

26 January 2021

133 Molesworth Street  
PO Box 5013  
Wellington 6140  
New Zealand  
T+64 4 496 2000

By email: [REDACTED]  
Ref: H202100070

Dear [REDACTED]

### Response to your request for official information

Thank you for your request under the Official Information Act 1982 (the Act) on 11 January 2021 for:

*“What’s the Cycle Threshold (CT) value used to perform the PCR test for COVID19; what changes by date have been made to the (Cycle Threshold (CT)) value per lab for this test (COVID19) since the start of testing in New Zealand.”*

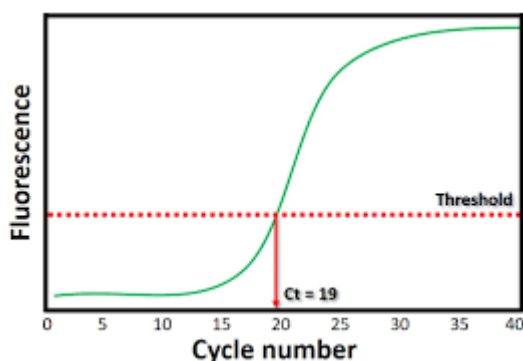
I will respond to your queries in turn.

*“What’s the Cycle Threshold (CT) value used to perform the PCR test for COVID19”*

In order to provide context around Cycle Threshold (CT) values and Polymerase Chain Reaction (PCR) cycles, the novel coronavirus is made up of a genetic material called ribonucleic acid (RNA). When the virus enters your cells, it uses RNA to replicate itself. PCR testing detects DNA. This means that the first step in the PCR test process is to convert the viral RNA into DNA using the enzyme ‘reverse transcriptase’. Once this is completed, chemicals are used to amplify the DNA so it can be read by the PCR instrument. This is done by reading the fluorescent signal that is emitted from amplified DNA within the sample. This signal is measured as the cycle number at which the target is first detected.

The PCR reaction will continue to run for its full 40 cycles to allow for exponential amplification of the RNA targets using repeated thermal cycling to allow for enough amplified DNA product to be detected by the instrument. The CT value is the cycle number recorded where sufficient amplified product had reached a detectable level.

The graph below represents a full PCR run of 40 cycles with a sample reaching a detectable level of amplified DNA that has crossed the threshold at 19 cycles.



*“what changes by date have been made to the (Cycle Threshold (CT)) value per lab for this test (COVID19 ) since the start of testing in New Zealand.”*

Please note that CT values are standardised across all testing and are not subject to change.

I trust this information fulfils your request. Under section 28(3) of the Act you have the right to ask the Ombudsman to review any decisions made under this request. The Ombudsman may be contacted by email at: [info@ombudsman.parliament.nz](mailto:info@ombudsman.parliament.nz) or by calling 0800 802 602.

Please note that this response, with your personal details removed, may be published on the Ministry of Health website at: [www.health.govt.nz/about-ministry/information-releases/responses-official-information-act-requests](http://www.health.govt.nz/about-ministry/information-releases/responses-official-information-act-requests).

Yours sincerely



Dr Kelvin Watson  
**Group Manager, COVID-19 Testing and Supply**  
**COVID-19 Health System Response Directorate**