**Supplementary Table 1. The Ct value of the 116 positive SARS-CoV-2 variant of concern in conventional RT-qPCR and lab-developed direct RT-qPCR on LightCycler® 96 and LabTurbo AIO.**

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| --- | --- | --- | --- |
| Sample serial No. | Conventional RT-qPCR | Lab-developed direct RT-qPCR | SARS-CoV-2 variant classification |
|  |  |  | Roche LightCycler® 96 | LabTurboTM AIO open system |
| *N1* gene | *E* gene | interpretation | *N1* gene | *E* gene | interpretation | *N1* gene | *E* gene | interpretation |
| W2021-01 | 18.00  | 19.55  | Positive | 20.01  | 22.36  | Positive | 20.55  | 21.22  | Positive | B.1.315 |
| W2021-02 | 25.30 | 29.10  | Positive | 28.12  | 34.11  | Positive | 28.59  | 33.37  | Positive | B.1.315 |
| W2021-03 | 26.40 | 28.90  | Positive | 29.77  | 33.11  | Positive | 29.47  | 33.44  | Positive | B.1.315 |
| W2021-04 | 32.20  | 34.50  | Positive | 34.58  | 34.88  | Positive | 32.22  | 34.32  | Positive | B.1.617 |
| W2021-05 | 20.15  | 22.31  | Positive | 22.35  | 24.36  | Positive | 22.18  | 24.55  | Positive | B.1.617 |
| W2021-06 | 25.16  | 27.08  | Positive | 27.52  | 30.51  | Positive | 27.89  | 30.15  | Positive | B.1.617 |
| W2021-07 | 33.80 | 34.52 | Positive | 34.58  | n.d. | Negative | 33.89 | 36.11 | Negative | B.1.1.7 |
| W2021-08 | 20.02  | 21.00  | Positive | 22.10  | 23.58  | Positive | 22.01  | 23.85  | Positive | B.1.1.7 |
| W2021-09 | 15.76  | 16.74  | Positive | 17.15  | 18.95  | Positive | 17.65  | 18.55  | Positive | B.1.1.7 |
| W2021-10 | 28.46  | 29.47  | Positive | 32.68  | 32.55  | Positive | 32.51  | 31.25  | Positive | B.1.1.7 |
| W2021-11 | 12.38  | 13.55  | Positive | 15.85  | 16.45  | Positive | 13.58  | 14.11  | Positive | B.1.1.7 |
| W2021-12 | 12.38  | 13.55  | Positive | 14.32  | 16.55  | Positive | 14.11  | 15.35  | Positive | B.1.1.7 |
| W2021-13 | 15.12  | 16.03  | Positive | 17.69  | 19.36  | Positive | 18.01  | 19.25  | Positive | B.1.1.7 |
| W2021-14 | 29.04  | 30.08  | Positive | 31.58  | 32.22  | Positive | 31.85  | 32.18  | Positive | B.1.1.7 |
| W2021-15 | 29.64  | 31.19  | Positive | 32.00  | 34.61  | Positive | 31.82  | 34.51  | Positive | B.1.1.7 |
| W2021-16 | 29.64  | 31.19  | Positive | 32.15  | 34.19  | Positive | 32.51  | 33.85  | Positive | B.1.1.7 |
| W2021-17 | 14.47  | 14.39  | Positive | 15.33  | 16.66  | Positive | 15.21  | 16.11  | Positive | B.1.1.7 |
| W2021-18 | 14.47  | 14.39  | Positive | 16.45  | 16.36  | Positive | 16.69  | 16.14  | Positive | B.1.1.7 |
| W2021-19 | 13.22  | 13.72  | Positive | 13.99  | 15.69  | Positive | 14.12  | 15.51  | Positive | B.1.1.7 |
| W2021-20 | 15.18  | 16.91  | Positive | 17.31  | 17.69  | Positive | 17.66  | 18.11  | Positive | B.1.1.7 |
| W2021-21 | 16.31  | 16.84  | Positive | 18.79  | 19.11  | Positive | 18.65  | 18.61  | Positive | B.1.1.7 |
| W2021-22 | 18.69  | 20.06  | Positive | 20.96  | 22.63  | Positive | 21.11  | 22.36  | Positive | B.1.1.7 |
| W2021-23 | 15.39  | 16.39  | Positive | 17.56  | 19.15  | Positive | 17.25  | 18.15  | Positive | B.1.1.7 |
| W2021-24 | 13.86  | 15.23  | Positive | 15.32  | 17.32  | Positive | 15.11  | 17.55  | Positive | B.1.1.7 |
| W2021-25 | 29.77  | 30.75  | Positive | 32.74  | 33.95  | Positive | 32.47  | 33.15  | Positive | B.1.1.7 |
| W2021-26 | 26.53  | 28.18  | Positive | 29.01  | 32.58  | Positive | 29.12  | 32.85  | Positive | B.1.1.7 |
| W2021-27 | 15.75  | 16.73  | Positive | 17.13  | 19.32  | Positive | 17.66  | 18.12  | Positive | B.1.1.7 |
| W2021-28 | 14.54  | 14.74  | Positive | 16.36  | 17.02  | Positive | 16.65  | 17.15  | Positive | B.1.1.7 |
| W2021-29 | 16.79  | 17.37  | Positive | 18.58  | 19.65  | Positive | 18.85  | 19.39  | Positive | B.1.1.7 |
| W2021-30 | 24.92  | 27.01  | Positive | 27.01  | 29.65  | Positive | 27.18  | 29.18  | Positive | B.1.1.7 |
| W2021-31 | 20.87  | 22.70  | Positive | 22.98  | 25.13  | Positive | 23.18  | 25.01  | Positive | B.1.1.7 |
| W2021-32 | 16.55  | 17.42  | Positive | 18.29  | 19.36  | Positive | 18.69  | 19.65  | Positive | B.1.1.7 |
| W2021-33 | 20.09  | 22.02  | Positive | 22.05  | 24.35  | Positive | 21.68  | 24.55  | Positive | B.1.1.7 |
| W2021-34 | 11.09  | 12.81  | Positive | 13.28  | 15.68  | Positive | 13.22  | 14.21  | Positive | B.1.1.7 |
| W2021-35 | 15.17  | 15.64  | Positive | 17.02  | 17.11  | Positive | 17.20  | 16.51  | Positive | B.1.1.7 |
| W2021-36 | 15.35  | 16.34  | Positive | 17.12  | 17.55  | Positive | 17.56  | 18.11  | Positive | B.1.1.7 |
| W2021-37 | 21.75  | 22.58  | Positive | 23.15  | 24.96  | Positive | 23.55  | 24.69  | Positive | B.1.1.7 |
| W2021-38 | 13.96  | 15.03  | Positive | 14.23  | 17.11  | Positive | 14.15  | 17.31  | Positive | B.1.1.7 |
| W2021-39 | 13.96  | 15.03  | Positive | 15.03  | 17.21  | Positive | 15.12  | 17.65  | Positive | B.1.1.7 |
| W2021-40 | 19.73  | 20.50  | Positive | 22.09  | 24.02  | Positive | 22.18  | 23.85  | Positive | B.1.1.7 |
| W2021-41 | 19.73  | 20.50  | Positive | 22.23  | 22.98  | Positive | 22.18  | 22.55  | Positive | B.1.1.7 |
| W2021-42 | 16.50  | 17.60  | Positive | 18.35  | 18.96  | Positive | 18.61  | 19.12  | Positive | B.1.1.7 |
| W2021-43 | 16.50  | 17.60  | Positive | 18.31  | 19.21  | Positive | 18.33  | 19.14  | Positive | B.1.1.7 |
| W2021-44 | 20.73  | 22.51  | Positive | 22.85  | 24.69  | Positive | 23.02  | 24.88  | Positive | B.1.1.7 |
| W2021-45 | 21.08  | 22.96  | Positive | 23.31  | 25.56  | Positive | 23.13  | 25.65  | Positive | B.1.1.7 |
| W2021-46 | 18.07  | 19.18  | Positive | 20.25  | 22.14  | Positive | 20.88  | 21.85  | Positive | B.1.1.7 |
| W2021-47 | 27.59  | 29.58  | Positive | 29.52  | 34.58  | Positive | 29.18  | 32.32  | Positive | B.1.1.7 |
| W2021-48 | 15.00  | 15.31  | Positive | 17.26  | 17.69  | Positive | 17.65  | 18.25  | Positive | B.1.1.7 |
| W2021-49 | 13.02  | 13.72  | Positive | 15.33  | 16.58  | Positive | 15.35  | 15.65  | Positive | B.1.1.7 |
| W2021-50 | 23.01  | 24.75  | Positive | 25.93  | 27.25  | Positive | 25.61  | 27.05  | Positive | B.1.1.7 |
| W2021-51 | 13.67  | 14.69  | Positive | 15.22  | 16.15  | Positive | 15.18  | 16.55  | Positive | B.1.1.7 |
| W2021-52 | 14.02  | 15.40  | Positive | 15.98  | 17.35  | Positive | 16.11  | 17.65  | Positive | B.1.1.7 |
| W2021-53 | 11.89  | 13.57  | Positive | 14.32  | 16.25  | Positive | 14.23  | 15.11  | Positive | B.1.1.7 |
| W2021-54 | 15.10  | 16.80  | Positive | 16.26  | 19.81  | Positive | 16.62  | 20.46  | Positive | B.1.1.7 |
| W2021-55 | 17.90  | 20.30  | Positive | 19.58  | 24.16  | Positive | 18.28  | 25.91  | Positive | B.1.1.7 |
| W2021-56 | 26.60  | 29.70  | Positive | 29.18  | 33.85  | Positive | 29.44  | 34.01  | Positive | B.1.1.7 |
| W2021-57 | 11.40  | 13.70  | Positive | 14.68  | 16.88  | Positive | 14.56  | 17.73  | Positive | B.1.1.7 |
| W2021-58 | 28.40  | 29.10  | Positive | 31.68  | 33.18  | Positive | 31.40  | 33.10  | Positive | B.1.1.7 |
| W2021-59 | 13.10  | 14.50  | Positive | 13.60  | 17.25  | Positive | 13.59  | 18.42  | Positive | B.1.1.7 |
| W2021-60 | 10.30  | 13.70  | Positive | 12.16  | 17.58  | Positive | 12.23  | 18.26  | Positive | B.1.1.7 |
| W2021-61 | 18.10  | 20.50  | Positive | 19.58  | 22.39  | Positive | 19.23  | 22.38  | Positive | B.1.1.7 |
| W2021-62 | 18.30  | 19.70  | Positive | 21.01  | 24.56  | Positive | 21.50  | 24.65  | Positive | B.1.1.7 |
| W2021-63 | 18.90  | 20.70  | Positive | 21.05  | 24.07  | Positive | 20.13  | 24.70  | Positive | B.1.1.7 |
| W2021-64 | 23.90  | 27.70  | Positive | 26.15  | 31.85  | Positive | 26.57  | 32.63  | Positive | B.1.1.7 |
| W2021-65 | 17.90  | 18.60  | Positive | 20.32  | 23.25  | Positive | 20.15  | 24.24  | Positive | B.1.1.7 |
| W2021-66 | 16.10  | 18.90  | Positive | 16.24  | 21.35  | Positive | 16.65  | 20.78  | Positive | B.1.1.7 |
| W2021-67 | 28.40  | 30.50  | Positive | 31.66  | 34.18  | Positive | 31.90  | 33.80  | Positive | B.1.1.7 |
| W2021-68 | 29.80  | 29.10  | Positive | 31.19  | 32.85  | Positive | 30.90  | 32.60  | Positive | B.1.1.7 |
| W2021-69 | 12.80  | 14.50  | Positive | 13.25  | 18.11  | Positive | 13.23  | 18.22  | Positive | B.1.1.7 |
| W2021-70 | 25.10  | 28.90  | Positive | 27.25  | 30.96  | Positive | 26.90  | 31.50  | Positive | B.1.1.7 |
| W2021-71 | 17.90  | 18.60  | Positive | 18.37  | 21.18  | Positive | 18.02  | 20.85  | Positive | B.1.1.7 |
| W2021-72 | 26.70  | 29.60  | Positive | 28.36  | 33.96  | Positive | 27.44  | 33.89  | Positive | B.1.1.7 |
| W2021-73 | 27.90  | 29.10  | Positive | 28.96  | 32.92  | Positive | 28.66  | 33.20  | Positive | B.1.1.7 |
| W2021-74 | 27.90  | 29.60  | Positive | 31.15  | 33.81  | Positive | 32.50  | 34.10  | Positive | B.1.1.7 |
| W2021-75 | 27.50  | 29.50  | Positive | 29.69  | 33.65  | Positive | 28.40  | 33.10  | Positive | B.1.1.7 |
| W2021-76 | 28.00  | 29.70  | Positive | 32.36  | 34.10  | Positive | 31.43  | 33.90  | Positive | B.1.1.7 |
| W2021-77 | 17.40  | 20.90  | Positive | 18.19  | 24.11  | Positive | 18.31  | 24.46  | Positive | B.1.1.7 |
| W2021-78 | 29.70  | 31.60  | Positive | 32.36  | 34.12  | Positive | 33.36  | 34.10  | Positive | B.1.1.7 |
| W2021-79 | 28.10  | 29.90  | Positive | 31.05  | 33.08  | Positive | 30.60  | 32.80  | Positive | B.1.1.7 |
| W2021-80 | 29.80  | 30.10  | Positive | 31.76  | 33.16  | Positive | 31.67  | 33.10  | Positive | B.1.1.7 |
| W2021-81 | 33.90  | 34.40  | Positive | n.d. | 34.69  | Negative | n.d. | n.d. | Negative | B.1.1.7 |
| W2021-82 | 22.80  | 23.70  | Positive | 23.65  | 27.47  | Positive | 23.20  | 27.74  | Positive | B.1.1.7 |
| W2021-83 | 31.20  | 30.60  | Positive | 32.98  | 34.15  | Positive | 33.40  | 33.80  | Positive | B.1.1.7 |
| W2021-84 | 29.80  | 30.10  | Positive | 31.05  | 33.19  | Positive | 31.50  | 32.90  | Positive | B.1.1.7 |
| W2021-85 | 26.10  | 28.40  | Positive | 28.68  | 33.73  | Positive | 27.38  | 29.69  | Positive | B.1.1.7 |
| W2021-86 | 28.40  | 29.80  | Positive | 32.08  | 33.61  | Positive | 31.90  | 32.60  | Positive | B.1.1.7 |
| W2021-87 | 28.90  | 30.10  | Positive | 31.25  | 34.06  | Positive | 32.10  | 33.50  | Positive | B.1.1.7 |
| W2021-88 | 26.90  | 28.40  | Positive | 29.36  | 32.73  | Positive | 29.03  | 32.37  | Positive | B.1.1.7 |
| W2021-89 | 29.70  | 31.30  | Positive | 31.06  | 32.98  | Positive | 31.60  | 32.70  | Positive | B.1.1.7 |
| W2021-90 | 14.10  | 15.30  | Positive | 14.66  | 19.69  | Positive | 14.55  | 20.44  | Positive | B.1.1.7 |
| W2021-91 | 12.60  | 14.30  | Positive | 13.82  | 18.28  | Positive | 13.90  | 18.30  | Positive | B.1.1.7 |
| W2021-92 | 13.90  | 15.80  | Positive | 13.55  | 17.26  | Positive | 13.89  | 17.88  | Positive | B.1.1.7 |
| W2021-93 | 17.50  | 18.90  | Positive | 17.89  | 23.54  | Positive | 18.06  | 23.97  | Positive | B.1.1.7 |
| W2021-94 | 28.60  | 29.90  | Positive | 31.28  | 33.74  | Positive | 31.20  | 33.47  | Positive | B.1.1.7 |
| W2021-95 | 28.40  | 29.70  | Positive | 31.55  | 33.84  | Positive | 30.42  | 34.28  | Positive | B.1.1.7 |
| W2021-96 | 29.10  | 29.80  | Positive | 32.13  | 34.34  | Positive | 32.30  | 34.43  | Positive | B.1.1.7 |
| W2021-97 | 28.70  | 30.20  | Positive | 31.39  | 33.98  | Positive | 31.93  | 34.16  | Positive | B.1.1.7 |
| W2021-98 | 26.60  | 28.30  | Positive | 28.15  | 30.93  | Positive | 27.57  | 30.20  | Positive | B.1.1.7 |
| W2021-99 | 11.10  | 13.90  | Positive | 12.98  | 18.22  | Positive | 12.67  | 17.50  | Positive | B.1.1.7 |
| W2021-100 | 28.70  | 29.60  | Positive | 32.98  | 33.28  | Positive | 31.50  | 33.20  | Positive | B.1.1.7 |
| W2021-101 | 16.70  | 19.10  | Positive | 17.61  | 24.69  | Positive | 17.16  | 25.61  | Positive | B.1.1.7 |
| W2021-102 | 28.90  | 30.40  | Positive | 30.25  | 34.00  | Positive | 32.10  | 32.80  | Positive | B.1.1.7 |
| W2021-103 | 20.70  | 23.90  | Positive | 22.12  | 27.25  | Positive | 22.49  | 27.52  | Positive | B.1.1.7 |
| W2021-104 | 28.10  | 29.80  | Positive | 32.25  | 31.90  | Positive | 32.17  | 29.00  | Positive | B.1.1.7 |
| W2021-105 | 15.10  | 16.70  | Positive | 14.05  | 19.11  | Positive | 14.50  | 19.80  | Positive | B.1.1.7 |
| W2021-106 | 14.10  | 15.60  | Positive | 14.22  | 19.11  | Positive | 14.40  | 18.20  | Positive | B.1.1.7 |
| W2021-107 | 17.90  | 19.50  | Positive | 20.55  | 21.65  | Positive | 21.30  | 21.00  | Positive | B.1.1.7 |
| W2021-108 | 30.90  | 31.20  | Positive | 32.88  | 34.98  | Positive | 30.70  | 34.58  | Positive | B.1.1.7 |
| W2021-109 | 33.50  | 34.80  | Positive | 33.58  | n.d.  | Negative | 34.98 | n.d. | Negative | B.1.1.7 |
| W2021-110 | 33.70  | 34.10  | Positive | 35.65  | n.d. | Negative | 36.15 | n.d. | Negative | B.1.1.7 |
| W2021-111 | 17.30  | 19.80  | Positive | 19.21  | 22.65  | Positive | 19.80  | 22.90  | Positive | B.1.1.7 |
| W2021-112 | 31.60  | 31.70  | Positive | 33.18  | 34.58  | Positive | 31.60  | 30.10  | Positive | B.1.1.7 |
| W2021-113 | 11.20  | 12.20  | Positive | 13.55  | 16.95  | Positive | 13.60  | 17.10  | Positive | B.1.1.7 |
| W2021-114 | 23.40  | 24.70  | Positive | 25.65  | 26.13  | Positive | 25.30  | 26.30  | Positive | B.1.1.7 |
| W2021-115 | 28.60  | 30.60  | Positive | 30.25  | 32.08  | Positive | 29.10  | 31.80  | Positive | B.1.1.7 |
| W2021-116 | 33.80  | 34.50  | Positive | n.d. | 34.88  | Negative | 36.83  | 34.94  | Negative | B.1.1.7 |

n.d. indicated not detected.