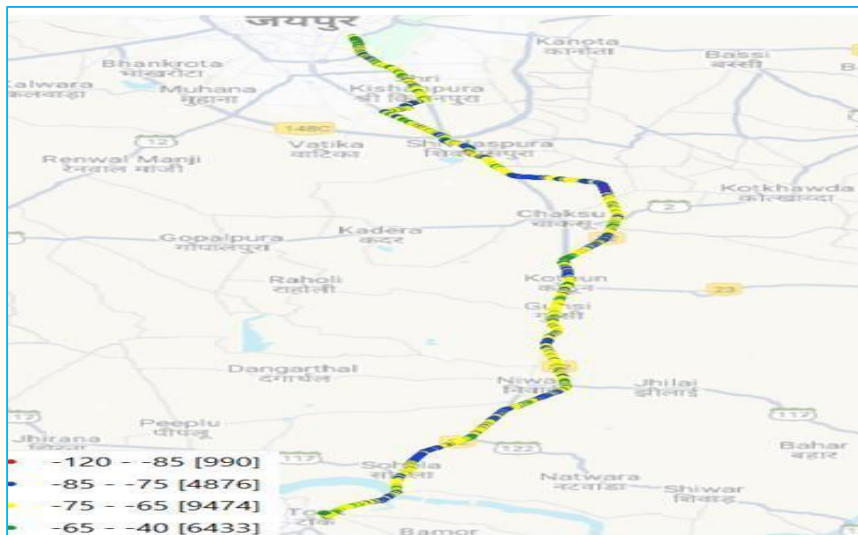
**Table-12:** Technology wise number of network cell id's latched during drive test.

**Note-**

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

## 3.2 TSP Wise Highway Route Coverage Map

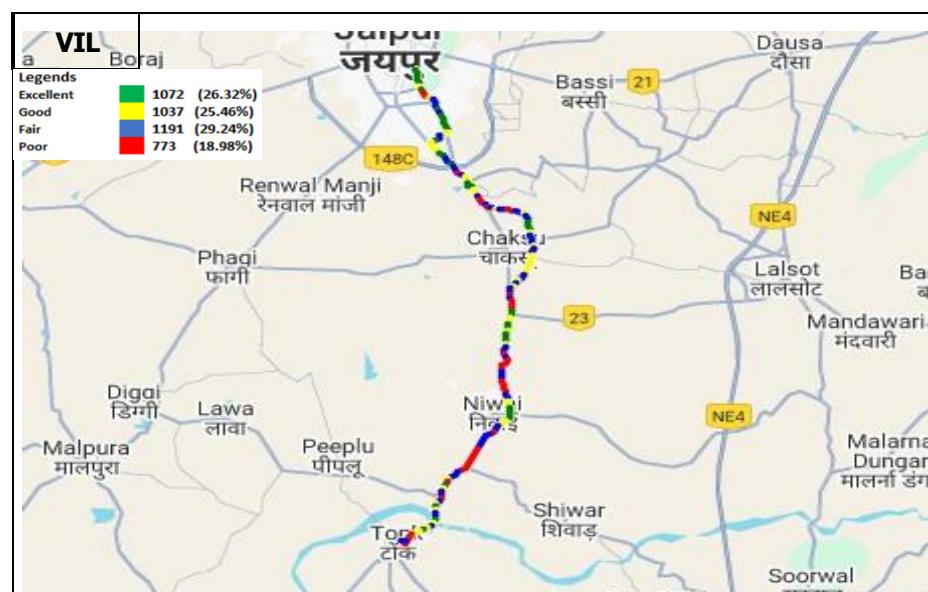
3G/2G Auto Mode:  
**Airtel**



**BSNL**

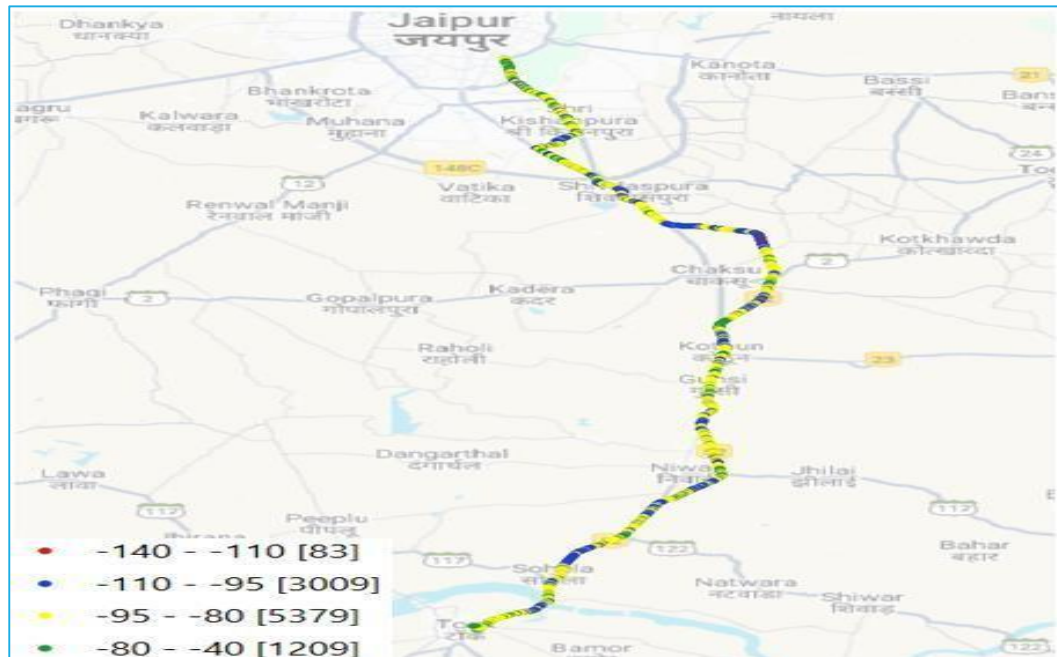


**VIL**

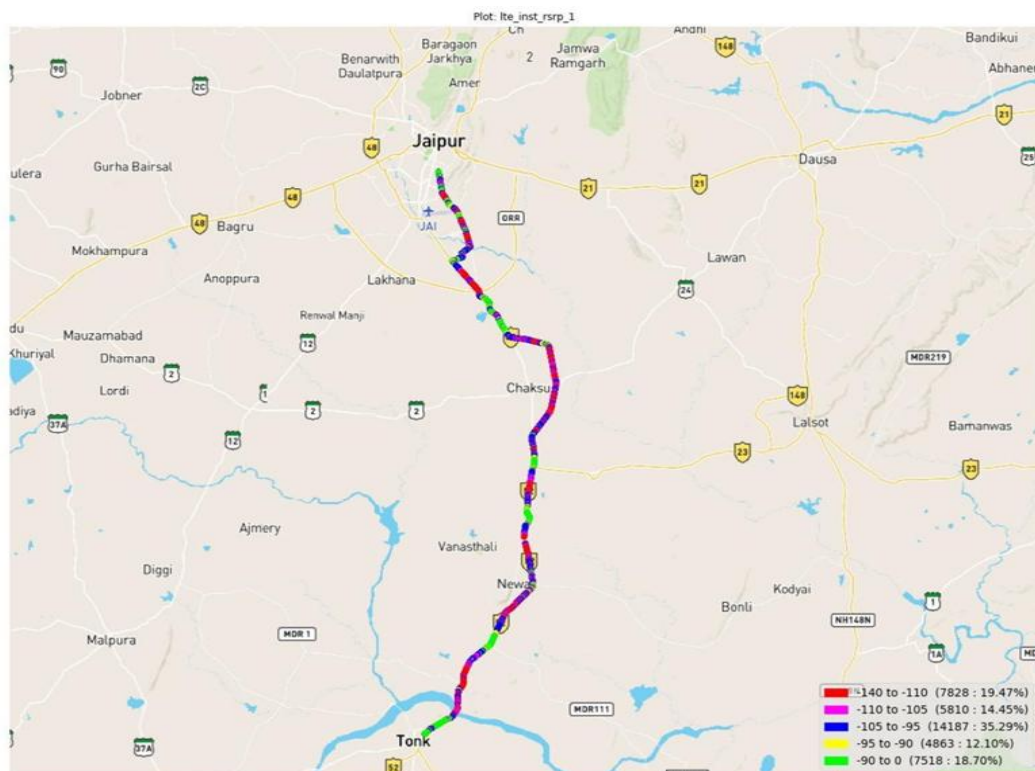


## 5G/4G3G/2G Open Mode:

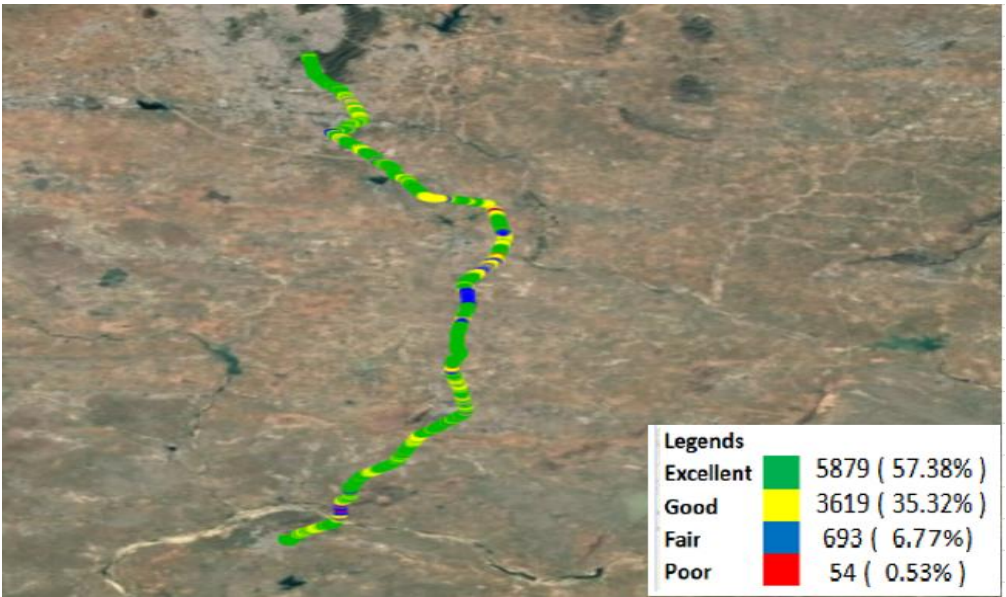
### Airtel



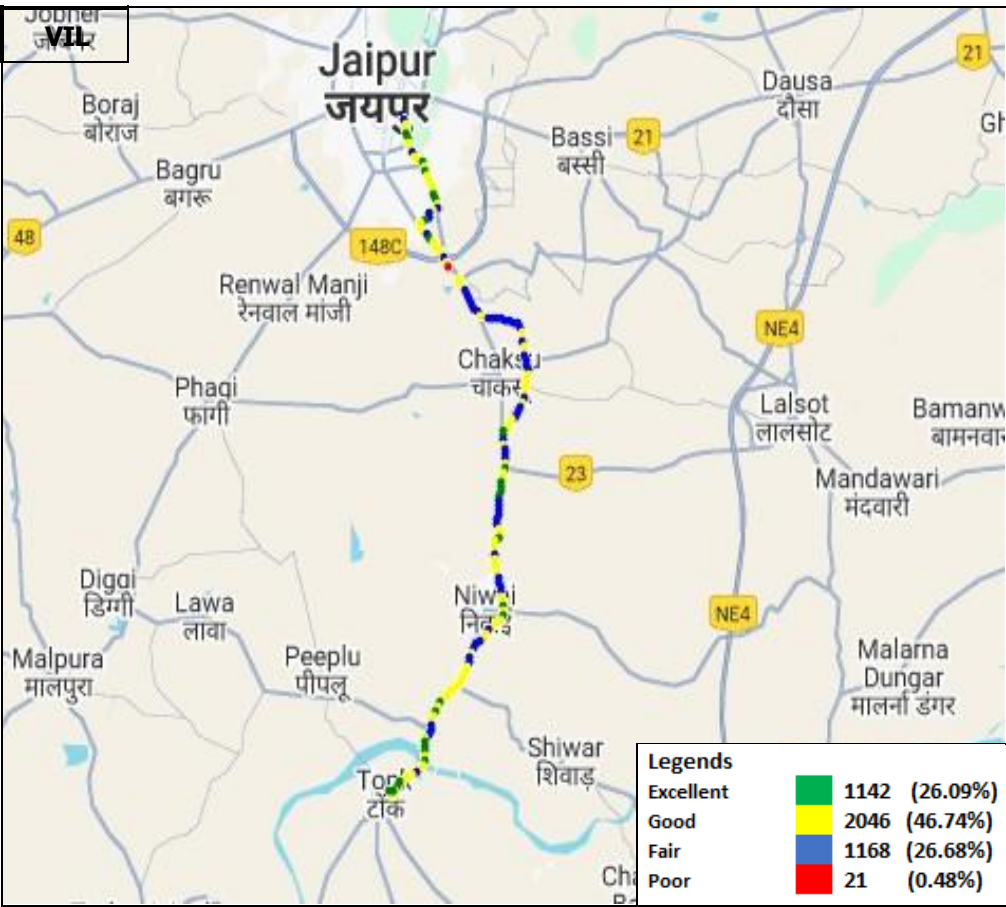
### BSNL



RJIL



VIL



### 3.3 QoS performance analysis- Tonk City

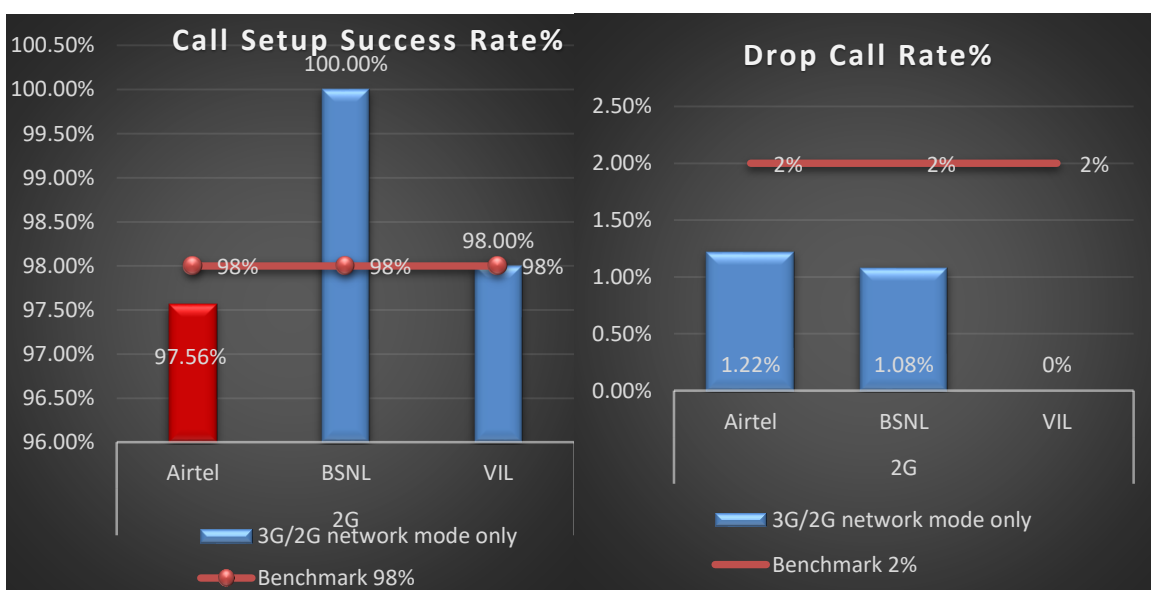
#### Overview

This section provides summary of overall QoS performance of the telecom service provider's network in the Tonk City, Rajasthan LSA by aggregating the results of drive tests conducted in month of June-2025 covering city drive, and hotspots

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                    | 82                      | 92    | 89    |
| Call Setup Success Rate %        | 97.56                   | 100   | 100   |
| Drop Call Rate %                 | 1.22                    | 1.08  | 0.00  |
| Call Setup Time-Average (Second) | 3.42                    | 3.26  | 2.85  |
| Handover Success Rate %          | 99.26                   | 99.62 | 95.59 |



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

**Figure-2:** Call setup success rate and drop call rate performance.

| 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                      | 34   | NA  |
| 2G  | 78                      | 33   | 32  |

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

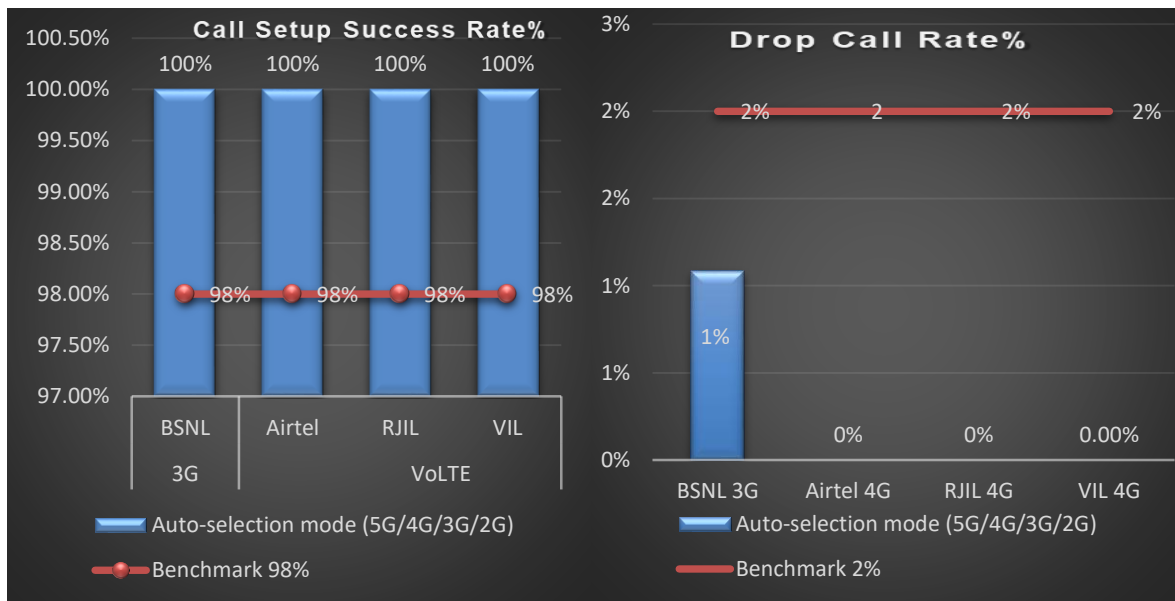
#### Note-

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

## 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                    | 95                                | 91   | 91   | 93    |
| Call Setup Success Rate %        | 100%                              | 100% | 100% | 100%  |
| Drop Call Rate %                 | 0.00                              | 1.08 | 0.00 | 0.00  |
| Call Setup Time-Average (Second) | 1.8                               | 2.95 | 0.74 | 0.36  |
| Handover Success Rate %          | 99.20%                            | 100  | 100  | 99.68 |

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



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

| Parameter  | Service Provider                     |      |      |       |
|--|--------------------------------------|------|------|-------|
|  | Mobile-to-Mobile (5G/4G - Open Mode) |      |      |       |
|  | AIRTEL                               | BSNL | RJIL | VIL   |
| Call Established (within service provider Network) | 93                                   | NA   | 95   | 100   |
| Number of silence call for >4 Sec                  | 1                                    | NA   | 0    | 0     |
| Silence Call Rate %                                | 1.08                                 | NA   | 0.00 | 0.00  |
| Number of silence instances for >4 Sec             | 1                                    | NA   | 0    | 0     |
| Number of silence instances for >3 Sec             | 3                                    | NA   | 2    | 0     |
| Number of silence instances for >2 sec             | 5                                    | NA   | 5    | 0     |
| RTP Jitter (4G & 5G) in ms                         | 3.76                                 | NA   | 8.96 | 32.05 |
| Packet loss Rate Downlink %                        | 0.23                                 | NA   | 0.15 | 0.20  |
| Packet loss Rate Uplink %                          | 0.17                                 | NA   | 0.19 | 0.20  |

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

| <b>Note-</b> <ul style="list-style-type: none"> <li>NA- Due to unavailability of packet switched (VoLTE &amp; VoNR) network in BSNL, silence instances are not captured.</li> </ul> |                                   |      |      |     |
|---|-----------------------------------|------|------|-----|
| <b>Number of unique cell id's covered in Voice test- Technology wise</b>  |                                   |      |      |     |
| Technology  | Service Provider                  |      |      |     |
|   | Auto-selection mode (5G/4G/3G/2G) |      |      |     |
|   | AIRTEL                            | BSNL | RJIL | VIL |
| 5G  | 0                                 | -    | 48   | NA  |
| 4G  | 126                               | 33   | 94   | 98  |
| 3G  | NA                                | 34   | NA   | NA  |
| 2G  | 0                                 | 33   | NA   | 0   |

**Table-7:** Technology wise number of network cell id's latched during drive test.

|  |  |  |  |  |
|--|--|--|--|--|
| <b>Note-</b> <ul style="list-style-type: none"> <li>NA- Service provider doesn't provide services on respective technology.</li> </ul> |  |  |  |  |
|--|--|--|--|--|

**(b) Mean Opinion Score (MOS) performance for speech quality:**

Mean opinion score indicates 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         | 1217             | NA   | 846    | 671    |
| Speech Quality (Average MOS Score)                       | 4.11             | NA   | 4.36   | 4.05   |
| Number of samples with MOS $\geq 4$ to $< 5$ (Excellent) | 1141             | NA   | 771    | 530    |
| Number of samples with MOS $\geq 3$ to $< 4$ (Good)      | 70               | NA   | 53     | 128    |
| Number of samples with MOS $\geq 2$ to $< 3$ (Fair)      | 3                | NA   | 16     | 10     |
| Number of samples with MOS $\geq 1$ to $< 2$ (Poor)      | 3                | NA   | 6      | 3      |
| %age of samples with MOS $\geq 4$ to $< 5$ (Excellent)   | 93.75%           | NA   | 91.13% | 78.99% |
| %age of samples with MOS $\geq 3$ to $< 4$ (Good)        | 5.75%            | NA   | 6.26%  | 19.08% |
| %age of samples with MOS $\geq 2$ to $< 3$ (Fair)        | 0.25%            | NA   | 1.89%  | 1.49%  |
| %age of samples with MOS $\geq 1$ to $< 2$ (Poor)        | 0.25%            | NA   | 0.72%  | 0.45%  |

**Table-8:** Summary of speech quality (MOS) samples.

## (b) Data performance

**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         | 128.48                            | 14.85 | 322.52 | 19.1 |
|                               | 80th Percentile | 192.46                            | 28.25 | 520.01 | 31.2 |
|                               | 20th Percentile | 47.3                              | 2.6   | 118.79 | 5.53 |
| Upload Throughput (Mbits/s)   | Average         | 26.87                             | 3.34  | 74.59  | 7.82 |
|                               | 80th Percentile | 42.49                             | 5.95  | 111.17 | 15   |
|                               | 20th Percentile | 12.27                             | 1.12  | 39.51  | 1.63 |
| Latency (ms)                  | 50th Percentile | 37.5                              | 40    | 24.5   | 23.5 |

**Table-11:** Summary of data performance in network auto-selection mode.

| 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   | 75   | NA  |
| 4G   | 126                               | 34   | 0    | 74  |
| 3G   | NA                                | 33   | NA   | NA  |
| 2G   | 0                                 | 33   | NA   | 0   |

**Table-12:** Technology wise number of network cell id's latched during drive test.

**Network Technology:** This section represents time spent on various network technologies.

(3G/2G Mode)

| Technology      | Service Provider |      |       |
|-----------------|------------------|------|-------|
|                 | AIRTEL           | BSNL | VIL   |
| 3G              | NA               | 7.1  | NA    |
| 2G              | 100.00%          | 92.9 | 100%  |
| Limited Service | 0.00%            | 0    | 0.00% |

**Table-14:** Time spent on technology during drive test 3G/2G network mode only.

(5G/4G/3G/2G Mode)

| Technology      | Service Provider |       |        |        |
|-----------------|------------------|-------|--------|--------|
|                 | AIRTEL           | BSNL  | RJIL   | VIL    |
| 5G              | 0.00%            | -     | 16.81% | NA     |
| 4G              | 100.00%          | -     | 83.19% | 94.02% |
| 3G              | NA               | 7.76  | NA     | NA     |
| 2G              | 0.00%            | 92.24 | NA     | 5.98%  |
| Limited Service | 0.00%            | NA    | 0.00%  | 0.00%  |

**Table-18:** Time spent on technology during drive test.

### 3.4 Hotspots

Hotspot testing has been done on 25 June & 26 June 2025. Five locations have been tested in the city.

#### (a) Locations



**Figure- 23:** Hotspot locations

#### (b) Hotspot covered

1. **Bus Stand, Tonk**
2. **collectorate, Tonk**
3. **Govt. Hospital, Tonk**
4. **Govt PG Collage, Tonk**
5. **Kafila Bazar, Tonk**

#### (c)Voice performance

| Bus Stand, Tonk               |                                   |      |        |        |
|-------------------------------|-----------------------------------|------|--------|--------|
| 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% | 100.00 | 100.00 |
| Drop Call Rate %              | 0.00%                             | 0    | 0.00   | 0.00   |
| Call Setup Time-Average (Sec) | 1.79                              | 3.41 | 0.65   | 0.24   |

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

| Collectorate, Tonk            |                                   |      |        |        |
|-------------------------------|-----------------------------------|------|--------|--------|
| 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% | 100.00 | 100.00 |
| Drop Call Rate %              | 0.00%                             | 0    | 0.00   | 0.00   |
| Call Setup Time-Average (Sec) | 1.81                              | 3.54 | 0.68   | 0.33   |

**Table-22:** Summary of voice call performance in network auto-selection mode 5G/4G/3G/2G).

| Govt. Hospital, Tonk          |                                   |      |        |        |
|-------------------------------|-----------------------------------|------|--------|--------|
| 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% | 100.00 | 100.00 |
| Drop Call Rate %              | 0.00%                             | 0    | 0.00   | 0.00   |
| Call Setup Time-Average (Sec) | 1.93                              | 3.35 | 0.86   | 3.16   |

**Table-23:** Summary of voice call performance in network auto-selection mode 5G/4G/3G/2G).

| Govt PG Collage, Tonk         |                                   |      |        |        |
|-------------------------------|-----------------------------------|------|--------|--------|
| 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% | 100.00 | 100.00 |
| Drop Call Rate %              | 0.00%                             | 0    | 0.00   | 0.00   |
| Call Setup Time-Average (Sec) | 1.89                              | 3.67 | 0.71   | 0.31   |

**Table-24:** Summary of voice call performance in network auto-selection mode 5G/4G/3G/2G).

| Kafila Bazar, Tonk            |                                   |      |        |        |
|-------------------------------|-----------------------------------|------|--------|--------|
| 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% | 100.00 | 100.00 |
| Drop Call Rate %              | 0.00%                             | 0    | 0.00   | 0.00   |
| Call Setup Time-Average (Sec) | 1.76                              | 3.2  | 0.52   | 0.32   |

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

## (d) 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)        | <b>465.04</b>                     | <b>24.19</b> | <b>438.40</b> | <b>31.55</b> |
| Download Throughput 80th Percentile (Mbit/s) | 273.46                            | 32.1         | 534.8         | 51.16        |
| Download Throughput 20th Percentile (Mbit/s) | 45.29                             | 7.85         | 301.75        | 8.89         |
| Download Session Setup Success Rate %        | 100.00%                           | 100          | 100.00        | 100.00       |
| Upload Throughput Average (Mbits/s)          | <b>41.73</b>                      | <b>5.39</b>  | <b>132.95</b> | <b>4.86</b>  |
| Upload Throughput 80th Percentile (Mbit/s)   | 41.04                             | 7.8          | 163.81        | 7.12         |
| Upload Throughput 20th Percentile (Mbit/s)   | 13.97                             | 1.3          | 102.32        | 1.95         |
| Upload Session Setup Success Rate %          | 100.00%                           | 100          | 100.00        | 100.00       |
| Web Browsing Delay (Second)                  | 9.08                              | 38ms         | 2.42          | 6.37         |
| Youtube Initial Buffer Delay (Second)        | 0.91                              | 2.7          | 0.46          | 1.35         |
| Latency (ms)-50th Percentile                 | 41                                | 45           | 24.5          | 22.30        |
| Jitter (ms)                                  | 3.77                              | 19           | -             | 9.55         |
| Packet Loss Rate%                            | 0.06%                             | 0            | -             | 0.00         |
| Packet Loss Rate- 90th percentile            | 45.59                             | 0            | -             | 0.00         |

**Table-32:** Overall Summary of Data performance in network auto-selection mode (5G/4G/3G/2G).

| Bus Stand , Tonk                      |                                   |       |        |        |
|---------------------------------------|-----------------------------------|-------|--------|--------|
| Parameters                            | Service Provider                  |       |        |        |
|                                       | Auto-selection mode (5G/4G/3G/2G) |       |        |        |
|                                       | AIRTEL                            | BSNL  | RJIL   | VIL    |
| Download Throughput Average (Mbits/s) | 417.50                            | 26.93 | 265.71 | 46.05  |
| Download Session Setup Success Rate % | 100.00%                           | 100   | 100.00 | 100.00 |
| Upload Throughput Average (Mbits/s)   | 33.94                             | 6.2   | 73.26  | 6.44   |
| Upload Session Setup Success Rate %   | 100.00%                           | 100   | 100.00 | 100.00 |
| Web Browsing Delay (Second)           | 14.5                              | 35ms  | 3.13   | 7.37   |
| Youtube Initial Buffer Delay (Second) | 0.88                              | 2.7   | 0.57   | 1.09   |
| Latency (ms)-50th Percentile          | 44.5                              | 45ms  | 23     | 21.00  |
| Jitter (ms)                           | 5.12                              | 16ms  | -      | 7.52   |
| Packet Loss Rate%                     | 0.20                              | 0     | -      | 0.00   |

**Table-33:** Summary of Data performance in network auto-selection mode (5G/4G/3G/2G)

| Collectorate , Tonk                   |                                   |      |        |        |
|---------------------------------------|-----------------------------------|------|--------|--------|
| Parameters                            | Service Provider                  |      |        |        |
|                                       | Auto-selection mode (5G/4G/3G/2G) |      |        |        |
|                                       | AIRTEL                            | BSNL | RJIL   | VIL    |
| Download Throughput Average (Mbits/s) | 425.08                            | 20.3 | 451.00 | 3.72   |
| Download Session Setup Success Rate % | 100.00%                           | 100  | 100.00 | 100.00 |
| Upload Throughput Average (Mbits/s)   | 40.62                             | 4.9  | 132.34 | 3.87   |
| Upload Session Setup Success Rate %   | 100.00%                           | 100  | 100.00 | 100.00 |
| Web Browsing Delay (Second)           | 8.02                              | 48ms | 1.98   | 2.50   |
| Youtube Initial Buffer Delay (Second) | 0.9                               | 3.6  | 0.39   | 1.69   |
| Latency (ms)-50th Percentile          | 40.5                              | 48   | 34.50  | 22.00  |
| Jitter (ms)                           | 2.79                              | 19ms | -      | 10.76  |
| Packet Loss Rate%                     | 0.00%                             | 0    | -      | 0.00   |

**Table-34:** Summary of Data performance in network auto-selection mode (5G/4G/3G/2G).

| Govt. Hospital ,Tonk                  |                                   |      |        |        |
|---------------------------------------|-----------------------------------|------|--------|--------|
| Parameters                            | Service Provider                  |      |        |        |
|                                       | Auto-selection mode (5G/4G/3G/2G) |      |        |        |
|                                       | AIRTEL                            | BSNL | RJIL   | VIL    |
| Download Throughput Average (Mbits/s) | 556.30                            | 6.92 | 574.18 | 27.63  |
| Download Session Setup Success Rate % | 100.00%                           | 100  | 100.00 | 100.00 |
| Upload Throughput Average (Mbits/s)   | 63.86                             | 5.1  | 152.00 | 4.94   |
| Upload Session Setup Success Rate %   | 100.00%                           | 100  | 100.00 | 100.00 |
| Web Browsing Delay (Second)           | 6.78                              | 49   | 1.65   | 7.41   |
| Youtube Initial Buffer Delay (Second) | 0.7                               | 2.9  | 0.43   | 1.36   |
| Latency (ms)-50th Percentile          | 40.5                              | 52   | 38.50  | 23.00  |
| Jitter (ms)                           | 3.94                              | 26ms | -      | 12.40  |
| Packet Loss Rate%                     | 0.00%                             | 0    | -      | 0.00   |

**Table-37:** Summary of Data performance in network auto-selection mode (5G/4G/3G/2G).

**Note-** "- Ping tests were failed.

| Govt. PG College , Tonk               |                                   |      |        |        |
|---------------------------------------|-----------------------------------|------|--------|--------|
| Parameters                            | Service Provider                  |      |        |        |
|                                       | Auto-selection mode (5G/4G/3G/2G) |      |        |        |
|                                       | AIRTEL                            | BSNL | RJIL   | VIL    |
| Download Throughput Average (Mbits/s) | 354.09                            | 19   | 443.67 | 51.48  |
| Download Session Setup Success Rate % | 100.00%                           | 100  | 100.00 | 100.00 |
| Upload Throughput Average (Mbits/s)   | 10.46                             | 6.75 | 151.76 | 6.79   |
| Upload Session Setup Success Rate %   | 100.00%                           | 100  | 100.00 | 100.00 |
| Web Browsing Delay (Second)           | 8.5                               | 41   | 3.02   | 7.48   |
| Youtube Initial Buffer Delay (Second) | 1.09                              | 1.1  | .37    | 1.16   |
| Latency (ms)-50th Percentile          | 35.5                              | 42   | 20.50  | 22.00  |
| Jitter (ms)                           | 3.56                              | 17ms | -      | 7.12   |
| Packet Loss Rate%                     | 0.00%                             | 0    | -      | 0.00   |

**Table-38:** Summary of Data performance in network auto-selection mode (5G/4G/3G/2G)

| Kafila Bazar , Tonk                   |                                   |      |        |        |
|---------------------------------------|-----------------------------------|------|--------|--------|
| Parameters                            | Service Provider                  |      |        |        |
|                                       | Auto-selection mode (5G/4G/3G/2G) |      |        |        |
|                                       | AIRTEL                            | BSNL | RJIL   | VIL    |
| Download Throughput Average (Mbits/s) | 572.21                            | 23.5 | 457.44 | 28.87  |
| Download Session Setup Success Rate % | 100.00%                           | 100  | 100.00 | 100.00 |
| Upload Throughput Average (Mbits/s)   | 59.79                             | 6.1  | 155.37 | 2.25   |
| Upload Session Setup Success Rate %   | 100.00%                           | 100  | 100.00 | 100.00 |
| Web Browsing Delay (Second)           | 7.58                              | 43   | 2.30   | 7.11   |
| Youtube Initial Buffer Delay (Second) | 0.99                              | 2.9  | 0.56   | 1.43   |
| Latency (ms)-50th Percentile          | 44                                | 43   | 21.25  | 23.50  |
| Jitter (ms)                           | 3.43                              | 17ms | -      | 9.93   |
| Packet Loss Rate%                     | 0.10%                             | 0    | -      | 0.00   |

**Table-39:** Summary of Data performance in network auto-selection mode (5G/4G/3G/2G).

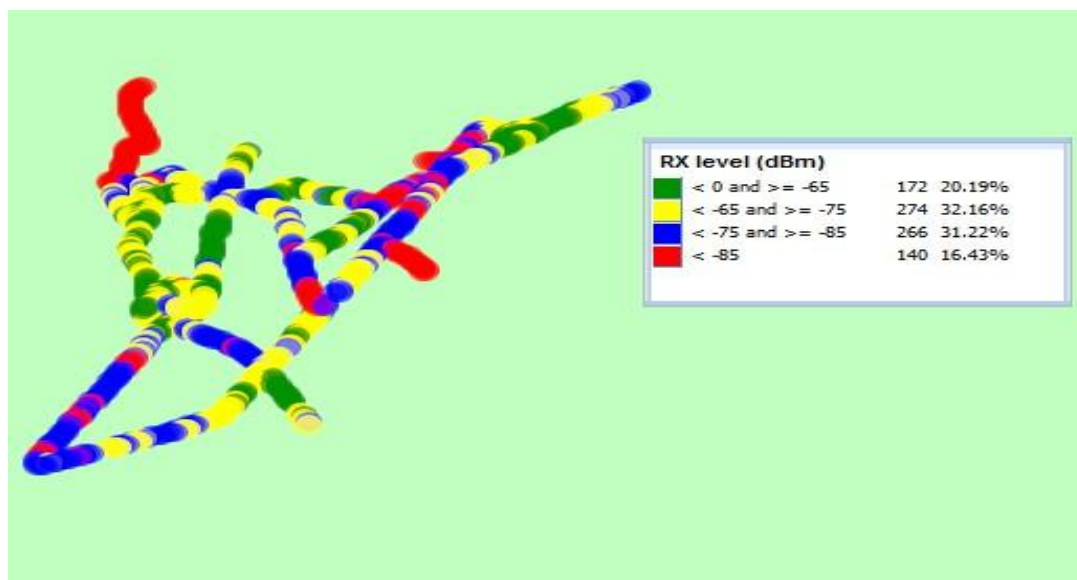
## TSP Wise signal Strength ( Tonk City)



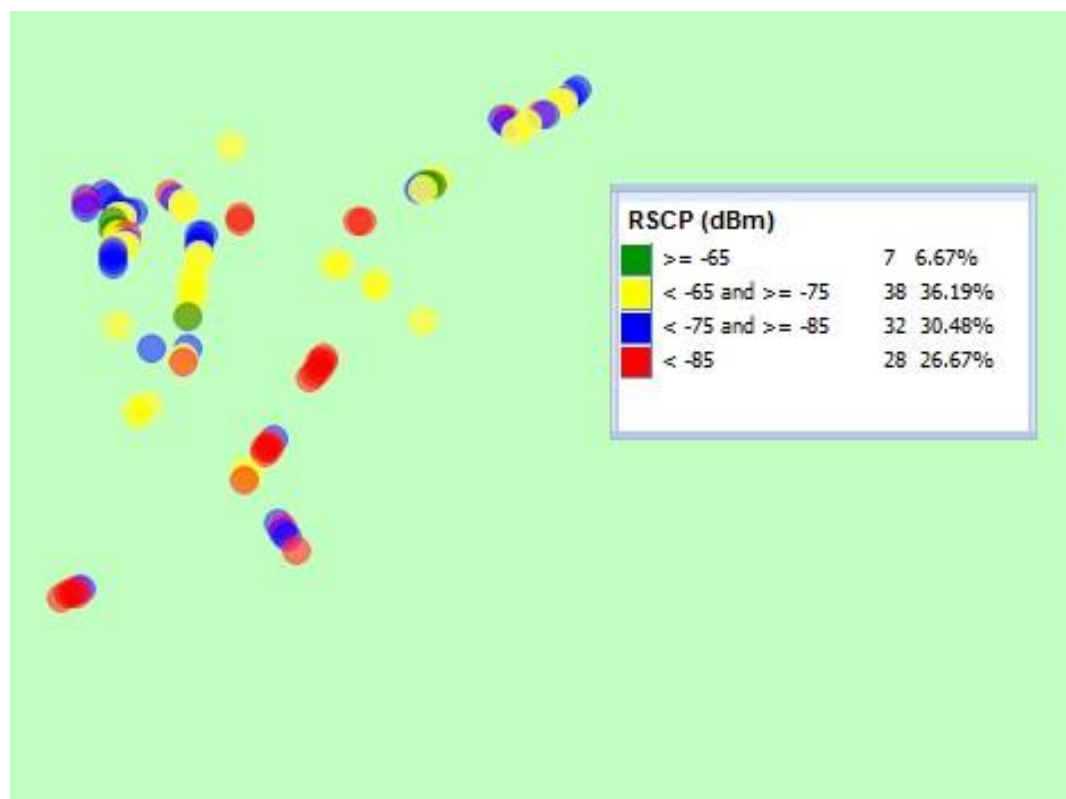
**Figure-25:** Signal strength 3G/2G network mode – AIRTEL.



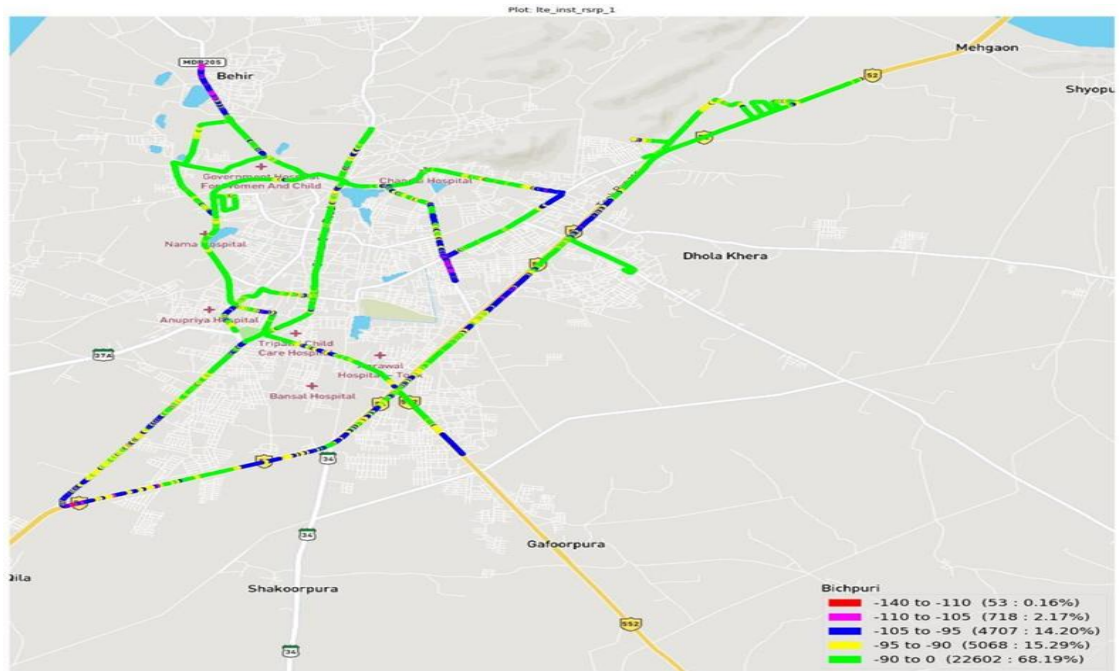
**Figure-28:** Signal strength auto-selection mode 5G/4G/3G/2G – AIRTEL.



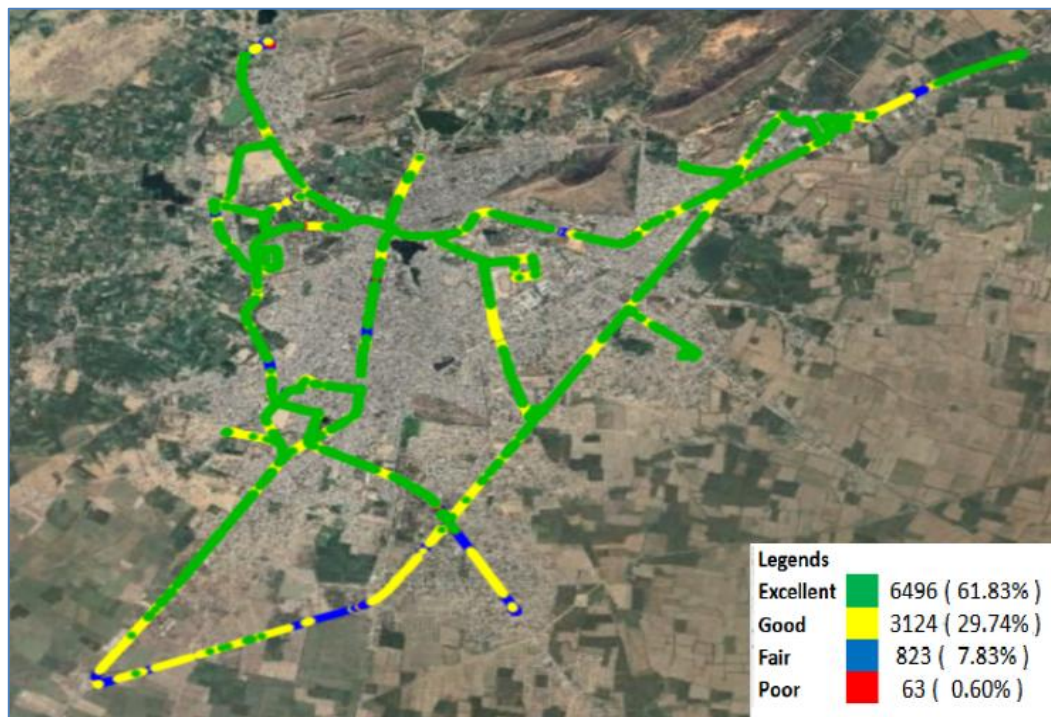
Signal strength 2G network mode – BSNL



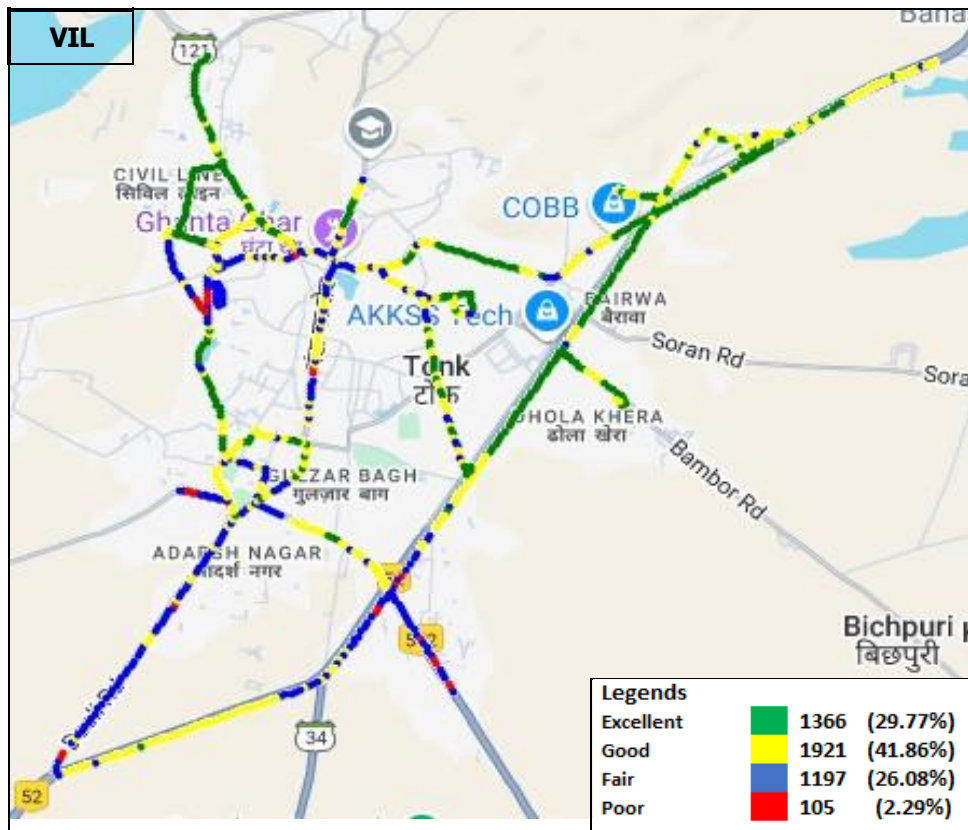
Signal strength 3G network mode – BSNL



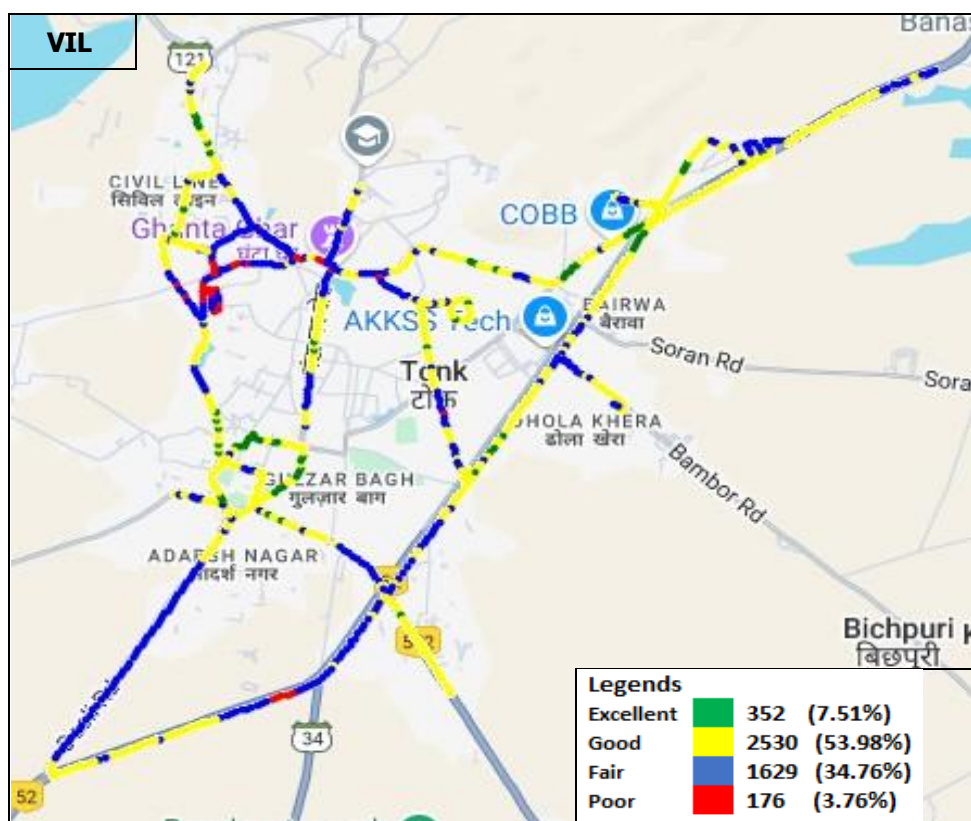
Signal strength 4G network mode – BSNL



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



Signal strength 3G/2G network mode – VIL



Signal strength auto-selection mode 5G/4G/3G/2G – VIL.