| Crank angle θ | rad | 相位差α | sin(θ) | sin(θ+α) | κ | x | τ | PVes/mRTc | V/Ves | sinα | a | b | c | d | β | Wi無因次 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1.2566371 | 0 | 0.95105652 | 1 | 0.2 | 0.5 | 0.774510303 | 0.724472 | 0.951057 | 0.475528 | 1.154508 | 1.309017 | 0.951057 | 1.766667 | 0.396249 |
| 5 | 0.0872665 | 1.2566371 | 0.087156 | 0.97437006 | 1 | 0.2 | 0.5 | 0.838696876 | 0.669237 | | | | | | | |
| 10 | 0.1745329 | 1.2566371 | 0.173648 | 0.99026807 | 1 | 0.2 | 0.5 | 0.910842663 | 0.618042 | | | | | | | |
| 15 | 0.2617994 | 1.2566371 | 0.258819 | 0.99862953 | 1 | 0.2 | 0.5 | 0.991539339 | 0.571276 | | | | | | | |
| 20 | 0.3490659 | 1.2566371 | 0.34202 | 0.99939083 | 1 | 0.2 | 0.5 | 1.081138224 | 0.529295 | | | | | | | |
| 25 | 0.4363323 | 1.2566371 | 0.422618 | 0.99254615 | 1 | 0.2 | 0.5 | 1.179557798 | 0.492418 | | | | | | | |
| 30 | 0.5235988 | 1.2566371 | 0.5 | 0.9781476 | 1 | 0.2 | 0.5 | 1.286020028 | 0.460926 | | | | | | | |
| 35 | 0.6108652 | 1.2566371 | 0.573576 | 0.95630476 | 1 | 0.2 | 0.5 | 1.398722975 | 0.435059 | | | | | | | |
| 40 | 0.6981317 | 1.2566371 | 0.642788 | 0.92718385 | 1 | 0.2 | 0.5 | 1.514492643 | 0.415014 | | | | | | | |
| 45 | 0.7853982 | 1.2566371 | 0.707107 | 0.89100652 | 1 | 0.2 | 0.5 | 1.628514313 | 0.400943 | | | | | | | |
| 50 | 0.8726646 | 1.2566371 | 0.766044 | 0.8480481 | 1 | 0.2 | 0.5 | 1.734310032 | 0.392954 | | | | | | | |
| 55 | 0.9599311 | 1.2566371 | 0.819152 | 0.79863551 | 1 | 0.2 | 0.5 | 1.824162193 | 0.391106 | | | | | | | |
| 60 | 1.0471976 | 1.2566371 | 0.866025 | 0.74314483 | 1 | 0.2 | 0.5 | 1.890113167 | 0.395415 | | | | | | | |
| 65 | 1.134464 | 1.2566371 | 0.906308 | 0.68199836 | 1 | 0.2 | 0.5 | 1.925447817 | 0.405847 | | | | | | | |
| 70 | 1.2217305 | 1.2566371 | 0.939693 | 0.61566148 | 1 | 0.2 | 0.5 | 1.92625039 | 0.422323 | | | | | | | |
| 75 | 1.3089969 | 1.2566371 | 0.965926 | 0.54463904 | 1 | 0.2 | 0.5 | 1.892429311 | 0.444718 | | | | | | | |
| 80 | 1.3962634 | 1.2566371 | 0.984808 | 0.46947156 | 1 | 0.2 | 0.5 | 1.827742132 | 0.47286 | | | | | | | |
| 85 | 1.4835299 | 1.2566371 | 0.996195 | 0.39073113 | 1 | 0.2 | 0.5 | 1.738808666 | 0.506537 | | | | | | | |
| 90 | 1.5707963 | 1.2566371 | 1 | 0.30901699 | 1 | 0.2 | 0.5 | 1.633564738 | 0.545492 | | | | | | | |
| 95 | 1.6580628 | 1.2566371 | 0.996195 | 0.22495105 | 1 | 0.2 | 0.5 | 1.519765058 | 0.589427 | | | | | | | |
| 100 | 1.7453293 | 1.2566371 | 0.984808 | 0.1391731 | 1 | 0.2 | 0.5 | 1.403957323 | 0.63801 | | | | | | | |
| 105 | 1.8325957 | 1.2566371 | 0.965926 | 0.05233596 | 1 | 0.2 | 0.5 | 1.291034128 | 0.690869 | | | | | | | |
| 110 | 1.9198622 | 1.2566371 | 0.939693 | -0.0348995 | 1 | 0.2 | 0.5 | 1.184239486 | 0.747603 | | | | | | | |
| 115 | 2.0071286 | 1.2566371 | 0.906308 | -0.12186934 | 1 | 0.2 | 0.5 | 1.08543037 | 0.807781 | | | | | | | |
| 120 | 2.0943951 | 1.2566371 | 0.866025 | -0.20791169 | 1 | 0.2 | 0.5 | 0.995423928 | 0.870943 | | | | | | | |
| 125 | 2.1816616 | 1.2566371 | 0.819152 | -0.2923717 | 1 | 0.2 | 0.5 | 0.914327115 | 0.93661 | | | | | | | |
| 130 | 2.268928 | 1.2566371 | 0.766044 | -0.37460659 | 1 | 0.2 | 0.5 | 0.841803617 | 1.004281 | | | | | | | |
| 135 | 2.3561945 | 1.2566371 | 0.707107 | -0.4539905 | 1 | 0.2 | 0.5 | 0.777269448 | 1.073442 | | | | | | | |
| 140 | 2.443461 | 1.2566371 | 0.642788 | -0.52991926 | 1 | 0.2 | 0.5 | 0.720026025 | 1.143566 | | | | | | | |
| 145 | 2.5307274 | 1.2566371 | 0.573576 | -0.60181502 | 1 | 0.2 | 0.5 | 0.669345055 | 1.214119 | | | | | | | |
| 150 | 2.6179939 | 1.2566371 | 0.5 | -0.66913061 | 1 | 0.2 | 0.5 | 0.624519132 | 1.284565 | | | | | | | |
| 155 | 2.7052603 | 1.2566371 | 0.422618 | -0.7313537 | 1 | 0.2 | 0.5 | 0.584889295 | 1.354368 | | | | | | | |
| 160 | 2.7925268 | 1.2566371 | 0.34202 | -0.78801075 | 1 | 0.2 | 0.5 | 0.549857837 | 1.422995 | | | | | | | |
| 165 | 2.8797933 | 1.2566371 | 0.258819 | -0.83867057 | 1 | 0.2 | 0.5 | 0.518892108 | 1.489926 | | | | | | | |
| 170 | 2.9670597 | 1.2566371 | 0.173648 | -0.88294759 | 1 | 0.2 | 0.5 | 0.491523122 | 1.55465 | | | | | | | |
| 175 | 3.0543262 | 1.2566371 | 0.087156 | -0.92050485 | 1 | 0.2 | 0.5 | 0.4673414 | 1.616675 | | | | | | | |
| 180 | 3.1415927 | 1.2566371 | 1.22E-16 | -0.95105652 | 1 | 0.2 | 0.5 | 0.445991554 | 1.675528 | | | | | | | |
| 185 | 3.2288591 | 1.2566371 | -0.08716 | -0.97437006 | 1 | 0.2 | 0.5 | 0.427166519 | 1.730763 | | | | | | | |
| 190 | 3.3161256 | 1.2566371 | -0.17365 | -0.99026807 | 1 | 0.2 | 0.5 | 0.410601926 | 1.781958 | | | | | | | |
| 195 | 3.403392 | 1.2566371 | -0.25882 | -0.99862953 | 1 | 0.2 | 0.5 | 0.396070901 | 1.828724 | | | | | | | |
| 200 | 3.4906585 | 1.2566371 | -0.34202 | -0.99939083 | 1 | 0.2 | 0.5 | 0.383379395 | 1.870705 | | | | | | | |
| 205 | 3.577925 | 1.2566371 | -0.42262 | -0.99254615 | 1 | 0.2 | 0.5 | 0.372362093 | 1.907582 | | | | | | | |
| 210 | 3.6651914 | 1.2566371 | -0.5 | -0.9781476 | 1 | 0.2 | 0.5 | 0.362878875 | 1.939074 | | | | | | | |
| 215 | 3.7524579 | 1.2566371 | -0.57358 | -0.95630476 | 1 | 0.2 | 0.5 | 0.354811809 | 1.964941 | | | | | | | |
| 220 | 3.8397244 | 1.2566371 | -0.64279 | -0.92718385 | 1 | 0.2 | 0.5 | 0.348062624 | 1.984986 | | | | | | | |
| 225 | 3.9269908 | 1.2566371 | -0.70711 | -0.89100652 | 1 | 0.2 | 0.5 | 0.342550604 | 1.999057 | | | | | | | |
| 230 | 4.0142573 | 1.2566371 | -0.76604 | -0.8480481 | 1 | 0.2 | 0.5 | 0.33821088 | 2.007046 | | | | | | | |
| 235 | 4.1015237 | 1.2566371 | -0.81915 | -0.79863551 | 1 | 0.2 | 0.5 | 0.33499306 | 2.008894 | | | | | | | |
| 240 | 4.1887902 | 1.2566371 | -0.86603 | -0.74314483 | 1 | 0.2 | 0.5 | 0.332860174 | 2.004585 | | | | | | | |
| 245 | 4.2760567 | 1.2566371 | -0.90631 | -0.68199836 | 1 | 0.2 | 0.5 | 0.331787906 | 1.994153 | | | | | | | |
| 250 | 4.3633231 | 1.2566371 | -0.93969 | -0.61566148 | 1 | 0.2 | 0.5 | 0.331764086 | 1.977677 | | | | | | | |
| 255 | 4.4505896 | 1.2566371 | -0.96593 | -0.54463904 | 1 | 0.2 | 0.5 | 0.332788447 | 1.955282 | | | | | | | |
| 260 | 4.5378561 | 1.2566371 | -0.98481 | -0.46947156 | 1 | 0.2 | 0.5 | 0.334872609 | 1.92714 | | | | | | | |
| 265 | 4.6251225 | 1.2566371 | -0.99619 | -0.39073113 | 1 | 0.2 | 0.5 | 0.338040328 | 1.893463 | | | | | | | |
| 270 | 4.712389 | 1.2566371 | -1 | -0.30901699 | 1 | 0.2 | 0.5 | 0.342327982 | 1.854508 | | | | | | | |
| 275 | 4.7996554 | 1.2566371 | -0.99619 | -0.22495105 | 1 | 0.2 | 0.5 | 0.347785334 | 1.810573 | | | | | | | |
| 280 | 4.8869219 | 1.2566371 | -0.98481 | -0.1391731 | 1 | 0.2 | 0.5 | 0.354476564 | 1.76199 | | | | | | | |
| 285 | 4.9741884 | 1.2566371 | -0.96593 | -0.05233596 | 1 | 0.2 | 0.5 | 0.362481633 | 1.709131 | | | | | | | |
| 290 | 5.0614548 | 1.2566371 | -0.93969 | 0.0348995 | 1 | 0.2 | 0.5 | 0.37189797 | 1.652397 | | | | | | | |
| 295 | 5.1487213 | 1.2566371 | -0.90631 | 0.12186934 | 1 | 0.2 | 0.5 | 0.382842561 | 1.592219 | | | | | | | |
| 300 | 5.2359878 | 1.2566371 | -0.86603 | 0.20791169 | 1 | 0.2 | 0.5 | 0.395454453 | 1.529057 | | | | | | | |
| 305 | 5.3232542 | 1.2566371 | -0.81915 | 0.2923717 | 1 | 0.2 | 0.5 | 0.409897742 | 1.46339 | | | | | | | |
| 310 | 5.4105207 | 1.2566371 | -0.76604 | 0.37460659 | 1 | 0.2 | 0.5 | 0.426365084 | 1.395719 | | | | | | | |
| 315 | 5.4977871 | 1.2566371 | -0.70711 | 0.4539905 | 1 | 0.2 | 0.5 | 0.445081762 | 1.326558 | | | | | | | |
| 320 | 5.5850536 | 1.2566371 | -0.64279 | 0.52991926 | 1 | 0.2 | 0.5 | 0.466310328 | 1.256434 | | | | | | | |
| 325 | 5.6723201 | 1.2566371 | -0.57358 | 0.60181502 | 1 | 0.2 | 0.5 | 0.490355783 | 1.185881 | | | | | | | |
| 330 | 5.7595865 | 1.2566371 | -0.5 | 0.66913061 | 1 | 0.2 | 0.5 | 0.517571189 | 1.115435 | | | | | | | |
| 335 | 5.846853 | 1.2566371 | -0.42262 | 0.7313537 | 1 | 0.2 | 0.5 | 0.548363441 | 1.045632 | | | | | | | |
| 340 | 5.9341195 | 1.2566371 | -0.34202 | 0.78801075 | 1 | 0.2 | 0.5 | 0.58319871 | 0.977005 | | | | | | | |
| 345 | 6.0213859 | 1.2566371 | -0.25882 | 0.83867057 | 1 | 0.2 | 0.5 | 0.622606689 | 0.910074 | | | | | | | |
| 350 | 6.1086524 | 1.2566371 | -0.17365 | 0.88294759 | 1 | 0.2 | 0.5 | 0.667182155 | 0.84535 | | | | | | | |
| 355 | 6.1959188 | 1.2566371 | -0.08716 | 0.92050485 | 1 | 0.2 | 0.5 | 0.717581472 | 0.783325 | | | | | | | |
| 360 | 6.2831853 | 1.2566371 | -2.4E-16 | 0.95105652 | 1 | 0.2 | 0.5 | 0.774510303 | 0.724472 | | | | | | | |



對照組κ=1 χ =0.1 τ =0.3