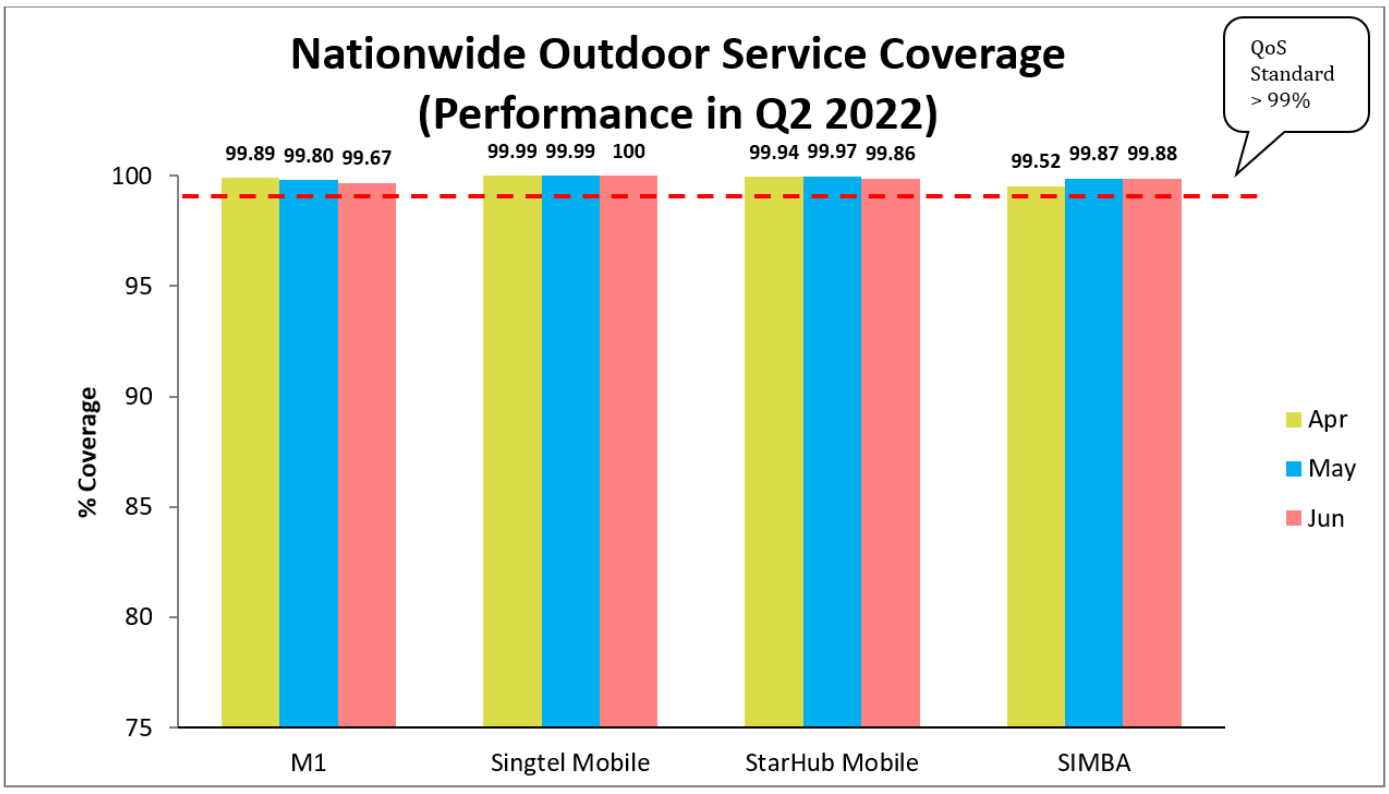
# Quality of Service Performance Results for April – June 2022

## Nationwide Outdoor Service Coverage

This indicator measures the Nationwide Outdoor Service Coverage for the 4G cellular mobile networks. Service coverage is determined by signal strength. The availability of service coverage is the ability of a cellular network to achieve the minimum signal strength of at least -109dBm. Under IMDA's 4G Service QoS framework, mobile operators are required to achieve Nationwide Outdoor Service Coverage of > 99%. In order to better measure the end users' experience*, IMDA uses mobile phones to collect the signal strength data points.




*Based on IMDA's coverage performance surveys which included nationwide outdoor drive test and areas such as housing estates/town centres, outdoor recreational areas and above ground MRT tracks.

**Note**: End users' individual experience may differ due to different models of handset used, handset settings, number of users in the vicinity, etc.

## In-building Service Coverage

This indicator measures in-building service coverage for the 4G cellular network. Under IMDA's 4G QoS framework, mobile operators are required to achieve a service coverage of > 85% per building. Service coverage is measured at randomly selected buildings and at publicly accessible areas within the tested buildings as a proxy for the coverage in the entire building to avoid disturbing residents in their units. For buildings that have failed IMDA's compliance standard, mobile operators will have a period of four months to improve the coverage within the buildings. IMDA will audit the buildings again after the four-month period.

### IMDA's Performance Survey Period: Q2 2022

| M1 | Singtel Mobile | StarHub Mobile | SIMBA |
|---|---|---|---|
| **No of buildings passed/ No of buildings tested<br>Compliance standard > 85% per building** | | | |
| 59/60 | 60/60 | 59/60 | 60/60 |

**Note**: The same sixty buildings were tested across the four mobile operators. The performance of each of the mobile operator varies for each of the building tested. End users' individual experience may differ due to different models of handset used, handset settings, number of users in the vicinity, etc.

## Tunnel Service Coverage

This indicator measures the service coverage for the 4G cellular mobile network within road and MRT tunnels. Tunnel service coverage measures the percentage of data points collected in a tunnel from a 4G cellular mobile network that achieve a minimum signal strength of at least -109dBm. The tunnel areas surveyed by IMDA include all road and MRT tunnels in Singapore. Under IMDA's 4G Service QoS framework, mobile operators are required to achieve a service coverage of > 99% for all road and MRT tunnels. In order to better reflect end users' experience, IMDA uses mobile phones to collect the signal strength data points.

### IMDA's Performance Survey Period: Q2 2022

| M1 | Singtel Mobile | StarHub Mobile | SIMBA |
|---|---|---|---|
| **Compliance standard: > 99% for all road and MRT tunnels** | | | |
| **Central Expressway (Road Tunnel)** | | | |
| Pass | Pass | Pass | Pass |
| **Kallang-Paya Lebar Expressway (Road Tunnel)** | | | |
| Pass | Pass | Pass | Pass |
| **Fort Canning Tunnel (Road Tunnel)** | | | |
| Pass | Pass | Pass | Pass |
| **Woodsville Tunnel (Road Tunnel)** | | | |
| Pass | Pass | Pass | Pass |
| **Marina Coastal Expressway (Road Tunnel)** | | | |
| Pass | Pass | Pass | Pass |
| **Sentosa Gateway Tunnel (Road Tunnel)** | | | |
| Pass | Pass | Pass | Pass |
| **North South Line (MRT Tunnel)** | | | |
| Pass | Pass | Pass | Pass |

| | | | |
|---|---|---|---|
| **East West Line (MRT Tunnel)** | | | |
| Pass | Pass | Pass | Pass |
| **Changi Airport Line (MRT Tunnel)** | | | |
| Pass | Pass | Pass | Pass |
| **Circle Line (MRT Tunnel)** | | | |
| Pass | Pass | Pass | Pass |
| **North East Line (MRT Tunnel)** | | | |
| Pass | Pass | Pass | Pass |
| **Downtown Line (MRT Tunnel)** | | | |
| Pass | Pass | Pass | Pass |
| **Thomson-East Coast Line (MRT Tunnel)** | | | |
| Pass | Pass | Pass | Pass |

**Note**: End users' individual experience may differ due to different models of handset used, handset settings, number of users in the vicinity, etc. The tunnel service coverage results are based on IMDA's coverage performance surveys.