This dataset contains the raw data of the publication about silver-based waveguide for THz QCLs, including waveguide analysis and experimental characteristics.

* Table 1 shows the calculated losses for THz QCLs.
* Table 2 and Table 3 are the details of wafers and devices and characterisation results.
* Figure 1 shows calculated dielectric constants and measured resistivity of silver, gold and copper films.
* Figure 2 and figure 3 are the results of waveguide analysis for silver, gold and copper-based waveguides.
* Figure 4 and figure 5 present the effects of the titanium adhesion layers and the n+ GaAs top contact layers.
* Figure 6 compares the waveguide loss calculated by using the optical constants of film and bulk materials.
* Figure 7 and figure 8 are the characterisation results of silver- and gold-based devices, including threshold current, output peak power, LIV curves and emission spectra at different temperatures.
* Good agreement is found between the waveguide analysis and the experimental characteristics, which indicates that silver-based waveguides can potentially enable THz QCLs to operate at high temperature.