

# Application and Practice of Comprehensively Improving the Intelligence Level of Guangzhou's Distribution Network<sup>39</sup>

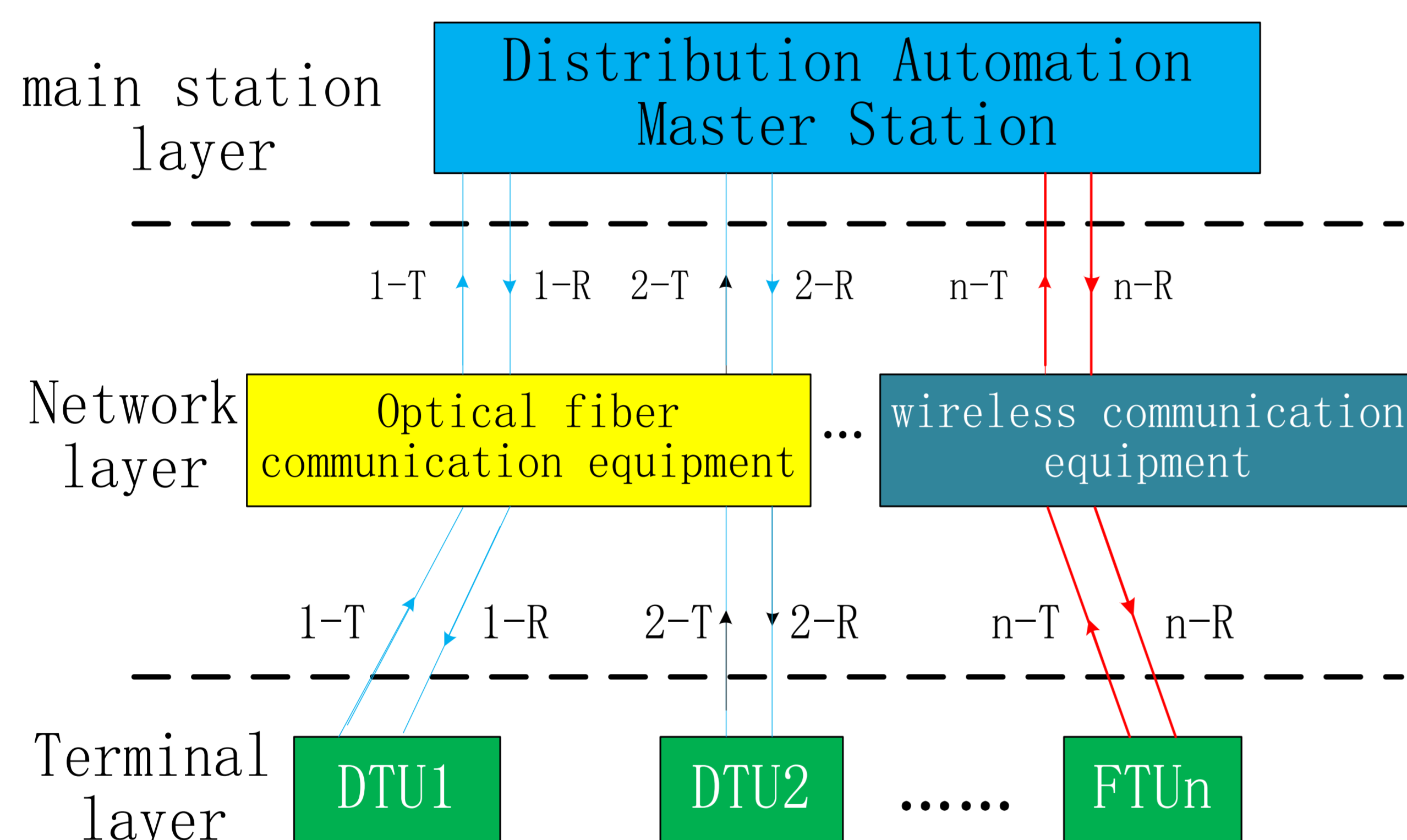
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## Complete technical solution

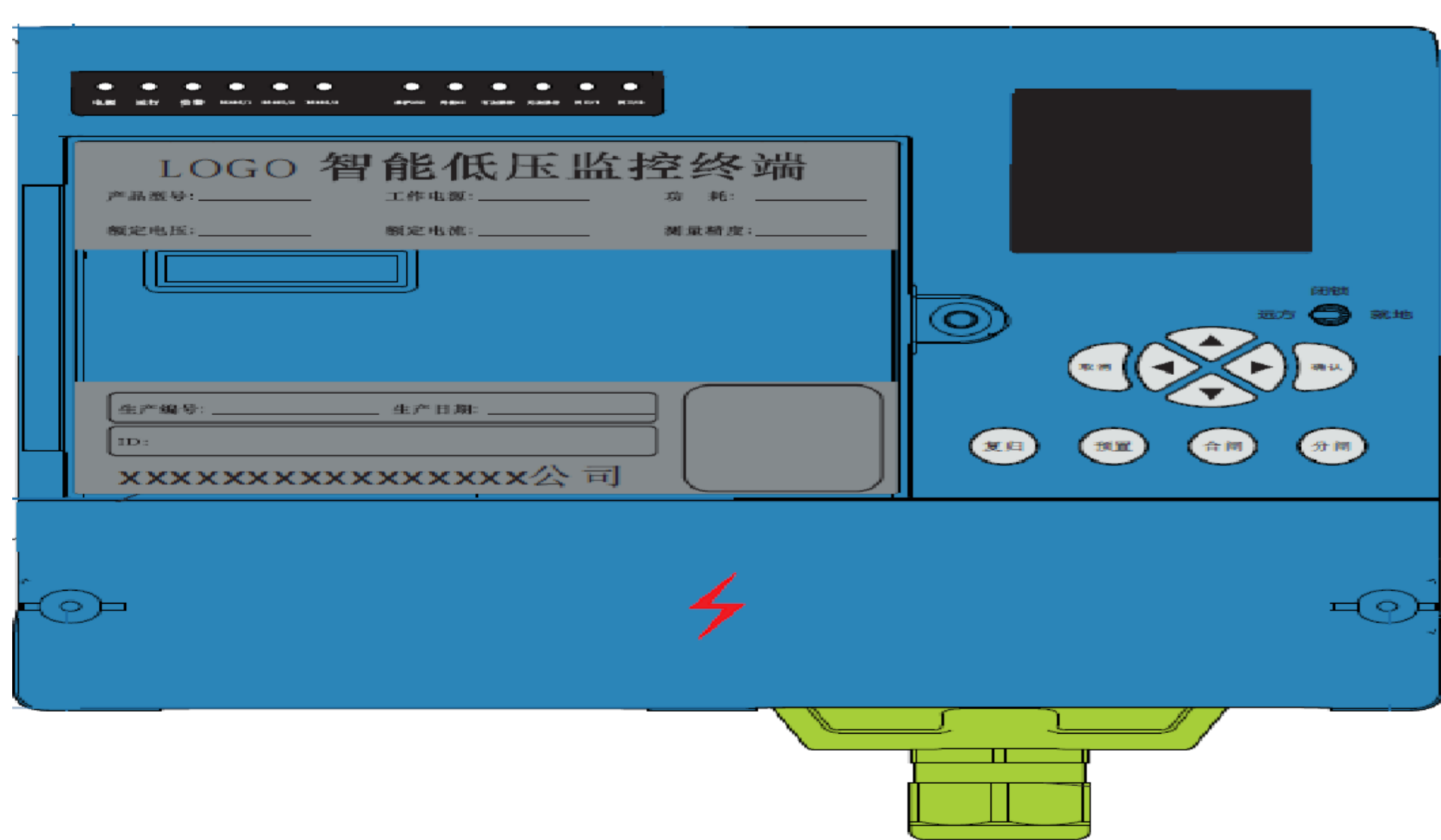
Based on the flexible communication, the monitoring and control capability of the low and medium voltage distribution network is promoted, and the reliability of power supply to the distribution network is improved.

## Main methods

1. Promote the full coverage of centralized self-healing of the main station.

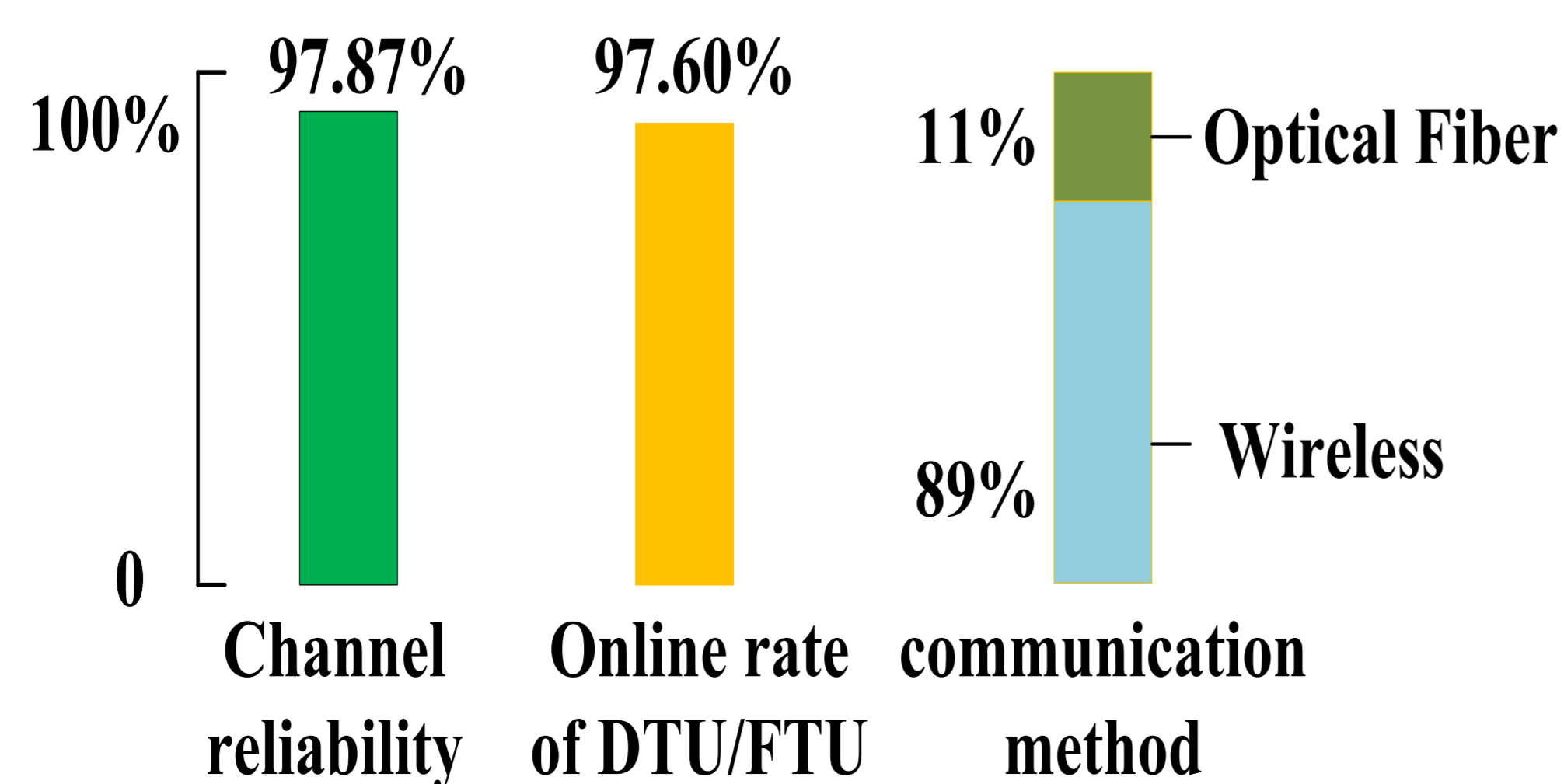


2. Intelligent low voltage monitoring terminal.



3. Realize wide area measurement technology and programmed operation.

4. Construction of communication network supporting intelligent distribution network.



## Apply effects

All distribution lines have realized the centralized self-healing of the main station.

- The fault location accuracy rate  $\geq 97\%$ ;
- The remote control recovery rate  $\geq 72\%$ ;
- The success rate of remote control fault recovery  $\geq 95\%$ .

The intelligent low-voltage monitoring device is currently running in 8 stations.

- The average online rate = 100%;
- The centralized reading success rate = 100%.

In 2019, the programmatic operation saved 2,170 man-hours, reduced 5,803 power outages, and improved the operation efficiency by 95.8%.

On July 12th, 2019, unmanned aerial vehicles were used to carry out two artificial phase-to-phase short circuit fault tests on two distribution lines, and the positioning error was less than 150 meters.



## Conclusions

Guangzhou's distribution network, which has undergone intelligent transformation, has been successfully overcome emergencies and, and its power supply reliability has been in the top ten of China's urban distribution network for a long time.