# Monthly Operating Support System (OSS) Report of Mobile Services

**Bhutan InfoComm and Media Authority**

**Royal Government of Bhutan**

**June 2024**

# Contents

# 1. Background

The Authority collects the monthly system generated Mobile Operating Support System (OSS) report from the Telecom Operators and does reviews on the average Mobile Quality of Service (QoS). Based on the system generated Mobile OSS reports, the Authority decides the locations of physical verification or a drive test and carries out the Mobile QoS drive test to monitor and report the QoS regularly. The Mobile OSS report contains the mobile QoS for both voice and data services which are based on and measured through the various parameters of key performance indicators (KPI) of Mobile services of the 20 dzongkhags.

These OSS reports contain both operator's averaged Operation Support system (OSS) reports for the month of June 2024.

## 2. Findings

The results and findings of OSS system generated reports submitted by both the telecom operators are mentioned below:

**(i) B-Mobile OSS**

a. 3G

| BTL monthly OSS report for June, 2024 |
|---|---|---|---|---|---|---|---|
| Sl. No | Region | CS drop rate (%) | PS drop rate(%) | CS success rate (%) | PS success rate (%) | DL user throughput( Mbps) | UL user throughput( Mbps) |
| 1 | Thimphu | 0.16 | 0.46 | 99.75 | 97.97 | 2.07 | 0.45 |
| 2 | Paro | 0.16 | 0.40 | 99.78 | 98.32 | 2.78 | 0.51 |
| 3 | Haa | 0.05 | 0.75 | 99.79 | 98.31 | 2.94 | 0.58 |
| 4 | Wangdi | 0.08 | 0.62 | 99.83 | 98.51 | 3.01 | 0.57 |
| 5 | Gasa | 0.19 | 1.01 | 99.87 | 97.56 | 3.23 | 0.57 |
| 6 | Punakha | 0.17 | 0.53 | 99.84 | 98.12 | 2.24 | 0.56 |
| 7 | Chukha | 0.15 | 0.56 | 99.77 | 98.27 | 2.93 | 0.52 |
| 8 | Samtse | 0.15 | 0.73 | 99.77 | 98.24 | 2.33 | 0.48 |
| 9 | Sarpang | 0.29 | 0.60 | 99.91 | 98.94 | 3.12 | 0.52 |
| 10 | Dagana | sunset | sunset | sunset | sunset | sunset | sunset |
| 11 | Zhemgang | 0.22 | 1.07 | 99.91 | 98.56 | 2.20 | 0.46 |
| 12 | Tsirang | sunset | sunset | sunset | sunset | sunset | sunset |
| 13 | Trongsa | 0.31 | 0.95 | 99.94 | 99.22 | 2.41 | 0.54 |
| 14 | Bumthang | 0.14 | 0.68 | 99.88 | 99.09 | 2.04 | 0.48 |
| 15 | S/Jongkhar | 0.18 | 0.75 | 99.95 | 98.77 | 2.87 | 0.50 |
| 16 | Pgytsel | 0.12 | 0.67 | 99.92 | 99.03 | 2.18 | 0.48 |
| 17 | Trashigang | 0.46 | 1.12 | 99.93 | 98.87 | 2.45 | 0.49 |
| 18 | T/yangtse | 0.10 | 0.40 | 99.93 | 99.50 | 3.22 | 0.55 |
| 19 | Mongar | 0.08 | 0.79 | 99.92 | 98.69 | 2.16 | 0.49 |
| 20 | Lhuntse | 0.08 | 0.52 | 99.90 | 98.96 | 2.44 | 0.51 |

b. 4G

| Sl. No | Region | PS drop rate(%) | PS success rate (%) | DL user throughput(Mbps) | UL user throughput(Mbps) |
|---|---|---|---|---|---|
| 1 | Thimphu | 0.53 | 99.79 | 13.60 | 3.14 |
| 2 | Paro | 0.41 | 99.84 | 16.11 | 3.17 |
| 3 | Haa | 0.55 | 99.83 | 21.46 | 2.13 |
| 4 | Wangdi | 0.67 | 99.78 | 14.94 | 2.98 |
| 5 | Gasa | 0.50 | 99.93 | 33.36 | 1.75 |
| 6 | Punakha | 0.43 | 99.72 | 17.14 | 2.33 |
| 7 | Chukha | 0.82 | 99.78 | 17.35 | 2.47 |
| 8 | Samtse | 1.06 | 99.75 | 17.62 | 2.40 |
| 9 | Sarpang | 0.48 | 99.89 | 24.94 | 3.11 |
| 10 | Dagana | 0.76 | 99.77 | 17.96 | 1.17 |
| 11 | Zhemgang | 0.74 | 99.64 | 33.54 | 1.84 |
| 12 | Tsirang | 0.52 | 99.90 | 17.96 | 2.27 |
| 13 | Trongsa | 0.62 | 99.72 | 30.25 | 1.89 |
| 14 | Bumthang | 0.81 | 99.84 | 18.85 | 2.01 |
| 15 | S/Jongkhar | 1.26 | 99.76 | 19.39 | 1.87 |
| 16 | Pgytsel | 0.87 | 99.82 | 18.03 | 1.62 |
| 17 | Trashigang | 0.60 | 99.77 | 19.44 | 1.89 |
| 18 | T/yangtse | 0.47 | 99.90 | 30.61 | 2.79 |
| 19 | Mongar | 0.60 | 99.83 | 21.60 | 2.04 |
| 20 | Lhuntse | 0.40 | 99.86 | 20.33 | 1.15 |

The title row of the table reads: **BTL monthly OSS report for June, 2024**

c. 5G

| Sl. No | Region | PS drop rate(%) | PS success rate (%) | DL user throughput(Mbps) | UL user throughput(Mbps) |
|--------|--------|-----------------|---------------------|--------------------------|--------------------------|
| | | | **BTL monthly OSS report for June, 2024** | | |
| 1 | Thimphu | 1.92 | 99.91 | 228.87 | 1.01 |
| 2 | Paro | 1.57 | 97.15 | 275.57 | 1.53 |
| 3 | Haa | 0.88 | 99.78 | 309.72 | 4.21 |
| 4 | Wangdi | 1.39 | 99.95 | 253.21 | 2.30 |
| 5 | Gasa | 0.46 | 99.96 | 143.37 | 0.62 |
| 6 | Punakha | 1.51 | 99.95 | 278.61 | 3.12 |
| 7 | Chukha | 2.51 | 99.93 | 276.25 | 1.35 |
| 8 | Samtse | 1.33 | 99.95 | 245.82 | 1.48 |
| 9 | Sarpang | 2.51 | 99.97 | 154.25 | 1.07 |
| 10 | Dagana | 2.29 | 99.98 | 76.09 | 0.59 |
| 11 | Zhemgang | 0.15 | 99.90 | 293.64 | 0.50 |
| 12 | Tsirang | 0.79 | 99.99 | 193.27 | 0.80 |
| 13 | Trongsa | 0.98 | 99.99 | 142.45 | 0.41 |
| 14 | Bumthang | 0.76 | 99.97 | 134.80 | 1.13 |
| 15 | S/Jongkhar | 1.59 | 99.97 | 172.77 | 1.28 |
| 16 | Pgytsel | 1.32 | 99.99 | 198.20 | 0.84 |
| 17 | Trashigang | 1.32 | 99.95 | 321.41 | 3.47 |
| 18 | T/yangtse | 0.78 | 99.97 | 436.57 | 2.92 |
| 19 | Mongar | 3.63 | 99.96 | 220.71 | 2.28 |
| 20 | Lhuntse | 0.63 | 99.96 | 290.79 | 1.01 |

**(ii) Tashi Cell OSS**

a. 3G

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **TICPL monthly OSS report for June, 2024** | | | | | | | |
| **Sl. No.** | **Region** | **CS drop rate (%)** | **PS drop rate (%)** | **CS RAB success rate (%)** | **PS RABsuccess rate(%)** | **DL user throughput (Mbps)** | **UL user throughput(Mbps)** |
| 1 | Bumthang | 0.24 | 0.30 | 99.62 | 99.53 | 2.77 | 0.14 |
| 2 | Chukha | 0.30 | 0.39 | 99.96 | 99.51 | 2.15 | 0.13 |
| 3 | Dagana | 0.22 | 0.44 | 99.59 | 99.45 | 2.60 | 0.14 |
| 4 | Gasa | 0.17 | 0.75 | 100.00 | 99.65 | 2.16 | 0.11 |
| 5 | Haa | 0.12 | 0.25 | 99.92 | 99.75 | 2.72 | 0.14 |
| 6 | Lhuntse | 0.58 | 0.74 | 98.02 | 98.47 | 2.09 | 0.11 |
| 7 | Mongar | 0.23 | 0.54 | 99.24 | 98.68 | 2.28 | 0.13 |
| 8 | Paro | 0.13 | 0.24 | 99.92 | 99.66 | 2.18 | 0.14 |
| 9 | Pemagatshel | 0.15 | 0.30 | 99.90 | 99.65 | 2.34 | 0.13 |
| 10 | Punakha | 0.12 | 0.24 | 99.96 | 99.63 | 2.46 | 0.14 |
| 11 | Samtse | 0.24 | 0.65 | 99.63 | 99.39 | 1.59 | 0.13 |
| 12 | Sarpang | 0.16 | 0.30 | 99.74 | 99.38 | 2.10 | 0.13 |
| 13 | S/jongkhar | 0.22 | 0.57 | 99.94 | 99.37 | 2.08 | 0.12 |
| 14 | Thimphu | 0.08 | 0.21 | 99.88 | 99.65 | 2.67 | 0.14 |
| 15 | Trashigang | 0.15 | 0.37 | 99.83 | 99.04 | 2.37 | 0.13 |
| 16 | Trongsa | 0.05 | 0.19 | 99.91 | 99.65 | 2.53 | 0.13 |
| 18 | Trashi yangtse | 0.11 | 0.16 | 99.96 | 99.48 | 2.67 | 0.14 |
| 17 | Tsirang | 0.17 | 0.36 | 99.78 | 99.53 | 1.87 | 0.13 |
| 19 | Wangdi | 0.28 | 0.55 | 99.61 | 99.17 | 2.44 | 0.13 |
| 20 | Zhemgang | 0.12 | 0.35 | 99.79 | 99.57 | 2.36 | 0.13 |

b. 4G

| Sl. No | Region | PS drop rate(%) | PS success rate (%) | DL user throughput(Mbps) | UL user throughput(Mbps) |
|---|---|---|---|---|---|
| | | | **TICPL monthly OSS report for June, 2024** | | |
| 1 | Bumthang | 0.29 | 99.85 | 12.86 | 1.54 |
| 2 | Chukha | 0.40 | 99.72 | 13.54 | 1.67 |
| 3 | Dagana | 0.35 | 99.78 | 15.01 | 1.59 |
| 4 | Gasa | 0.55 | 99.26 | 20.77 | 1.40 |
| 5 | Haa | 0.19 | 99.87 | 12.82 | 1.73 |
| 6 | Lhuntse | 0.36 | 99.63 | 10.00 | 1.28 |
| 7 | Mongar | 0.36 | 99.22 | 9.22 | 1.41 |
| 8 | Paro | 0.18 | 99.75 | 10.82 | 1.59 |
| 9 | Pemagatshel | 0.14 | 99.74 | 9.25 | 1.29 |
| 10 | Punakha | 0.29 | 99.83 | 11.84 | 1.45 |
| 11 | Samtse | 0.83 | 99.73 | 12.87 | 1.42 |
| 12 | Sarpang | 0.17 | 99.80 | 11.13 | 1.64 |
| 13 | S/jongkhar | 0.44 | 99.72 | 13.08 | 1.85 |
| 14 | Thimphu | 0.26 | 99.81 | 11.37 | 1.59 |
| 15 | Trashigang | 0.27 | 99.84 | 10.71 | 1.76 |
| 16 | Trongsa | 0.12 | 99.85 | 13.99 | 1.94 |
| 17 | Trashi yangtse | 0.13 | 99.82 | 10.01 | 1.66 |
| 18 | Tsirang | 0.21 | 99.81 | 8.01 | 1.27 |
| 19 | Wangdi | 0.25 | 99.85 | 15.50 | 2.07 |
| 20 | Zhemgang | 0.24 | 99.75 | 15.29 | 1.63 |

c. 5G

| | | | **TICPL monthly OSS report for June, 2024** | | |
|---|---|---|---|---|---|
| **Sl. No** | **Region** | **PS drop rate(%)** | **PS success rate (%)** | **DL user throughput(Mbps)** | **UL user throughput(Mbps)** |
| 1 | Bumthang | 0.95 | 99.97 | 50.67 | 1.16 |
| 2 | Chukha | 1.87 | 99.89 | 50.88 | 0.83 |
| 3 | Dagana | 0.95 | 100.00 | 159.94 | 1.07 |
| 4 | Gasa | 0.21 | 100.00 | 75.48 | 1.86 |
| 5 | Haa | 0.49 | 99.94 | 165.86 | 1.87 |
| 6 | Lhuntse | 1.28 | 99.97 | 50.83 | 0.97 |
| 7 | Mongar | 1.64 | 98.87 | 50.83 | 1.11 |
| 8 | Paro | 0.39 | 99.91 | 52.42 | 1.46 |
| 9 | Pemagatshel | 1.17 | 99.86 | 56.70 | 0.70 |
| 10 | Punakha | 0.78 | 99.92 | 78.05 | 1.83 |
| 11 | Samtse | 1.39 | 99.95 | 57.55 | 1.12 |
| 12 | Sarpang | 1.31 | 99.93 | 50.28 | 0.57 |
| 13 | S/jongkhar | 1.87 | 99.98 | 51.00 | 0.80 |
| 14 | Thimphu | 0.95 | 99.53 | 62.74 | 1.29 |
| 15 | Trashigang | 0.29 | 99.94 | 50.80 | 1.17 |
| 16 | Trongsa | 1.89 | 99.77 | 110.67 | 0.77 |
| 17 | Trashi yangtse | 1.85 | 99.45 | 50.00 | 0.94 |
| 18 | Tsirang | 0.83 | 99.95 | 68.00 | 1.13 |
| 19 | Wangdi | 1.35 | 99.54 | 87.00 | 1.02 |
| 20 | Zhemgang | 0.31 | 99.98 | 270.79 | 1.11 |

## 3. Analysis

a.  The download throughput for 3G is within the set standard. The Upload throughput for 3G of both the telcos is below the standard in all Dzongkhags. However, since there are not many users and 3G is being phased out and wherever 3G is available the 4G is also available, **the issue does not have much implications.**

b.  The download throughput for 4G of both the telcos is within the set standard in all Dzongkhags.

c.  The Upload throughput for 4G of BTL is **within** the standard **except for Gasa, Dagana, Zhemgang, Trongsa, S/Jongkhar, Pemagatshe, Trashigang and Lhuentse**. The Upload throughput for 4G of TICPL is **not within** the set standard in all Dzongkhags except for Wangdue Phodrang Dzongkhag.

d.  The Download throughput for 5G of BTL is **within** the standard for all Dzongkhags **except for Dagana Dzongkhag**. The Download throughput for 5G of TICPL is **below** the standard in all Dzongkhags except for Dagana, Haa, Trongsa, and Zhemgang.

e.  The Upload throughput for 5G of both the telcos is below the standard for all Dzongkhags.

f.  Both the telcos clarified that the low upload throughput of 5G is due to less number of users uploading through 5G. If there is more upload traffic through 5G, there could probably be an accurate representation of the upload speed obtained by a user.

g.  The throughput for 5G of both the telcos include 5G FWA service throughput along with the cellular service throughput, and therefore the average throughput usually comes less.