

ABSTRACT

Helping to improve mobile coverage and quality of service of 4G services, NCC has commissioned Telecom Technology Center (TTC) to assist it in measuring nationwide mobile broadband coverage and performance of 4G LTE networks of Taiwan's five national network operators. The range of metrics featured in the report give consumers an insight to choose services they need, while also delivering effective competition in which the operators have raced to deploy 4G networks.

Our measurement report focuses on the two key metrics, namely download speeds and upload speeds performance. Using smartphones, measurements of 4G mobile broadband were further carried out including hotspot-based and drive-based tests. The analysis was performed by generally accepted statistical methods in the report.

In order to gather more information about the download and upload speeds in different kinds of locations, the hotspot-based measurements have been extent to various sites, such as policy offices, post offices and train stations. The drive-based measurements as well as the voice call testing have been performed in the freeway, highway and railway transportation situation.

The hotspot-based average download speed from the mobile operators' IDC was 108.33Mbps while the average upload speed was 27.18Mbps and the average download speed from Google Cloud was 95.64 Mbps.

The drive-based average download speeds tested at city traffic, freeway, highway and railway transportation were 38.71~69.03 Mbps, 48.69~87.81 Mbps, 40.77~79.18 Mbps and 8.36~19.6 Mbps respectively, while the averaged-lowest upload speed was 8.33 Mbps.

As the 4G operator keep upgrading existing infrastructure, the fastest average download speeds of 4G technology had more than 100Mbps in hotspot-based tests. Compare to 3G, Consumers are getting improved their

user experience with faster and diversified network services due to the popularity of CA-capable cell phones, mobile bandwidth increased and new technology (MIMO) deployed, while those before felt frustration with long waiting time for web pages loaded, connection failures and slow download speeds.

The voice call is the basic service in mobile network for everyone. For the high-speed railway and regular railway, it is found the call drop rates in high-speed railway and regular railway were 0.58% and 1.93% this year, respectively. The railway around Taiwan is inevitably passing through outskirt areas or tunnels where the calls are easily dropped by poor coverage or handover failure, causing the drop rate of regular railway is higher than which of MRT or high-speed railway. However the drop rate has been reduced comparing to past year due to the improvement of mobile network coverage.