

# **National Fiber Network Reliability Report (October to December, 2020)**



**Division of Telecom and Space  
Department of IT and Telecom**

## **Executive Summary**

In order to check and monitor the national network reliability, the DITT/MoIC has prepared the following report.

The data is collected from the stakeholders, Bhutan Power Corporation(BPC), Bhutan Telecom Limited (BTL), and Tashi InfoComm Limited (TICL) on a monthly basis and the report is prepared on a quarterly basis. This is the second quarter report for the financial year 2020-2021. The department shall publish 4 reports for the financial year 2020-2021.

## **Introduction**

Department of Information Technology and Telecom (DITT) under MoIC (Ministry of Information and Communications) has implemented National Broadband Master Plan Implementation Project (NBMP) to establish a fiber optic backbone network throughout the country. Under the said project, 18 Dzongkhags have been connected with OPGW cables and remaining two Dzongkhags and 201 Gewogs have been connected with ADSS cables.

DITT is the sole owner of the National Fiber network. DITT leases the fibers to Telecom operators and Internet Service Providers for free of cost in order to ensure a level playing field for operators and to help improve competition at the service level. In addition, the fibers are also used by the department to establish connectivity to Community Centers.

BPC manages the Operation and Maintenance of the National Fiber Network. According to the agreement signed between DITT and BPC on September 30th, 2011, BPC is mandated to maintain 98% point to point availability of fibers, except where disruptions are caused by force majeure conditions. Therefore, in order to check the consistency and availability of fibers, monthly fiber reliability reports are collected from the stakeholders (BTL, TICL, BPC). Data collected for the month of October to December, 2020 are reported below.

## **Objective of the study**

To study the National Fiber Network Reliability in Bhutan

## **Methodology**

A dashboard was prepared for maintaining the Fiber network reliability based on different parameters listed as follows:

- Fault Time (Time at which the fault occurred/detected)
- Fault Resolution (Time at which the fault was rectified)
- Outage Time (Duration of outage)
- Availability (Availability= ((Service Uptime/Total time)\*100), Service Uptime=Total Time-Outage Time, Total Time=24\*No. Of days in a month)
- Fault Type (Fiber breakages, Force Majeure, Equipment Faults, Schedule Maintenance)
- Customer Impact (No. of Dzongkhag affected, No. of sites affected)

This dashboard is shared with the relevant stakeholders (BTL, BPC and TICL) who use the Fiber network. The stakeholders were instructed and trained on the usage of the dashboard via email, letter and telephone after which they were asked to maintain records on above parameters on a monthly basis. This data collection is an ongoing process.

## **Key Findings**

Based on the data submitted by the stakeholders the average availability for the months of October to December 2020 has been compiled in tables below.

### **1) Fiber Network Reliability report submitted by TICL**

Months	Availability in percent	Fault Type	Outage Duration	Remarks
October	99.99	NA	NA	NA
November	99.99	NA	NA	NA
December	99.99	NA	NA	NA

Average availability for October and December was 99.99%

### **2) Fiber Network Reliability report submitted by BTL**

Months	Availability in percent	Fault Type	Outage Duration (hr:min:sec)	Remarks
October	98.88	Fiber break	8:27:00	-fiber break at zhemgang to tingtibi stretch on 07/10/2020
	99.97	Schedule maintenance	0:20:00	-maintenance work between zhemgang to gompong stretch on 10/10/2020
November	99.44	Schedule Maintenance	4:00:00	-Maintenance work for Cumdu, Paro and Gedu stretch on 4/11/2020
	99.30	Schedule maintenance	5:00:00	-Maintenance work for Gedu, Chumdu and Paro stretch on 27/11/2020
December	99.56	Force Majeure	3:26:00	Fiber damaged between zhemgang and gompong by truck on 7/12/2020

Average availability was 99.43%.

### 3) Fiber Network Reliability report submitted by BPC

Months	Availability in percent	Fault Type	Outage Duration	Remarks
October	100	NA	NA	Planned ICT Colocation work at Gomtu substation on 25/10/2020

November	100	NA	NA	Planned ICT colocation work at Chumdu, Pling and Gedu substation on 27/11/2020
December	100	NA	NA	Planned ICT colocation work at Gomtu substation on 7/12/2020

Average availability was 100%

### **Conclusion**

The above analysis was limited to the monthly network reliability reports submitted by the Telcos/ISPs and BPC. From the reports collected for October to December 2020, TICL average was 99.99%., for BTL the availability was 99.43%.The average availability was 99.71 for two Telcos for October to December 2020.

From the report submitted by BPC the availability for the month of October to December was 100%. BPC was able to maintain the availability above 98%.

### **Constraints**

1. There was a delay in the report submitted by ISPs and BPC for the month of December 2020 due to ad hoc and immediate nationwide lockdown on 20th December 2020. This has created delay while publishing the quarterly report for DITT.
2. It was observed that the fiber outages recorded by ISPs/TSPs were missing in the records maintained by BPC.This could be due to the fibers leased to the respective stakeholders or issues with record maintenance.