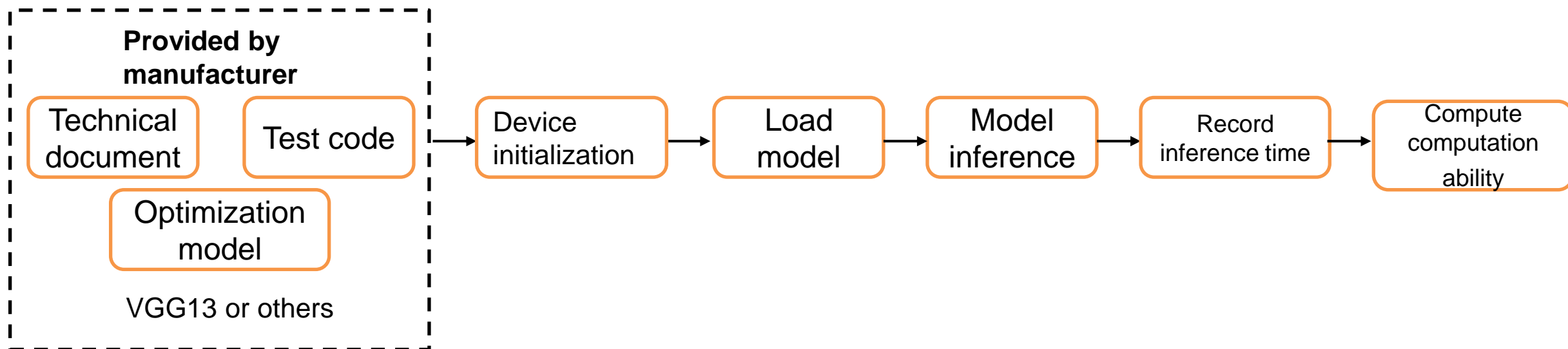


Mobile device computational ability test

Test method:



Test metrics: Computational ability in OPS, energy efficiency in OPS/Watt

$$\text{OPS} = (\text{MAC} / \text{Inference Time}) \times 2$$

$$\text{OPS/Watt} = \text{OPS} / \text{Average inference power}$$

Note: MAC is multiply-accumulate operation used to measure the model complexity, Inference Time is the time for inferencing a single image in second

Steps of using VGG13 model to test

Test method:

1. Remove the last three fully connected layers from VGG16 as a testing model.
2. Use ten different pictures of $224 \times 224 \times 3$ as the input of the model.
3. Use power meter to measure AI mobile device's power.

Calculation formula:

- $\text{TOPS} = 0.0307 \times 10 / t$, where t is the total amount of time to run 10 pictures in second.
- $\text{TOPS/W} = (0.0307 \times 10 / t) / P$, where P is the average power to run 10 pictures in Watt.