

National Fiber Network Reliability Report (December, 2016)



**Telecom Division
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 (BPC, TICL, BT) on a monthly basis and the report is prepared on a quarterly basis. The average fiber uptime for the month of December is 99.8%. This is the second report of the financial year 2016-2017.

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 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 level playing field for operators and to help improve competition at the service level. In addition, the fibers is also used by the department to establish connectivity to Community Centers.

BPC manages the Operation and Maintenance of the National Fiber Network. As of now, there are no fiber monitoring system to conduct online detection and rectification of fiber outages. The fiber breakages are manually detected and rectified. 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, a monthly fiber reliability reports are collected from the stakeholders (BT, TICL, BPC). Data collected for the December month 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 ($\text{Availability} = ((\text{Service Uptime} / \text{Total time}) * 100)$, $\text{Service Uptime} = \text{Total Time} - \text{Outage Time}$, $\text{Total Time} = 24 * \text{No. Of days in a month}$)
- 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 (BT, BPC and TICL) who uses the Fiber network. The stakeholders were given instructions 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.

Based on inputs provided by the stakeholders, data has been analysed and compiled in second report for Network Reliability.

Key Findings

Based on the data submitted by the stakeholders average availability for the month of December 2016 for respective stakeholder has been compiled in tables below.

- 1) Fiber Network Reliability report submitted by BPC

Months	Availability
December	100

Availability was 100% for the month of December 2016.

- 2) Fiber Network Reliability report submitted by TICL

Months	Availability
December	100

Availability was 100% for the month of December 2016.

- 3) Fiber Network Reliability report submitted by BT

Months	Availability
December	99.515

Availability for the month of December 2016 was 99.515%. BT was able to maintain availability >98%.

Conclusion

The above analysis was limited to the monthly network reliability reports submitted by the stakeholders. Availability of the fiber networks are consistent and maintained at the required level.